## CONTENTS

### CHAPTER 1
EAP Authentication Configuration Mode Commands  
- eap-aka 2  
- eap-gtc 3  
- eap-md5 4  
- end 5  
- exit 6  

### CHAPTER 2
EAP Configuration Mode Commands  
- end 8  
- exit 9  
- max-retry 10  
- mode 11  

### CHAPTER 3
EAP Mode Configuration Mode Commands  
- end 14  
- exit 15  
- method 16  

### CHAPTER 4
EDR Format Configuration Mode Commands  
- attribute 18  
- delimiter 31  
- end 32  
- event-label 33  
- exit 34  
- rule-variable 35  

### CHAPTER 5
EDR Module Configuration Mode Commands  
- cdr 46
CHAPTER 6  eGTP Service Configuration Mode Commands  59
  associate  60
  collision-handling  62
  end  64
  exit  65
  gtpc  66
  interface-type  72
  pool  74
  validation-mode  76

CHAPTER 7  EIR Profile Configuration Mode Commands  79
  check-imei-every-n-events  81
  end  82
  eir-address  83
  exit  85
  include-imsi  86
  map-include-imsi  87

CHAPTER 8  EPDG Service Configuration Mode Commands  89
  aaa  91
  allow  92
  associate  93
  bind  95
  data-buffering  96
  dns-pgw  97
  end  99
  exit  100
  fqdn  101
  ip  102
  max-sessions  104
  mobile-access-gateway  105
<table>
<thead>
<tr>
<th>Newcall</th>
<th>106</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pdn-type</td>
<td>107</td>
</tr>
<tr>
<td>Pgw-selection</td>
<td>108</td>
</tr>
<tr>
<td>Plmn</td>
<td>109</td>
</tr>
<tr>
<td>Setup-timeout</td>
<td>110</td>
</tr>
<tr>
<td>Subscriber</td>
<td>111</td>
</tr>
<tr>
<td>Threshold</td>
<td>112</td>
</tr>
<tr>
<td>Username</td>
<td>114</td>
</tr>
<tr>
<td>Vendor-specific-attr</td>
<td>116</td>
</tr>
</tbody>
</table>

### Chapter 9

**Ethernet Interface Configuration Mode Commands**

- bfd 121
- Crypto-map 123
- Description 124
- End 125
- Exit 126
- Ip access-group 127
- Ip address 128
- Ip igmp profile 129
- Ip mtu 130
- Ip ospf authentication-key 131
- Ip ospf authentication-type 132
- Ip ospf bfd 133
- Ip ospf cost 134
- Ip ospf dead-interval 135
- Ip ospf hello-interval 136
- Ip ospf message-digest-key 137
- Ip ospf network 138
- Ip ospf priority 139
- Ip ospf retransmit-interval 140
- Ip ospf transmit-delay 141
- Ipv6 access-group 142
- Ipv6 address 144
- Ipv6 ospf 145
- Ipv6 router advertisement 147
CHAPTER 10 Ethernet Port Configuration Mode Commands 157

bind interface 159
boxertap 160
description 161
default 162
exit 163
fault-unidirect-mode 164
flow-control 165
ingress-mode 166
link-aggregation 167
media 171
medium 172
preferred slot 174
shutdown 176
snmp trap link-status 177
srp virtual-mac-address 178
threshold high-activity 179
threshold monitoring 181
threshold rx-utilization 183
threshold tx-utilization 185
vlan 187

CHAPTER 11 Exec Mode Commands (A-C) 189

aaa test 196
abort 198
active-charging service 199
alarm 201
aps 202
autoconfirm 204
bulkstats force 205
call-home send 206
call-home test 207
card busy-out 208
card halt 210
card migrate 212
card reboot 213
card restart 215
card switch 217
card upgrade 219
cdr-push 221
class 222
clear aaa 224
clear active-charging analyzer statistics 225
clear active-charging charging-action statistics 236
clear active-charging content-filtering server-group statistics 237
clear active-charging credit-control statistics 238
clear active-charging dns-learnt-ip-addresses 239
clear active-charging edr-format statistics 240
clear active-charging edr-udr-file statistics 241
clear active-charging firewall statistics 242
clear active-charging firewall track-list 244
clear active-charging fw-and-nat policy statistics 245
clear active-charging group-of-ruledefs statistics 246
clear active-charging nat statistics 247
clear active-charging regex statistics 248
clear active-charging rulebase statistics 249
clear active-charging ruledef statistics 250
clear active-charging subsystem 252
clear active-charging tcp-proxy statistics 253
clear active-charging tethering-detection statistics 255
clear active-charging tpo policy statistics 256
clear active-charging tpo profile statistics 257
clear active-charging url-blacklisting statistics 258
clear active-charging video detailed-statistics 259
clear administrator 260
clear alarm 261
clear alcap 262
clear asngw-service 263
clear asnpe-service 264
clear apn statistics 265
clear bcmcs statistics 267
clear blacklisted-gtpu-bind-address 268
clear bssap+ statistics 269
clear bssgp statistics 270
clear bulkstats 272
clear cae-group statistics server 273
clear call-home statistics 274
clear cdr statistics 275
clear cli history 276
clear cmp cert-name 277
clear cmp statistics 278
clear config 279
clear congestion-control statistics 280
clear content-filtering category statistics 282
clear crash 283
clear credit-control statistics 284
clear crypto 285
clear cs-network statistics 287
clear dhcp statistics 288
clear dhcpv6 statistics 290
clear diameter aaa-statistics 292
clear diameter route 294
clear diameter statistics 296
clear diameter-service 298
clear dns-client 300
clear dns-proxy statistics 302
clear dynamic-policy statistics 303
clear egtpc 305
clear event-notif statistics  308
clear event-record  309
clear firewall  310
clear fng-service statistics  311
clear gmb statistics  312
clear gmm-sm statistics  313
clear gprsns statistics  316
clear gprsssf statistics  318
clear gtpc statistics  320
clear gtpp statistics  322
clear gtpp storage-server local file statistics  323
clear gtpp storage-server statistics  324
clear gtpu statistics  325
clear hd-storage-policy  327
clear henbgw-access-service statistics  328
clear henbgw-network-service statistics  330
clear hnbgw sessions  332
clear hnbgw statistics  334
clear hsgw-service  336
clear hss-peer-service  337
clear ims-authorization  338
clear ims-sh-service statistics  339
clear ip access-group statistics  340
clear ip arp  341
clear ip bgp peer  342
clear ip localhosts  344
clear ip ospf process  345
clear ipne statistics  346
clear ipsg statistics  347
clear ipv6 neighbors  348
clear ipv6 ospf process  349
clear l2tp  350
clear lawful-intercept  352
clear lle statistics  353
clear lma-service statistics  354
clear local-policy 355
clear local-user 356
clear location-service 358
clear mag-service statistics 359
clear map statistics 360
clear maximum-temperatures 361
clear mipf statistics 362
clear miph statistics 363
clear mipv6 statistics 364
clear mipv6ha statistics 365
clear mme-service db record 366
clear mme-service db statistics 368
clear mme-service statistics 369
clear multicast-sessions 371
clear nat-ip 373
clear orbem statistics 375
clear pcc-policy service statistics 376
clear pcc-policy session 377
clear pcc-sp-endpoint statistics 379
clear pdg-service statistics 380
clear pgw-service 381
clear port 382
clear ppp statistics 384
clear prepaid 3gpp2 statistics 386
clear prepaid wimax 388
clear ps-network statistics 389
clear qos npu stats 390
clear radius accounting archive 391
clear radius counters 393
clear rlf-context-statistics 395
clear rohc statistics 397
clear rp service-option 398
clear rp statistics 399
clear rsvp statistics 400
clear saegw-service 401
clear samog-service statistics 402
clear sbc statistics 403
clear sccp statistics 405
clear session disconnect-reasons 407
clear session-event-record statistics 408
clear session setuptime 409
clear session subsystem 410
clear sgsn-fast-path statistics 411
clear sgsn-map-app 412
clear sgsn rlf-context-statistics 413
clear sgs-service 415
clear sgtpc statistics 416
clear sgtpu statistics 417
clear sgw-service statistics 419
clear sls-service statistics 420
clear sms statistics 422
clear sncep statistics 423
clear snmp trap 424
clear srp 425
clear ss7-routing-domain 426
clear subscribers 428
clear super-charger 445
clear supplementary-service statistics 446
clear task resources 447
clear tcap statistics 452
clear wsg-service statistics 453
cli 454
clock set 456
cmp enroll current-cert 458
cmp fetch cert-name 460
cmp initialize 461
cmp poll 463
cmp update 464
commandguard 466
configure 467
CHAPTER 12

Exec Mode Commands (D-S) 479

debug bfd 484
debug ip 486
debug ip bgp 488
debug ip ospf all 490
debug ip ospf event 491
debug ip ospf ism 493
debug ip ospf lsa 495
debug ip ospf nsm 497
debug ip ospf packet 499
debug ip ospf route 501
debug ip ospf router 503
debug ipv6 ospf all 504
debug ipv6 ospf event 505
debug ipv6 ospf ifsm 507
debug ipv6 ospf lsa 509
debug ipv6 ospf nsm 511
debug ipv6 ospf packet 512
debug ipv6 ospf route 514
default terminal 516
delete 517
delete support record 519
dhcp force 520
dhcp test 522
diameter disable endpoint 524
diameter enable endpoint 525
diameter reset connection 526
mme paging cache clear 598
mme relocate-ue imsi 599
mme reset 601
monitor interface 602
monitor protocol 603
monitor subscriber 607
newcall policy 611
password change 617
patch plugin 619
ping 621
ping6 623
port switch to 625
ppp echo-test 626
radius interim accounting now 628
radius test 629
reload 631
rename 632
reset active-charging 634
reset alcap-service 635
reset diameter 636
reset ims-authorization 637
reveal disabled commands 638
rlogin 639
rmdir 640
rollback module 642
rotate-hd-file 643
save configuration 644
save logs 647
session trace 659
session trace random 664
session trace signaling 667
setup 669
sgs offload 670
sgs vlr-failure 672
sgs vlr-recover 674
sgsn clear-congestion 676
sgsn clear-detached-subscriptions 677
sgsn imsimgr 678
sgsn offload 680
sgsn op 683
sgsn retry-unavailable-ggsn 688
sgsn trigger-congestion 689
sgtpc test echo sgsn-address 690
shutdown 691
sleep 692
srp initiate-audit 693
srp initiate-switchover 694
srp reset-auth-probe-fail 696
srp reset-diameter-fail 697
srp terminate-post-process 698
srp validate-configuration 699
srp validate-switchover 700
ssh 701
start crypto security-association 702
statistics-collection 703
system 705

CHAPTER 13

Exec Mode Commands (T-Z) 707
tcpdump kernel 709
telnet 710
telnet6 711
terminal 712
test alarm 713
test ggsn vapn 714
test ipcf bindmux 715
test ipsec tunnel ip-pool 716
test mobile tunnel 717
timestamps 719	traceroute 720
traceroute6 722
update active-charging 724
update firewall policy 728
update ip access-list 729
update ipv6 access-list 731
update local-user database 733
update module 734
update qos policy map 735
update qos tft 737
upgrade 738
upgrade content-filtering 741
upgrade tethering-detection 743
upgrade url-blacklisting database 745

CHAPTER 14

Exec Mode show Commands (A-C) 747

show aaa 752
show active-charging analyzer statistics 754
show active-charging bandwidth-policy 765
show active-charging charging-action 766
show active-charging content-filtering category policy-id 768
show active-charging content-filtering category statistics 769
show active-charging content-filtering server-group 771
show active-charging credit-control 773
show active-charging dns-learnt-ip-addresses 775
show active-charging edr-format 777
show active-charging edr-udr-file 779
show active-charging file-space-usage 781
show active-charging firewall dos-protection 782
show active-charging firewall statistics 784
show active-charging firewall track-list 786
show active-charging flow-control-counters 787
show active-charging flow-mappings 788
show active-charging flows 790
show active-charging fw-and-nat policy 806
show active-charging group-of-objects 808
show active-charging group-of-prefixed-urls 810
show active-charging group-of-ruledefs 812
show active-charging nat statistics 814
show active-charging p2p-dynamic-rules 816
show active-charging packet-filter 817
show active-charging pep-service 819
show active-charging qos-group-of-ruledefs 821
show active-charging regex 823
show active-charging rulebase 825
show active-charging ruledef 827
show active-charging service 829
show active-charging sessions 830
show active-charging sessions credit-control server-unreachable 845
show active-charging subscribers 858
show active-charging subsystem 860
show active-charging tcp-proxy statistics 862
show active-charging tethering-detection 864
show active-charging timedef 866
show active-charging udr-format 868
show active-charging url-blacklisting statistics 869
show active-charging video detailed-statistics 871
show active-charging xheader-format 872
show administrators 873
show alarm 874
show alcap counters 876
show alcap-service 878
show alcap statistics 880
show apn 882
show apn counters ip-allocation 884
show apn statistics 886
show apn-profile 888
show apn-remap-table 890
show aps 892
show asngw-service 894
show asngw-service session 896
show asngw-service session counters 898
show asngw-service statistics 900
show asnpc-service 902
show asnpc-service session 904
show asnpc-service session counters 906
show asnpc-service session counters verbose 908
show asnpc-service statistics 910
show asnpc-service statistics verbose 912
show banner 914
show bcmcs counters 916
show bcmcs statistics 917
show bfd 918
show boot 919
show bssap+ statistics 921
show bssgp statistics 923
show bssgp status 925
show bulkstats 927
show ca-certificate 932
show ca-crl 933
show cae-group server 934
show call-control-profile 935
show call-home 937
show camel-service 939
show card 941
show cbs counters 943
show cbs sessions 944
show cbs statistics 946
show cbs-service 948
show cdr 949
show certificate 951
show cgw-service 952
show cli 953
show clock 955
show cloud configuration 956
show cloud hardware 957
show cloud monitor 958
show cmp history 960
show cmp outstanding-req 961
show cmp statistics 962
show configuration 963
show configuration errors 967
show congestion-control 971
show connectedapps 974
show content-filtering category database 975
show content-filtering category policy-id 977
show content-filtering category statistics 979
show content-filtering category url 981
show content-filtering server-group 983
show context 985
show cpu 986
show crash 988
show credit-control sessions 989
show credit-control statistics 990
show crypto blacklist file 991
show crypto group 992
show crypto ikev1 994
show crypto ikev2-ikesa security-associations 996
show crypto ikev2-ikesa transform-set 998
show crypto ipsec security-associations 1000
show crypto ipsec transform-set 1003
show crypto isakmp keys 1005
show crypto isakmp policy 1006
show crypto isakmp security-associations 1007
show crypto managers 1008
show crypto map 1010
show crypto statistics 1012
show crypto template 1014
show crypto whitelist file 1016
show cs-network 1017
show cs-network counters 1019
show cs-network statistics 1021
CHAPTER 15

Exec Mode show Commands (D-G) 1027

show dhcp 1030
show dhcp-service 1033
show dhcpv6 1035
show dhcpv6-client-profile 1038
show dhcpv6-server-profile 1039
show dhcpv6-service 1040
show diameter-hdd-module 1041
show diameter aaa-statistics 1042
show diameter accounting servers aaa-group 1044
show diameter authentication servers aaa-group 1045
show diameter dynamic-dictionary 1046
show diameter endpoint 1048
show diameter endpoints 1049
show diameter message-queue 1051
show diameter peers 1053
show diameter proclet-map-memcache 1055
show diameter proclet-map-table 1057
show diameter route status 1058
show diameter route table 1060
show diameter statistics 1062
show diameter-service 1064
show dns-client 1066
show dynamic-policy statistics 1068
show egtpc peers 1070
show egtpc sessions 1073
show egtpc statistics 1075
show egtp-service 1078
show epdg-service 1080
show event-record 1083
show external-inline-servers 1084
show fa-service  1085
show fa-spi-list  1086
show fans  1087
show file  1088
show fng-service  1090
show fng-service session  1092
show fng-service statistics  1094
show freeze-ptmsi imsi  1096
show ggsn sessmgr  1097
show ggsn-service  1098
show ggsn-service sgsn-table  1099
show global-title-translation  1100
show gmb statistics  1101
show gmm-sm statistics  1102
show gprsns statistics  1105
show gprsns status  1107
show gprs-service  1109
show gprsssf  1111
show gs-service  1113
show gtpc  1115
show gtpc statistics  1117
show gtpp  1119
show gtpp accounting  1120
show gtpp counters  1122
show gtpp group  1124
show gtpp statistics  1126
show gtpp storage-server  1128
show gtpu  1130
show gtpu-service  1132

C H A P T E R  16

Exec Mode show Commands (H-L)  1133
show ha-service  1137
show ha-spi-list  1138
show hardware  1139
show hd raid  1141
show hd-storage-policy 1142
show hnbgw 1144
show hnbgw-access-service 1146
show hnbgw-network-service 1148
show hnbgw access-control-db 1150
show hnbgw counters 1152
show hnbgw-global 1154
show hnbgw-sessions 1155
show hnbgw statistics hnbgw-service 1158
show hnbgw statistics hnbid 1161
show hnbgw-service 1163
show hsgw-service 1164
show hss-peer-service 1166
show imei-profile 1168
show ims-authorization policy-control 1170
show ims-authorization policy-control misc-info 1172
show ims-authorization policy-gate 1174
show ims-authorization servers 1176
show ims-authorization service 1178
show ims-authorization sessions 1180
show inventory 1183
show ip access-group statistics 1184
show ip access-list 1185
show ip arp 1186
show ip as-path-access-list 1188
show ip bgp 1189
show ip framed-prefixes 1192
show ip igmp group 1193
show ip interface 1194
show ip ipsp 1196
show ip localhosts 1198
show ip ospf 1199
show ip policy-forward 1201
show ip pool 1202
show ip prefix-list 1205
show ip route 1207
show ip route-access-list 1209
show ip static-route 1210
show ip vrf 1211
show ip vrf-list 1212
show ipms status 1213
show ipne peers 1214
show ipsg service 1215
show ipsg sessions 1217
show ipsg statistics 1219
show ipv6 access-group statistics 1221
show ipv6 access-list 1222
show ipv6 interface 1223
show ipv6 neighbors 1225
show ipv6 ospf 1227
show ipv6 pool 1229
show ipv6 prefix-list 1231
show ipv6 route 1233
show ipv6 route-access-list 1234
show iups-service 1235
show l2tp sessions 1237
show l2tp statistics 1240
show l2tp tunnels 1242
show lac-service 1244
show lawful-intercept 1245
show lawful-intercept ssdf statistics 1246
show ldap connection all 1247
show leds 1248
show license information 1250
show linecard 1252
show link-aggregation 1254
show linkmgr 1256
show llc statistics 1257
show llc status 1258
show lma-service 1260
show lns-service 1263
show local-policy 1264
show local-user 1265
show location-service 1267
show logging 1269
show logical-port utilization table 1270
show logs 1271
show lte-policy 1282

CHAPTER 17

Exec Mode show Commands (M-P) 1287
show mag-service 1290
show map-service 1293
show map statistics 1294
show maximum-temperatures 1295
show mbms bearer-service 1296
show mipfa 1298
show mipha 1301
show mipv6ha 1304
show mme-embs-service 1306
show mme-hss session 1308
show mme-service 1310
show mme-service db record 1312
show mme-service db statistics 1314
show mme-service enodeb-association 1315
show mme-service id 1317
show mme-service session 1319
show mme-service statistics 1322
show module 1325
show mpls cross-connect 1326
show mpls ftm 1327
show mpls ilm 1328
show mpls ldp 1330
show mpls nexthop-label-forwarding-entry 1332
show mrme-service 1333
show mrme-service active-session 1334
show port 1390
show power 1392
show ppp 1394
show prepaid 3gpp2 1396
show prepaid wimax 1398
show profile-id-qci-mapping 1400
show ps-network 1401
show ps-network counters 1403
show ps-network statistics 1405

CHAPTER 18
Exec Mode show Commands (Q-S) 1407
show qci-qos-mapping 1410
show qos ip-dscp-iphb-mapping 1412
show qos l2-mapping-table 1413
show qos npu inter-subscriber traffic 1414
show qos npu stats 1415
show radius 1416
show radius charging servers 1418
show radius client 1420
show radius counters 1421
show rct stats 1423
show resources 1425
show rlf-context-statistics 1426
show rlf-memcache-statistics 1428
show rlf-template 1429
show rohc counters 1430
show rohc statistics 1432
show route-map 1434
show rp 1435
show rp service-option 1437
show rp statistics 1438
show rsvp counters 1440
show rsvp statistics 1441
show requirement pac daughtercard 1442
show s102-service 1443
show s4-sgsn statistics 1445
show saegw-service 1446
show samog-service 1448
show sbc-service 1449
show sbc statistics 1451
show sccp-network 1453
show sccp statistics 1455
show sctp-param-template 1457
show service all 1458
show session counters historical 1459
show session counters pcf-summary 1462
show session disconnect-reasons 1463
show session duration 1465
show session progress 1468
show session recovery status 1472
show session setuptime 1474
show session subsystem 1476
show session trace 1479
show session-event-record 1481
show sf 1482
show sgs-service 1483
show s4-sgsn statistics 1485
show sgsn fsm-statistics 1486
show sgsn sessmgr 1487
show sgsn-fast-path 1488
show sgsn-map-app 1490
show sgsn-mode 1491
show sgsn-operator-policy 1492
show sgsn-pool 1493
show sgsn-service 1494
show sgtp-service 1495
show sgtpc statistics 1497
show sgtpu statistics 1499
show sgw-service 1501
show sls-service 1503
show sms statistics 1505
show sndcp statistics 1507
show snmp 1509
show srp 1511
show ss7-routing-domain 1513
show ssh key 1516
show subscribers 1517
show subscribers samog-only 1566
show subscribers wsg-service 1567
show super-charger 1568
show supplementary-service statistics 1569
show support collection 1570
show support details 1571
show support record 1573
show system uptime 1575

CHAPTER 19

Exec Mode show Commands (T-Z) 1577
show tacacs 1578
show task 1580
show tcap statistics 1586
show temperature 1587
show terminal 1588
show threshold 1589
show timing 1590
show upgrade 1591
show url-blacklisting database 1592
show version 1594
show wsg-lookup 1596
show wsg-service 1597
show x2gw-service 1599

CHAPTER 20

FA Service Configuration Mode Commands 1601
advertise 1603
authentication aaa 1605
authentication mn-aaa 1606
authenticmn-ha  1608
bind  1609
challenge-window  1611
default subscriber  1612
dynamic-ha-assignment  1613
dynamic-mip-key-update  1615encapsulation allow gre  1616
end  1617
exit  1618
fa-ha-spi  1619
gre  1622
ha-monitor  1624
idle-timeout-mode  1626
ignore-mip-key-data  1627
ignore-stale-challenge  1628
ip local-port  1629
isakmp  1630
limit-reg-lifetime  1632
max-challenge-len  1634
mn-aaa-removal-indication  1635
multiple-reg  1636
optimize tunnel-reassembly  1637
private-address allow-no-reverse-tunnel  1638
proxy-mip  1639
reg-timeout  1642
reverse-tunnel  1643
revocation  1645
threshold reg-reply-error  1647

CHAPTER 21
FNG Service Configuration Mode Commands  1649
aaa aggregation  1650
aaa authentication  1652
bind  1653
default  1655
duplicate-session-detection  1657
CHAPTER 22 FTP Configuration Mode Commands 1663
end 1664
exit 1665
max servers 1666
timeout 1667

CHAPTER 23 Firewall-and-NAT Action Configuration Mode Commands 1669
end 1670
exit 1671
flow check-point 1672

CHAPTER 24 Firewall-and-NAT Policy Configuration Mode Commands 1675
access-rule 1677
end 1681
exit 1682
firewall dos-protection 1683
firewall flooding 1687
firewall icmp-checksum-error 1689
firewall icmp-destination-unreachable-message-threshold 1690
firewall icmp-echo-id-zero 1692
firewall icmp-fsm 1693
firewall ip-reassembly-failure 1694
firewall malformed-packets 1695
firewall max-ip-packet-size 1696
firewall mime-flood 1698
firewall policy 1700
firewall tcp-checksum-error 1702
firewall tcp-first-packet-non-syn 1703
firewall tcp-fsm 1704
firewall tcp-idle-timeout-action 1706
CHAPTER 25
Firewall-and-NAT Access Ruledef Configuration Mode Commands

bearer 3gpp apn
bearer 3gpp imsi
bearer username
create-log-record
end
exit
icmp any-match
icmp code
icmp type
icmpv6 any-match
icmpv6 code
icmpv6 type
ip any-match
ip downlink
ip dst-address
ip protocol
ip server-ip-address
ip server-ipv6-network-prefix
ip src-address
EAP Authentication Configuration Mode
Commands

The EAP Authentication Configuration Mode is used to configure the Extensible Authentication Protocol (EAP) authentication methods for the crypto template.

**Command Modes**

Exec > Global Configuration > Context Configuration > Crypto Template Configuration > EAP Authentication Configuration

```plaintext
configure > context context_name > crypto template template_name ikev2-dynamic > authentication eap-profile profile_name
```

Entering the above command sequence results in the following prompt:

```
(context_name) host_name(cfg-crypto-tmpl-ikev2-tunnel)#
```

**Important**

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

- eap-aka, page 2
- eap-gtc, page 3
- eap-md5, page 4
- end, page 5
- exit, page 6
eap-aka

Configures shared key values for the Extensible Authentication Protocol-Authentication and Key Agreement (EAP-AKA) authentication method used by subscribers using this crypto template.

Product

PDIF

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > Crypto Template Configuration > EAP Authentication Configuration

configure > context context_name > crypto template template_name ikev2-dynamic > authentication eap-profile profile_name

Entering the above command sequence results in the following prompt:

\( \text{context_name|host_name (cfg-crypto-tmpl-ikev2-tunnel)} # \)

Syntax Description

eap-aka \{ encrypted key hex | key hex \}

encrypted key hex

Specifies that the shared key is to be encrypted as a 16-character alphanumeric string or a hexadecimal number beginning with "0x".

key hex

Specifies that the shared key is to be transmitted in clear text as a 16-character alphanumeric string or a hexadecimal number beginning with "0x".

Usage Guidelines

Use this command to set shared key parameters for subscribers using the EAP-AKA authentication method.

Examples

The following command configures a clear-text shared key value for the EAP-AKA method:

eap-aka key aa1123344556677
**eap-gtc**

Configures shared key values for the EAP-GTC authentication method used by subscribers using this crypto template.

**Product**
- ASN-GW
- PDIF

**Privilege**
- Security Administrator, Administrator

**Command Modes**
- Exec > Global Configuration > Context Configuration > Crypto Template Configuration > EAP Authentication Configuration
- `configure > context context_name > crypto template template_name ikev2-dynamic > authentication eap-profile profile_name`

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(cfg-crypto-tmpl-ikev2-tunnel)#
```

**Syntax Description**
```
eap-gtc { encrypted key value | key value }
```

- **encrypted key value**
  Specifies that the shared key is to be encrypted as a 16-character alphanumeric string.

- **key value**
  Specifies that the shared key is to be transmitted in clear text as a 16-character alphanumeric string.

**Usage Guidelines**
Use this command to set shared key parameters for subscribers using the EAP-GTC authentication method.

**Examples**
The following command configures a clear-text shared key value for the EAP-GTC method:
```
eap-gtc key aa11223344556677
```
eap-md5

Configures shared key values for the EAP-MD5 authentication method used by subscribers using this crypto template.

**Product**

ASN-GW

PDIF

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > Crypto Template Configuration > EAP Authentication Configuration

configure > context context_name > crypto template template_name ikev2-dynamic > authentication eap-profile profile_name

Entering the above command sequence results in the following prompt:

{context_name}host_name(cfg-crypto-tmpl-ikev2-tunnel)#

**Syntax Description**

eap-md5 { encrypted key value | key value }

encrypted key value

Specifies that the shared key is to be encrypted as a 16-character alphanumeric string.

key value

Specifies that the shared key is to be transmitted in clear text as a 16-character alphanumeric string.

**Usage Guidelines**

Use this command to set shared key parameters for subscribers using the EAP-MD5 authentication method.

**Examples**

The following command configures a clear-text shared key value for the EAP-MD5 method:

eap-md5 key aa11223344556677
end

Exits the current configuration mode and returns to the Exec mode.

Product
All

Privilege
Security Administrator, Administrator

Syntax Description
end

Usage Guidelines
Use this command to return to the Exec mode.
exit

Exits the current mode and returns to the parent configuration mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

exit

Usage Guidelines

Use this command to return to the parent configuration mode.
EAP Configuration Mode Commands

The EAP Configuration Mode is used to configure parameters comprising an Extensible Authentication Protocol (EAP) used to support authentication on the system.

**Command Modes**

Exec > Global Configuration > Context Configuration > EAP Profile Configuration

configure > context context_name > eap-profile profile_name

Entering the above command sequence results in the following prompt:

```
[context_name] host_name (cfg-ctx-eap-profile) #
```

---

**Important**

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

- end, page 8
- exit, page 9
- max-retry, page 10
- mode, page 11
end

Exits the current configuration mode and returns to the Exec mode.

Product
All

Privilege
Security Administrator, Administrator

Syntax Description
end

Usage Guidelines
Use this command to return to the Exec mode.
**exit**

Exits the current mode and returns to the parent configuration mode.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Syntax Description**
exit

**Usage Guidelines**
Use this command to return to the parent configuration mode.
max-retry

Configures the maximum number of times the system will retry communicating with another EAP device.

**Product**

ASN-GW
PDIF

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > EAP Profile Configuration
configure > context context_name > eap-profile profile_name

Entering the above command sequence results in the following prompt:

`{context_name}host_name(cfg-ctx-eap-profile)#`

**Syntax Description**

max-retry num

default max-retry

max-retry num

Specifies the number of times to retry EAP communication with another device as an integer from 1 to 65535.
Default: 16

**Usage Guidelines**

Use this command to set a maximum retry number for communicating with other EAP devices.

**Examples**

The following command sets the maximum number of retries to 50:
`max-retry 50`
mode

Configures the system as one of three types of EAP devices: authenticator pass-through, authenticator server, or peer.

Product

ASN-GW
PDIF

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > EAP Profile Configuration

configure > context context_name > eap-profile profile_name

Entering the above command sequence results in the following prompt:

<context_name>host_name>(cfg-ctx-eap-profile)#

Syntax Description

mode { authenticator-pass-through | authenticator-server | peer }

default mode

default

Configures the default mode of Authenticator-pass-through.

authenticator-pass-through

Configures the system as an authenticator pass-through allowing EAP authentication to be performed by another server.

This is the default setting for this command.

authenticator-server

Configures the system as an authenticator server. This allows the system to respond to EAP requests.

peer

Configures the system as a peer device requiring it to make EAP requests of another server or pass-through device.

Usage Guidelines

Use this command to configure the system to perform as one of three types of EAP devices and configure settings in an EAP mode.
EAP Mode Configuration Mode commands are defined in the EAP Mode Configuration Mode Commands chapter.

**Examples**

The following command configures the system to perform as an authenticator pass-through:

```bash
mode authenticator-pass-through
```
EAP Mode Configuration Mode Commands

The EAP Mode Configuration Mode is used to configure the Extensible Authentication Protocol (EAP) authentication method supported by the system.

**Command Modes**

Exec > Global Configuration > Context Configuration > EAP Profile Configuration

```plaintext
configure > context context_name > eap-profile profile_name
```

Entering the above command sequence results in the following prompt:

```plaintext
[context_name] host_name (cfg-ctx-eap-profile) #
```

---

**Important**

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

- end, page 14
- exit, page 15
- method, page 16
end

Exits the current configuration mode and returns to the Exec mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

end

Usage Guidelines

Use this command to return to the Exec mode.
exit

Exits the current mode and returns to the parent configuration mode.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Syntax Description**
exit

**Usage Guidelines**
Use this command to return to the parent configuration mode.
**method**

Configures the EAP method used for authentication.

**Product**

ASN-GW

PDIF

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > EAP Profile Configuration

configure > context context_name > eap-profile profile_name

Entering the above command sequence results in the following prompt:

```
<context_name>host_name|cfg-ctx-eap-profile)#
```

**Syntax Description**

```
method { eap-aka | eap-gtc | eap-md5 } [ priority num ]
```

- **eap-aka | eap-gtc | eap-md5**
  
  Specifies one of the following methods:
  
  - **eap-aka**: Specifies that the EAP-AKA method is to be used for authentication.
  
  - **eap-gtc**: Specifies that the EAP-GTC method is to be used for authentication.
  
  - **eap-md5**: Specifies that the EAP-MD5 method is to be used for authentication.

- **priority num**

  Specifies a priority order for a specific EAP authentication method an integer from 1 though 65535.

**Usage Guidelines**

Use this command to specify the EAP authentication method(s) to use and to place multiple methods in priority order.

**Examples**

The following command sets EAP-AKA as one of the EAP authentication methods and places it as priority of 3:

```
method eap-aka priority 3
```
EDR Format Configuration Mode Commands

The EDR Format Configuration Mode enables configuring Event Data Record (EDR) formats.

**Command Modes**

Exec > ACS Configuration > EDR Format Configuration

```
active-charging service service_name > edr-format format_name
```

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-acs-edr)#
```

**Important**

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

- attribute, page 18
- delimiter, page 31
- end, page 32
- event-label, page 33
- exit, page 34
- rule-variable, page 35
attribute

This command allows you to specify the fields and their order in EDRs.

Product
All

Privilege
Security Administrator, Administrator

Command Modes
Exec > ACS Configuration > EDR Format Configuration
active-charging service service_name > edr-format format_name

Entering the above command sequence results in the following prompt:

[context_name]host_name(config-acs-edr)#

Syntax Description

no
If added previously, removes the specified attribute from the EDR format.

attribute

Specifies the attribute.

attribute must be one of the following:

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>bandwidth-policy</td>
<td>This attribute reports the bandwidth policy name of subscriber. Bandwidth policy can be configured or applied to subscriber by — • binding with APN (static) • binding with Rulebase (static) • receiving from AAA server (dynamic)</td>
</tr>
<tr>
<td></td>
<td>Important This attribute field is customer specific. For more information, contact your Cisco account representative.</td>
</tr>
<tr>
<td>Attributes</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>radius-called-station-id</strong></td>
<td>This attribute reports the Called Station ID of the mobile handling the flow.</td>
</tr>
<tr>
<td><strong>radius-calling-station-id</strong></td>
<td>This attribute reports the Calling Station ID of the mobile handling the flow.</td>
</tr>
<tr>
<td><strong>radius-fa-nas-identifier</strong></td>
<td>This attribute reports the RADIUS NAS identifier of Foreign Agent (FA).</td>
</tr>
<tr>
<td><strong>radius-fa-nas-ip-address</strong></td>
<td>This attribute reports the RADIUS IP address of Foreign Agent (FA).</td>
</tr>
<tr>
<td><strong>radius-nas-identifier</strong></td>
<td>This attribute reports the RADIUS NAS identifier.</td>
</tr>
<tr>
<td><strong>radius-nas-ip-address</strong></td>
<td>This attribute reports the RADIUS NAS IP address. Note that this attribute is interchangeable with <strong>sn-st16-ip-addr</strong> for the user.</td>
</tr>
<tr>
<td><strong>radius-user-name</strong></td>
<td>This attribute reports the user name associated with the flow.</td>
</tr>
<tr>
<td><strong>sn-3gpp2-always-on</strong></td>
<td>This option has been deprecated.</td>
</tr>
<tr>
<td></td>
<td>To configure this attribute see the <strong>rule-variable</strong>, on page 35 command.</td>
</tr>
<tr>
<td><strong>sn-3gpp2-bsid</strong></td>
<td>This option has been deprecated.</td>
</tr>
<tr>
<td></td>
<td>To configure this attribute see the <strong>rule-variable</strong>, on page 35 command.</td>
</tr>
<tr>
<td><strong>sn-3gpp2-esn</strong></td>
<td>This option has been deprecated.</td>
</tr>
<tr>
<td></td>
<td>To configure this attribute see the <strong>rule-variable</strong>, on page 35 command.</td>
</tr>
<tr>
<td><strong>sn-3gpp2-ip-qos</strong></td>
<td>This option has been deprecated.</td>
</tr>
<tr>
<td></td>
<td>To configure this attribute see the <strong>rule-variable</strong>, on page 35 command.</td>
</tr>
<tr>
<td><strong>sn-3gpp2-ip-technology</strong></td>
<td>This option has been deprecated.</td>
</tr>
<tr>
<td></td>
<td>To configure this attribute see the <strong>rule-variable</strong>, on page 35 command.</td>
</tr>
<tr>
<td><strong>sn-3gpp2-release-indicator</strong></td>
<td>This option has been deprecated.</td>
</tr>
<tr>
<td></td>
<td>To configure this attribute see the <strong>rule-variable</strong>, on page 35 command.</td>
</tr>
<tr>
<td>Attributes</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>sn-3gpp2-service-option</td>
<td>This option has been deprecated. To configure this attribute see the rule-variable, on page 35 command.</td>
</tr>
<tr>
<td>sn-3gpp2-session-begin</td>
<td>This option has been deprecated. To configure this attribute see the rule-variable, on page 35 command.</td>
</tr>
<tr>
<td>sn-3gpp2-session-continue</td>
<td>This option has been deprecated. To configure this attribute see the rule-variable, on page 35 command.</td>
</tr>
<tr>
<td>sn-acct-session-id</td>
<td>This attribute reports the unique session identifier for accounting.</td>
</tr>
<tr>
<td>Attributes</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>-------------</td>
</tr>
<tr>
<td>sn-app-protocol</td>
<td></td>
</tr>
<tr>
<td>Attributes</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>This attribute reports the application protocol for the flow. A value indicating the protocol, such as one of the following:</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO UNKNOWN = 0</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO GTP = 1</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO IP = 2</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO TCP = 3</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO UDP = 4</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO HTTP = 5</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO HTTPS = 6</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO FTP = 7</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO FTP_CONTROL = 8</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO FTP_DATA = 9</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO WTP = 10</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO WSP = 11</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO WTP_WSP_CONNECTION_ORIENTED = 12</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO WSP_CONNECTION_LESS = 13</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO DNS = 14</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO ICMP = 15</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO POP3 = 16</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO SIP = 17</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO SDP = 18</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO SMTP = 19</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO EMAIL = 20</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO MMS = 21</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO_FILE_TRANSFER = 22</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO WWW = 23</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO RTP = 24</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO RTSP = 25</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO IMAP = 26</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO FLOW = 27</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO_CCA = 28</td>
</tr>
<tr>
<td></td>
<td>• ACSPROTO_P2P = 29</td>
</tr>
<tr>
<td>Attributes</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>-------------</td>
</tr>
<tr>
<td></td>
<td>• ACS_PROTO_RTCP = 30</td>
</tr>
<tr>
<td></td>
<td>• ACS_PROTO_ICMPV6 = 31</td>
</tr>
<tr>
<td></td>
<td>• ACS_PROTO_TFTP = 32</td>
</tr>
<tr>
<td></td>
<td>• ACS_PROTO_PPTP = 33</td>
</tr>
<tr>
<td></td>
<td>• ACS_PROTO_GREv1 = 34</td>
</tr>
<tr>
<td></td>
<td>• ACS_PROTO_PPTP_GRE = 35</td>
</tr>
<tr>
<td></td>
<td>• ACS_PROTO_SIP_ADV = 36</td>
</tr>
<tr>
<td></td>
<td>• ACS_PROTO_SIP_BASIC_ADV = 37</td>
</tr>
<tr>
<td></td>
<td>• ACS_PROTO_H323 = 38</td>
</tr>
<tr>
<td></td>
<td>• ACS_PROTO_ESP = 39</td>
</tr>
<tr>
<td></td>
<td>• ACS_PROTO_AH = 40</td>
</tr>
<tr>
<td></td>
<td>• ACS_PROTO_RTSPSTREAM = 41</td>
</tr>
</tbody>
</table>

**sn-cf-category-classification-used**

For Category-based Content Filtering, this attribute reports the last classification used by system for the flow, or blank if classification was never successfully performed.

For URL Blacklisting, specifies category of the blacklisted URL in the Blacklist database.

**sn-cf-category-flow-action**

For Category-based Content Filtering, this attribute reports the last action taken for the flow, or blank if content filtering was never performed. The following are the possible values:

• allow
• content-insert
• discard
• redirect-url
• terminate-flow

For URL Blacklisting, this attribute reports the last action taken for the flow, or blank if Blacklist matching was never performed. The following are the possible values:

• discard
• terminate-flow
• redirect-url
• www-reply-code-terminate-flow
<table>
<thead>
<tr>
<th>Attributes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>sn-cf-category-policy</td>
<td>For Category-based Content Filtering, this attribute reports the category policy identifier that was used for the flow, or blank if content filtering was never attempted for the flow.</td>
</tr>
<tr>
<td>sn-cf-category-rating-type</td>
<td>For Category-based Content Filtering, this attribute reports the type, either &quot;static&quot; or &quot;dynamic&quot; that was last successfully performed for the flow, or blank if content filtering was never successful for the flow.</td>
</tr>
<tr>
<td></td>
<td>For URL Blacklisting, specifies &quot;blacklisting&quot;.</td>
</tr>
<tr>
<td>sn-cf-category-unknown-url</td>
<td>This attribute reports the identifier for unknown URL under content filtering action. It holds either &quot;1&quot; for unknown URLs or &quot;0&quot; for the URLs having static rating in its database.</td>
</tr>
<tr>
<td>sn-charge-volume</td>
<td>This attribute reports the total charge volume excluding bytes/packets dropped/retransmitted by ECS.</td>
</tr>
<tr>
<td></td>
<td>This behavior can be changed by configuring to allow dropped/retransmitted bytes/packets to be included in the net volume. See the edr sn-charge-volume command in the ACS Rulebase Configuration Mode Commands chapter.</td>
</tr>
<tr>
<td>sn-charging-action</td>
<td>This attribute reports the name of last charging action matched against flow.</td>
</tr>
<tr>
<td></td>
<td><strong>Important</strong> This attribute configuration currently supports only static and predefined rules and ruledefs. It will NOT be supported for dynamic rules installed by PCRF.</td>
</tr>
<tr>
<td>Attributes</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>sn-closure-reason</td>
<td>This attribute reports the reason for termination of the flow/EDR:</td>
</tr>
<tr>
<td></td>
<td>• 0: Normal end of flow</td>
</tr>
<tr>
<td></td>
<td>• 1: End of flow by handoff processing</td>
</tr>
<tr>
<td></td>
<td>• 2: Subscriber session terminated</td>
</tr>
<tr>
<td></td>
<td>• 3: Inter-chassis Session Recovery switchover</td>
</tr>
<tr>
<td></td>
<td>• 12: Completion of transaction</td>
</tr>
<tr>
<td></td>
<td>• 13: End of VoIP call event This is supported only in release 12.2.</td>
</tr>
<tr>
<td></td>
<td>• 14: End of VoIP call event This is supported in 14.0 and later releases. 16: ACS_EDR_OCS_REACHABLE</td>
</tr>
<tr>
<td></td>
<td>• 17: ACS_EDR_OCS_UNREACHABLE</td>
</tr>
<tr>
<td></td>
<td>• 18: ACS_EDR_INTERIM_VOLUME_EXHAUST</td>
</tr>
<tr>
<td></td>
<td>• 19: ACS_EDR_INTERIM_TIME_EXHAUST</td>
</tr>
<tr>
<td></td>
<td>• 20: ACS_EDR_OCS_STATUS_UNKNOWN</td>
</tr>
<tr>
<td>sn-correlation-id</td>
<td>This attribute reports the RADIUS correlation identifier.</td>
</tr>
<tr>
<td>sn-direction</td>
<td>This attribute reports the direction of the first packet for the flow. It has following values:</td>
</tr>
<tr>
<td></td>
<td>• toMobile: This value appears when direction of first packet is towards mobile node.</td>
</tr>
<tr>
<td></td>
<td>• fromMobile: This value appears when direction of first packet is towards mobile node.</td>
</tr>
<tr>
<td></td>
<td>• unknown: This value appears when the original originator of a flow can not be determined (for example, a flow that is interrupted due to a Inter-chassis Session Recovery switchover).</td>
</tr>
<tr>
<td>sn-duration</td>
<td>This attribute reports the duration between the last and first packet for the record.</td>
</tr>
<tr>
<td>sn-end-time [ format format ] localtime</td>
<td>This attribute reports the timestamp for last packet of flow in UTC.</td>
</tr>
<tr>
<td>sn-fa-correlation-id</td>
<td>This attribute reports the RADIUS Correlation Identifier of the Foreign Agent (FA).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>sn-fa-ip-address</td>
<td>This attribute reports IP address of the Foreign Agent (FA).</td>
</tr>
<tr>
<td>sn-filler-blank</td>
<td>This attribute inserts a blank filler field, generates an empty EDR field.</td>
</tr>
<tr>
<td>sn-filler-zero</td>
<td>This attribute inserts a &quot;0&quot; in the EDR field.</td>
</tr>
<tr>
<td>sn-flow-end-time</td>
<td>This attribute reports the time of flow-end EDR generation—when EDRs are generated at hagr, session-end, timeout, or normal-end-signaling conditions. <strong>sn-start-time</strong> and <strong>sn-end-time</strong> fields of flow end-condition EDRs cannot be used to determine the duration of the flow if intermediate EDRs are generated (rule-match or transaction-complete or any other intermediate EDR). <strong>sn-start-time</strong> field in an EDR gives the time the first packet was received after the last EDR was generated. So, whenever an EDR is generated, this field is reset to the time the EDR gets generated. So the <strong>sn-start-time</strong> field in flow end-condition EDRs may not have the time of the first packet received on that flow. It will have the time at which the last EDR was generated or the first packet time if no EDR was generated for that flow. <strong>sn-end-time</strong> field gives the time at which the last packet on the flow was received. Flow end-condition EDRs may not be generated immediately after receiving the last packet. For example, in case of session-end or timeout EDRs, last packet time and EDR generation time may be different. <strong>sn-flow-start-time</strong> gives the time of the first packet of the flow (irrespective of whether intermediate EDRs were generated), and <strong>sn-flow-end-time</strong> gives the time when EDRs are generated at hagr, session-end, timeout or normal-end-signaling conditions. The values of these fields will be populated in EDRs only for hagr, session-end, timeout and normal-end-signaling EDRs.</td>
</tr>
<tr>
<td>sn-flow-id</td>
<td>This attribute reports the flow-id assigned internally by the ECS module to each flow.</td>
</tr>
<tr>
<td>sn-flow-start-time</td>
<td>This attribute reports the time of the first packet of the flow (irrespective of whether intermediate EDRs were generated). Also see <strong>sn-flow-end-time</strong>.</td>
</tr>
<tr>
<td>sn-format-name</td>
<td>This attribute reports the name of the EDR/UDR format used.</td>
</tr>
<tr>
<td>sn-group-id</td>
<td>This attribute reports the sequence group ID of the record.</td>
</tr>
<tr>
<td>sn-ha-ip-address</td>
<td>This attribute reports IP address of the Home Agent (HA).</td>
</tr>
<tr>
<td>Attributes</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>sn-ip-protocol-name</td>
<td>This attribute reports the IP protocol name for the flow. For IANA registered IP Protocol (Layer 4 Protocol) name, like TCP, UDP, AH, ESP, ICMP, etc.</td>
</tr>
<tr>
<td>sn-nat-binding-timer</td>
<td>For Network Address Translation (NAT) in-line service, this attribute reports the port chunk hold timer.</td>
</tr>
<tr>
<td>sn-nat-gmt-offset</td>
<td>For NAT in-line service, this attribute reports the GMT offset of the node generating NAT bind record.</td>
</tr>
<tr>
<td>sn-nat-ip</td>
<td>For NAT in-line service, this attribute reports the NAT IP address of the port chunk.</td>
</tr>
<tr>
<td>sn-nat-last-activity-time-gmt</td>
<td>For NAT in-line service, this attribute reports the time when the last flow in a specific NAT set of flows was seen.</td>
</tr>
<tr>
<td>sn-nat-no-port-packet-dropped</td>
<td>For NAT in-line service, this attribute reports the number of packets dropped because of no NAT IP/port.</td>
</tr>
<tr>
<td>sn-nat-port-block-end</td>
<td>For NAT in-line service, this attribute reports the last port number of the port chunk.</td>
</tr>
<tr>
<td>sn-nat-port-block-start</td>
<td>For NAT in-line service, this attribute reports the starting port number of the port chunk.</td>
</tr>
<tr>
<td>sn-nat-port-chunk-alloc-dealloc-flag</td>
<td>For NAT in-line service, this attribute reports whether the port chunk is allocated or released.</td>
</tr>
<tr>
<td>sn-nat-port-chunk-alloc-time-gmt</td>
<td>For NAT in-line service, this attribute reports when the port chunk was allocated.</td>
</tr>
<tr>
<td>sn-nat-port-chunk-dealloc-time-gmt</td>
<td>For NAT in-line service, this attribute reports when the port chunk was released.</td>
</tr>
<tr>
<td>sn-nat-realm-name</td>
<td>For NAT in-line service, this attribute reports the name of the NAT realm.</td>
</tr>
<tr>
<td>sn-nat-subscribers-per-ip-address</td>
<td>For NAT in-line service, this attribute reports the subscriber(s) per NAT IP address.</td>
</tr>
<tr>
<td>sn-nemo-vrf-name</td>
<td>This attribute indicates the VRF name associated with UE behind the Network Mobility Services (NEMO) Mobile Router (MR).</td>
</tr>
<tr>
<td></td>
<td>Important This is a customer-specific attribute, and is available only with NEMO license.</td>
</tr>
<tr>
<td>Attributes</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>sn-ocs-server-reachable</td>
<td>This attribute indicates the state of the OCS server. This attribute supports the following values:</td>
</tr>
<tr>
<td></td>
<td>• OCS_SERVER_NOT_APPLICABLE = 0</td>
</tr>
<tr>
<td></td>
<td>• OCS_SERVER_UNREACHABLE = 0 + 1</td>
</tr>
<tr>
<td></td>
<td>• OCS_SERVER_REACHABLE = 0 + 2</td>
</tr>
<tr>
<td>sn-parent-protocol</td>
<td>This attribute reports the parent protocol of the flow. An integer value like in <code>sn-app-protocol</code>; for RTCP/RTP flows, the parent protocol may be RTSP or SIP; for GRE flows, the parent protocol will be PPTP, and so on.</td>
</tr>
<tr>
<td>sn-port-service-name</td>
<td>This attribute reports the registered name for the server port. For IANA registered/Well Known Transport Port name mapping for the Server Port like SSL, HTTP, DNS, FTP, TELNET, SSH, Diablo, Rainbox six, UnReal_UT etc. This port service name mapping is done based on the Server port, which means if the flow is &quot;FromMobile&quot;, the sn-server-port is mapped as the service name port. If the flow is &quot;ToMobile&quot;, the sn-subscriber-port is mapped as the service name.</td>
</tr>
<tr>
<td>sn-rulebase</td>
<td>This attribute reports the name of the ECS rulebase applied.</td>
</tr>
<tr>
<td>sn-rating-group</td>
<td>This attribute reports the rating group corresponding to last charging action matched.</td>
</tr>
<tr>
<td></td>
<td><strong>Important</strong> This attribute configuration currently supports only static and predefined rules and ruledefs. It will NOT be supported for dynamic rules installed by PCRF.</td>
</tr>
<tr>
<td>sn-sequence-no</td>
<td>This attribute reports the unique sequence number (per <code>sn-sequence-group</code> and <code>radius-nas-ip-address</code>) of EDR identifier and linearly increasing in EDR file.</td>
</tr>
<tr>
<td>sn-server-port</td>
<td>This attribute reports the TCP/UDP port number of the server in a subscriber's data flow.</td>
</tr>
<tr>
<td>sn-service-id</td>
<td>This attribute reports the Service ID corresponding to last charging action matched.</td>
</tr>
<tr>
<td></td>
<td><strong>Important</strong> This attribute configuration currently supports only static and predefined rules and ruledefs. It will NOT be supported for dynamic rules installed by PCRF.</td>
</tr>
<tr>
<td>sn-st16-ip-addr</td>
<td>This attribute reports the IP address of the chassis handling this flow.</td>
</tr>
<tr>
<td></td>
<td><strong>Important</strong> Note that this attribute is interchangeable with <code>radius-nas-ip-address</code> for other systems.</td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------</td>
</tr>
<tr>
<td>sn-start-time [ format format ] localtime</td>
<td>This attribute reports the timestamp for last packet of flow in UTC.</td>
</tr>
<tr>
<td>sn-subscriber-imsi</td>
<td>This attribute reports the IMSI number of the subscriber.</td>
</tr>
<tr>
<td>sn-subscriber-nat-flow-ip</td>
<td>For NAT in-line service, this attribute reports the NAT IP address of NAT-enabled subscriber.</td>
</tr>
<tr>
<td>sn-subscriber-nat-flow-port</td>
<td>For NAT in-line service, this attribute reports the NAT port number of NAT-enabled subscriber.</td>
</tr>
<tr>
<td>sn-subscriber-port</td>
<td>This attribute reports the TCP/UDP port number of the Mobile handling subscriber data flow.</td>
</tr>
<tr>
<td>sn-volume-amt { ip</td>
<td>tcp } { bytes</td>
</tr>
<tr>
<td>sn-volume-dropped-amt { ip</td>
<td>tcp } { bytes</td>
</tr>
<tr>
<td>sn-volume-ip-with-rtsp-or-rtp bytes { downlink</td>
<td>priority</td>
</tr>
<tr>
<td>sn-vrf-name</td>
<td>This attribute indicates the VRF name associated with the base session of NEMO.</td>
</tr>
<tr>
<td>subscriber-ipv4-address</td>
<td>For NAT in-line service, this attribute generates the subscriber IPv4 address in the NBR.</td>
</tr>
<tr>
<td>subscriber-ipv6-address</td>
<td>For NAT in-line service, this attribute generates the subscriber IPv6 prefix in the NBR.</td>
</tr>
<tr>
<td>transaction-downlink-bytes</td>
<td>This attribute reports the total downlink bytes for the transaction.</td>
</tr>
<tr>
<td>transaction-downlink-packets</td>
<td>This attribute reports the total downlink packets for the transaction.</td>
</tr>
<tr>
<td>transaction-uplink-bytes</td>
<td>This attribute reports the total uplink bytes for the transaction.</td>
</tr>
<tr>
<td>transaction-uplink-packets</td>
<td>This attribute reports the total uplink packets for the transaction.</td>
</tr>
</tbody>
</table>

Specifies the timestamp format.

In releases prior to 18.0, the current timestamps available in the EDR format configuration allow recording of time information only up to seconds level. In 18.0 and later releases, new timestamp formats are added to allow recording of time information up to milliseconds granularity.

This feature enables to record timestamps of the events at finer granularity. The timestamps will be populated according to the selected timestamp format whenever any of the predefined events/event triggers for generating EDRs is encountered.

localtime

Specifies timestamps with the local time. By default, timestamps are displayed in GMT/UTC.

\{ip | tcp \} \{bytes | pkts \} \{downlink | uplink \}

Specifies bytes/packets sent/received from/by mobile.

priority priority

Specifies the position priority of the value within the EDR record. Lower numbered priorities (across all attribute, event-label, and rule-variable) occur first.

priority must be an integer from 1 through 65535. Up to 50 position priorities (across all attribute, event-label, and rule-variable) can be configured.

Usage Guidelines

Use this command to set the attributes and priority for EDR file format.

A particular field in EDR format can be entered multiple times at different priorities. While removing the EDR field using the no attribute command either you can remove all occurrences of a particular field by specifying the field name or a single occurrence by additionally specifying the optional priority keyword.

Examples

The following is an example of this command:
attribute radius-user-name priority 12
This command allows you to configure a comma or a tab as a delimiter character for EDRs.

**Product**

All

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > ACS Configuration > EDR Format Configuration

`active-charging service service_name > edr-format format_name`

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-acs-edr)#`

**Syntax Description**

`delimiter { comma | tab }`

`no delimiter`

This `no` variant reverts back to the default configuration. By default, comma is used as the delimiter for EDRs.

`comma`

This keyword allows you to specify comma as an EDR delimiter. Comma is the default configuration.

`tab`

This keyword allows you to specify tab as an EDR delimiter.

**Usage Guidelines**

Use this command to configure either comma or tab as the delimiter between EDR fields.

The comma character is currently used as the delimiter between EDR fields. But comma is a valid character for URLs. Thus when a EDR URL contains a comma, the downstream parser encounters issues.

Hence, this feature has been developed to allow TAB as an additional character to be used as the delimiter in the EDR file. For backward compatibility reasons, this CLI configuration is introduced to choose the delimiter character between both comma and TAB.

**Examples**

The following example specifies tab as the delimiter configuration for EDRs:

`delimiter tab`
**end**

Exits the current configuration mode and returns to the Exec mode.

**Product**

All

**Privilege**

Security Administrator, Administrator

**Syntax Description**

end

**Usage Guidelines**

Use this command to return to the Exec mode.
event-label

This command allows you to specify an optional event label/identifier to be used as an attribute in the EDRs.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > ACS Configuration > EDR Format Configuration

```
active-charging service service_name > edr-format format_name
```

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-acs-edr)#
```

**Syntax Description**

- `event-label event_label priority priority`
- `no event-label`

**no**
If previously configured, removes the event label configuration.

- `event_label`
Specifies the event label/identifier to be used as EDR attribute.

- `event_label` must be an alphanumeric string of 1 through 63 characters.

- `priority priority`
Specifies the Comma Separated Value (CSV) position of the attribute (label/identifier) in the EDR.

- `priority` must be an integer from 1 through 65535.

**Usage Guidelines**
Use this command to configure an optional event label/identifier as an attribute in the EDR and its position in the EDR.

**Examples**
The following is an example of this command:
```
event-label radius_csv1 priority 23
```
exit

Exits the current mode and returns to the parent configuration mode.

Product
All

Privilege
Security Administrator, Administrator

Syntax Description
exit

Usage Guidelines
Use this command to return to the parent configuration mode.
rule-variable

This command allows you to specify fields and their order in EDRs.

Product
All

Privilege
Security Administrator, Administrator

Command Modes
Exec > ACS Configuration > EDR Format Configuration
active-charging service service_name > edr-format format_name

Entering the above command sequence results in the following prompt:
[context_name]host_name(config-acs-edr)#

Syntax Description
rule-variable rule_variable priority priority | in-quotes |
no rule-variable rule_variable | priority priority |

no
If previously configured, removes the specified rule variable configuration.

rule_variable
Specifies the rule variable for the EDR format.
rule_variable must be one of the following options:

• bearer 3gpp: 3GPP bearer-related fields:
  • charging-id: Charging ID of the bearer flow
  • imei: IMEI or IMEISV (depending on the case) associated with the bearer flow. Only available in StarOS 8.1 and later releases.
  • imsi: Specific Mobile Station Identification number.
  • pcrf-correlation-id: PCRF correlation ID of the bearer flow sent by Gx interface.
  • rat-type: RAT type associated with the bearer flow. Only available in StarOS 8.1 and later releases.
  • sgsn-address: SGSN associated with the bearer flow. Only available in StarOS 8.1 and later releases. For MIPv6 calls, sgsn-address field is populated with HSGW address.
  • user-location-information: User location information associated with the bearer flow. Only available in StarOS 8.1 and later releases.
• **bearer 3gpp2**: 3GPP2 bearer-related fields:
  * **always-on**: 3GPP2 always on indicator
  * **bsid**: 3GPP2 BSID
  * **esn**: 3GPP2 ESN
  * **ip-qos**: 3GPP2 IP QoS
  * **ip-technology**: 3GPP2 IP technology
  * **release-indicator**: 3GPP2 release indicator
  * **service-option**: 3GPP2 service option
  * **session-begin**: 3GPP2 session begin indicator
  * **session-continue**: 3GPP2 session continue indicator

• **bearer ggsn-address**: GGSN IP address field. For MIPv6 calls, ggsn-address field in EDR will be populated with PGW address.

• **bearer qci**: QCI of the bearer corresponding to the flow for which the EDR is getting generated.

• **dns**: Domain Name System (DNS) related fields:
  * **answer-name**: DNS answer name. This depends upon query type.
  * **previous-state**: DNS previous state information
  * **query-name**: DNS query name
  * **return-code**: DNS query response code
  * **state**: DNS current state information
  * **tid**: DNS Transaction Identifier

• **file-transfer**: File Transfer related fields:
  * **chunk-number**: Number of chunks
  * **current-chunk-length**: Length of current chunk
  * **declared-chunk-length**: Declared size of the chunk
  * **declared-file-size**: Declared size of the file
  * **filename**: Name of the file being transferred
  * **previous-state**: Previous state of session
  * **state**: Current state of session
  * **transferred-file-size**: Transferred size of the file

• **flow**: Flow related fields:
  * **ip-control-param**: First 8 bytes of IPv6 header is inserted in EDRs.
  * **tethered**: Tethering detected on flow. Enables/disables tethering detection result field in EDRs sent to MUR.
• **tethered-ip-ttl**: IP-TTL based tethering detected on flow.
• **ttl**: Time To Live/Max hops value received in the first packet of the flow.

• **ftp**: File Transfer Protocol (FTP) related fields:
  • **client-ip-address**:
  • **client-port**
  • **command name**: Command sent
  • **connection-type**
  • **filename**: File name being transferred in any of the FTP-related FTP command
  • **pdu-length**: FTP PDU length
  • **pdu-type**
  • **previous-state**: Previous state of FTP session
  • **reply code**
  • **server-ip-address**
  • **server-port**
  • **session-length**: Total length of FTP session
  • **state**: Current state of FTP session
  • **url**: URL of file
  • **user**: User identifier

• **http**: Hypertext Transport Protocol (HTTP) related fields:
  • **accept**: Content types that are acceptable for the response
  • **attribute-in-data**: Dynamic header field in application payload
  • **attribute-in-url**: Dynamic header field in URL
  • **content disposition**
  • **content length**
  • **content type**
  • **cookie**: HTTP cookie header
  • **domain**
  • **header-length**: HTTP header length
  • **host**
  • **payload-length**: Payload length
  • **pdu-length**
  • **previous-state**: Previous state of session
  • **referer**
* reply code: HTTP response
* request method: HTTP request method
* session-length: Total length of HTTP session
* state: Current state of session
* transaction-length: Total length of HTTP transaction
* transfer-encoding: Transfer encoding
* uri: Uniform Resource Identifier

- **length size**: This optional filter allows the user to configure the HTTP URL length from 1 to 4095. The EDR rule-variable "HTPP URL" supports the maximum length of 4095. That is, any URL greater than the maximum length is truncated and then written to EDR.

  In 17.0 and later releases: The length of HTTP URL is from 1 to 4095.
  In 15.0 and 16.0 releases: The length of HTTP URL is from 1 to 255.
  In releases prior to 15.0: The length of HTTP URL is from 1 to 127.

* user-agent

- **length size**: This optional filter allows the user to configure the HTTP User-Agent length from 1 to 255. In releases prior to 15.0, the EDR rule-variable "HTPP User-Agent" supports the maximum length of 127. That is, any user-agent greater than 127 is truncated and then written to EDR.

* version

- **x-header**: extension header

- **ad-delivered, ad-replaced, compression-bytes-in, compression-bytes-out, dns-resolution-locally, dns-resolution-remotely, tpo-enabled**

---

**Important**
The Traffic Performance Optimization (TPO) in-line service is not supported in this release.

---

* icmp: Internet Control Message Protocol (ICMP) related fields:

- **code**: ICMP code
- **type**: ICMP type

* icmpv6: Internet Control Message Protocol Version 6 (ICMPv6) related fields:

- **code**: ICMPv6 code
- **type**: ICMPv6 type

* imap: Internet Message Access Protocol (IMAP) related fields:
• **cc**: IMAP e-mail CC field
• **command**: IMAP command
• **content**
• **date**: IMAP e-mail Date field
• **final-reply**: IMAP final reply
• **from**: IMAP e-mail From field
• **mail-size**: IMAP size of e-mail in RFC822 format
• **mailbox-size**: IMAP number of e-mails in the mailbox
• **message-type**: IMAP message type
• **previous-state**: IMAP session previous state
• **session-length**: IMAP session length
• **session-previous-state**: IMAP session previous state
• **session-state**: IMAP session state
• **state**: IMAP state
• **subject**: IMAP e-mail Subject field
• **to**: IMAP e-mail To field

• **ip**: Internet Protocol (IP) related fields:
  • **dst-address**: destination IP address
  • **protocol**: Protocol being transported by IP packet
  • **server-ip-address**: IP address of server. This field in EDR contains either the IPv4 or IPv6 address of the server for a particular flow (flow level). The maximum length of this field is 48 characters. For an IPv6 address, the maximum length is 45 characters; for an IPv4 address, the maximum length is 15 characters.
  • **src-address**: Source IP address
  • **subscriber-ip-address**: IP address of subscriber. This field in EDR contains either the IPv4 or IPv6 address of the client/subscriber for a particular call (subscriber level). The value of this field does not change for a particular call. The maximum length of this field is 48 characters. For an IPv6 address, the maximum length is 45 characters. For an IPv4 address, the maximum length is 15 characters.
  • **total-length**: Total length of packet, including payload
  • **version**: IP version

• **mms**: Multimedia Message Service (MMS) related fields:
  • **bcc**
  • **cc**
  • **content location**
* content type
* date [ format { MM/DD/YYYY-HH:MM:SS | YYY/MM/DD-HH:MM:SS } ]
* from
* message-size
* previous-state
* response status
* state
* subject
* tid
* to

• **p2p**: Peer-to-peer protocol related fields:
  - **duration**: P2P protocol duration
  - **protocol**: P2P protocol
  - **protocol-group**: Associated protocol group of the specific P2P protocol/application

• **pop3**: Post Office Protocol version 3 (POP3) related fields:
  - **command name**: Command of POP3 session
  - **mail-size**: Mail size
  - **pdu-length**: Length of POP3 PDU
  - **pdu-type**: Type of packet
  - **previous-state**: Previous state of POP3 session
  - **reply status**: Reply for the POP3 command
  - **session-length**: Total length of POP3 session
  - **state**: Current state of POP3 session
  - **user-name**: User of POP3 session

• **rtcp**: RTP Control Protocol (RTCP) related fields:
  - **control-session-flow-id**: Flow ID of the controlling RTSP/SIP session
  - **jitter**: RTCP interarrival jitter
  - **rtsp-id**: RTSP ID of the RTCP flow
  - **uri**: URI of the control protocol related to the RTCP flow

• **rtp**: Real-time Transfer Protocol (RTP) related fields:
  - **control-session-flow-id**: Flow ID of the controlling RTSP/SIP session
  - **pdu-length**: Length of RTP PDU
• **rtsp:** Real Time Streaming Protocol (RTSP) related fields:
  - **command-id:** RTSP command ID
  - **content type**
  - **date:** RTSP Date field
  - **previous-state:** RTSP previous state
  - **reply code**
  - **request method 1:** play method
  - **request method 2:** setup method
  - **request method 3:** pause method
  - **request method 4:** record method
  - **request method 5:** options method
  - **request method 6:** redirect method
  - **request method 7:** describe method
  - **request method 8:** announce method
  - **request method 9:** teardown method
  - **request method 10:** get-parameter method
  - **request method 11:** set-parameter method
  - **request packet**
  - **rtp-uri:** RTSP RTP-Infostream-uri field
  - **session-id:** RTSP session-id field
  - **session-length:** Total number of bytes passed through the RTSP data session
  - **state:** RTSP state
  - **uri:** RTSP uri field
  - **uri sub-part**
  - **user-agent:** RTSP user-agent field

• **sdp:** Session Description Protocol (SDP) related fields:
  - **connection-ip-address:** IP address in SDP connection field
  - **media-audio-port:** Port used for audio media
  - **media-video-port:** Port used for video media
• **secure-http**: HTTPS related field.

• **sip**: Session Initiation Protocol (SIP) related fields:
  * **call-id**: SIP call-id field
  * **content type**
  * **from**: SIP From field
  * **previous-state**: SIP previous state
  * **reply code**
  * **request method**
  * **request packet**
  * **state**: SIP state
  * **to**: SIP To field
  * **uri**: SIP URI field
  * **uri sub-part**

• **smtp**: Simple Mail Transfer Protocol (SMTP) related fields:
  * **command name**: Command of SMTP session
  * **mail-size**: Size of given mail
  * **pdu-length**: Length of SMTP PDU
  * **previous-state**: Previous state of SMTP session
  * **recipient**: SMTP e-mail Recipient field
  * **reply status**: Response for the SMTP command
  * **sender**: SMTP e-mail Sender field
  * **session-length**: Total length of SMTP session
  * **state**: Current state of SMTP session

• **tcp**: Transmission Control Protocol (TCP) related fields:
  * **dst-port**: TCP destination port
  * **duplicate**: TCP retransmitted/duplicate packet
  * **flag**: Current packet TCP flag
  * **os-signature**: OS signature string for IPv4 TCP flow. Enables/disables OS Signature field in EDRs sent to MUR.
  * **out-of-order**: TCP out of order packet analyzed
  * **payload-length**: TCP payload length
  * **previous-state**: Previous state of MS
  * **src-port**: TCP source port
- **state**: Current state of MS
- **tpo-enabled**

| Important | The Traffic Performance Optimization (TPO) in-line service is not supported in this release. |

- **syn-control-params**: 8 bytes following the TCP Acknowledgement in the TCP SYN packet displayed as hexadecimal string of characters.
- **syn-options**: All TCP options received in the TCP SYN packet displayed as hexadecimal string of characters.
- **syn-seq**: The absolute 4 byte value of the sequence number received in the TCP SYN packet displayed as decimal value.
- **v6-os-signature**: OS signature string for IPv6 TCP flow. Enables/disables OS Signature field in EDRs sent to MUR.

- **tls sni**: TLS/SSL SNI field (SNI rule variable configured for TLS/SSL flows in EDR).
- **traffic-type**: Traffic type of flow (voice or non-voice depending upon flow type).
- **udp**: User Datagram Protocol (UDP) related fields:
  - **dst-port**: UDP destination port
  - **src-port**: UDP source port

- **voip-duration**: Duration of voice call, in seconds. For a flow in which voice call end is detected, output will be a non-zero value. For other flows it will be zero.
  This is no longer supported for P2P in 14.0 and later releases.
- **wsp**: Wireless Session Protocol (WSP) related fields:
  - **content type**
  - **domain**: WSP domain name
  - **host**: WSP host name
  - **pdu-length**: WSP PDU length
  - **pdu-type**: WSP PDU type
  - **reply code**
  - **session-length**: WSP total packet length
  - **tid**: WSP transaction identifier
  - **total-length**: WSP total packet length
  - **url**: WSP URL
  - **user-agent**: WSP user agent

- **wtp**: Wireless Transaction Protocol (WTP) related fields:
• gtr: Group Transmission Flag
• pdu-length: PDU length of the WTP packet
• pdu-type: WTP protocol data unit information
• previous-state: WTP previous state information
• state: WTP current state information
• tid: WTP transaction identifier
• transaction class: WTP transaction class
• ttr: WTP Trailer Transmission flag

Important
For more information on protocol-based rules, see the ACS RuleDef Configuration Mode Commands chapter.

priority priority
Specifies the CSV position of the field (protocol rule) in the EDR.
priority must be an integer from 1 through 65535.

in-quotes
Specifies placing double quotes (" ") around the specified field in the EDR.

Important
In this release, this keyword is only valid for the MMS protocol to and subject fields. rule-variable mms to priority priority [in-quotes] rule-variable mms subject priority priority [in-quotes]

Usage Guidelines
Use this command to specify what field appears in which order in the EDR.
A particular field in an EDR format can be entered multiple times with different priorities. While removing the EDR field using the no rule-variable command you can remove all occurrences of a particular field by specifying the field name or a single occurrence by additionally specifying the optional priority keyword.

Examples
The following is an example of this command:
rule-variable tcp dst-port priority 36
EDR Module Configuration Mode Commands

The EDR Module Configuration Mode allows you to configure Event Data Record (EDR) file transfer parameters.

Command Modes

Exec > Global Configuration > Context Configuration > EDR Module Configuration

configure > context context_name > edr-module active-charging-service

Entering the above command sequence results in the following prompt:

\[(context_name)host_name(config-edr)#

Important

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

- cdr, page 46
- end, page 51
- exit, page 52
- file, page 53
cdr

This command allows you to configure EDR/UDR file transfer parameters.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > EDR Module Configuration

configure > context context_name > edr-module active-charging-service

Entering the above command sequence results in the following prompt:

{context_name}host_name(config-edr)#

Syntax Description

cdr { purge { storage-limit storage_limit | time-limit time_limit } | max-files max_records_to_purge | push-interval push_interval | push-trigger space-usage-percent trigger_percentage | remove-file-after-transfer | transfer-mode { pull | module-only } | push primary { encrypted-url encrypted_url | url url } | max-files max_records | max-tasks task_num | module-only | secondary { encrypted-secondary-url encrypted_secondary_url | secondary-url secondary_url } } | via local-context | use-harddisk | default cdr | purge | push-interval | push-trigger space-usage-percent | remove-file-after-transfer | transfer-mode | module-only | push via | use-harddisk | +

no cdr | purge | remove-file-after-transfer | use-harddisk | +

default

Configures the default setting for the specified keyword(s):

- **purge**: Disabled
- **push-interval**: 300 seconds
- **push-trigger**: 80 percent
- **remove-file-after-transfer**: Disabled
- **transfer mode**: Pull
- **push via**: LC is used for push
- **use-harddisk**: Disabled
The `use-harddisk` keyword is available only on the ASR 5000 and ASR 5500 chassis.

**no**

If previously configured, disables the specified configuration:

- **purge**: Disables purging of records.
- **remove-file-after-transfer**: Retains a copy of the file even after it has been pushed or pulled to another server.
- **use-harddisk**: Disables data storage on the ASR 5000 SMC hard disk or ASR 5500 hard disk array.

---

**purge** `{ storage-limit storage_limit | time-limit time_limit } | max-files max_records_to_purge }

Specifies to purge/delete the EDR records based on "time" or "volume" limit.

When the configured threshold limit is reached on the hard disk drive, the records that are created dynamically in the `/mnt/hd-raid/data/records/` directory are automatically deleted. Files that are manually created should be deleted manually.

- **storage-limit storage_limit**: Specifies to start deleting files when the specified megabytes of space is used for storage. `storage_limit` specifies the volume limit for the record files, in megabytes, and must be an integer from 10 through 143360.
- **time-limit time_limit**: Specifies to start deleting files older than the specified time limit. `time_limit` specifies the time limit for the record files, and must be an integer from 600 through 2592000.
- **max-files max_records_to_purge**: Specifies the maximum number of records to purge.

`max_records_to_purge` can be 0, or an integer from 1000 through 10000. If the value is set to 0, during each cycle, the records will be deleted until the purge condition is satisfied. If the value is set between 1000 and 10000, during each cycle, the records will be deleted until either the purge condition is satisfied or the number of records deleted equals the configured `max-files` value.

Default: 0

**push-interval push_interval**

Specifies the transfer interval (in seconds) to push EDR and UDR files to an external file server.

`push_interval` must be an integer from 60 through 3600.

Default: 300

**push-trigger space-usage-percent trigger_percentage**

Specifies the EDR/UDR disk space utilization percentage, upon reaching which an automatic push is triggered and files are transferred to the configured external server.
**trigger_percentage** specifies the EDR/UDR disk utilization percentage for triggering push, and must be an integer from 10 through 80.

Default: 80

**remove-file-after-transfer**

Specifies that the system must delete EDR/UDR files after they are transferred to the external file server.

Default: Disabled

**transfer-mode** { pull | module-only } | push primary { encrypted-url encrypted_url | url url } | [ max-files max_records | max-tasks task_num | module-only | secondary { encrypted-secondary-url encrypted_secondary_url | secondary-url secondary_url } | via local-context | + }

Specifies the EDR/UDR file transfer mode—how the EDR and UDR files are transferred to an external file server.

- **pull**: Specifies that the L-ESS (for ASR 5000) or external server (for ASR 5500) is to pull the EDR files.

- **push**: Specifies that the system is to push EDR files to the configured L-ESS (for ASR 5000) or external server (for ASR 5500).

- **max-files max_records**: Specifies the maximum number of files sent per iteration based on configured file size.

  Default: 4000

- **max-tasks task_num**: Specifies the maximum number of tasks (child processes) that will be spawned to push the files to the remote server. The *task_num* must be an integer from 4 through 8.

  Default: 4

---

**Important**

Note that increasing the number of child processes will improve the record transfer rate. However, spawning more child will consume additional resource. So, this option needs to be used with proper resource analysis.

- **module-only**: Specifies that the transfer-mode is only applicable to the EDR module; if not configured it is applicable to both EDR and UDR modules. This enables to support individual record transfer-mode configuration for each module.

- **primary encrypted-url encrypted_url**: Specifies the primary URL location in encrypted format to which the system pushes the EDR files.

  *encrypted_url* must be the location in an encrypted format, and must be an alphanumeric string of 1 through 1024 characters.

- **primary url url**: Specifies the primary URL location to which the system pushes the EDR files.

  *url* must be the location, and must be an alphanumeric string of 1 through 1024 characters in the "//user:password@host:[port]/directory" format.

- **secondary encrypted-secondary-url encrypted_secondary_url**: Specifies the secondary URL location in encrypted format to which the system pushes the EDR files when the primary location is unreachable or fails.

  *encrypted_secondary_url* must be the secondary location in an encrypted format, and must be an alphanumeric string of 1 through 1024 characters in the "//user:password@host:[port]/directory" format.
• **secondary-url** *secondary-url*: Specifies the secondary location to which the system pushes the EDR files when the primary location is unreachable or fails.

*secondary-url* must be the secondary location, and must be an alphanumeric string of 1 through 1024 characters in the "//user:password@host:[port]/directory" format.

• **via local-context**: Configuration to select LC/SPIO for transfer of EDRs. The system pushes the EDR files via SPIO in the local context.

**use-harddisk**

**Important**  
The **use-harddisk** keyword is available only on the ASR 5000 and ASR 5500 chassis.

**ASR 5000**: Specifies that on the ASR 5000 chassis the hard disk on the SMC be used to store EDR/UDR files. On configuring to use the hard disk for EDR/UDR storage, EDR/UDR files are transferred from packet processing cards to the hard disk on the SMC. Default: Disabled

**ASR 5500**: Specifies that on the ASR 5500 chassis the hard disk the FSC hard disk array be used to store EDR/UDR files. On configuring to use the hard disk for EDR/UDR storage, EDR/UDR files are transferred from DPCs to the hard disk array. Default: Disabled

**+**

Indicates that multiple keywords can be specified in a single command entry. When the "+" appears in the syntax, any of the keywords that appear prior to the "+" can be entered in any order.

**Usage Guidelines**

Use this command to configure how the EDRs are moved and stored.

On the ST16 chassis, run this command only from the context where the EDR/UDR module is configured. Running this command in any other context will fail and deliver an error message.

On the ASR 5000 or ASR 5500 chassis, you must run this command only from the local context. If you run this command in any other context it will fail and result in an error message.

If PUSH transfer mode is configured, the L-ESS (for ASR 5000) or external server (for ASR 5500) URL to which the EDR files need to be transferred to must be specified. The configuration allows a primary and a secondary server to be configured. Configuring the secondary server is optional. Whenever a file transfer to the primary server fails for four consecutive times, the files will be transferred to the secondary server. The transfer will switch back to the original primary server when:

- Four consecutive transfer failures to the secondary server occur.
- After switching from the primary server, 30 minutes elapses.

When changing the transfer-mode from pull to push, disable the PULL from the L-ESS (for ASR 5000) or external server (for ASR 5500) and then change the transfer mode to push. Make sure that the push server URL configured is accessible from the local context. Also, make sure that the base directory that is mentioned contains udr directory created within it.

When changing the transfer mode from push to pull, after changing, enable PULL on the L-ESS (for ASR 5000) or external server (for ASR 5500). Any of the ongoing PUSH activity will continue till all the scheduled file transfers are completed. If there is no PUSH activity going on at the time of this configuration change, all the PUSH related configuration is nullified immediately.
The `cdr use-harddisk` command is available only on the ASR 5000 and ASR 5500 chassis. This command can be run only in a context where CDRMOD is running. Configuring in any other context will result in failure with the message "Failure: Please Check if CDRMOD is running in this context or not."

The `cdr use-harddisk` command can be configured either in the EDR or UDR module, but will be applicable to both record types. Configuring in one of the modules will prevent the configuration to be applied in the other module. Any change to this configuration must be done in the module in which it was configured, the change will be applied to both record types.

The VPNMgr can send a maximum of 4000 files to the remote server per iteration. However if the individual file size is big (say when compression is not enabled), then while transferring 4000 files SFTP operation takes a lot of time. To prevent this, the `cdr transfer-mode push` command can be configured with the keyword `max-files`, which allows operators to configure the maximum number of files sent per iteration based on configured file size.

**Examples**

The following command retains a copy of the data file after it has been transferred to the storage location:

```
no cdr remove-file-after-transfer
```
**end**

Exits the current configuration mode and returns to the Exec mode.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Syntax Description**
`end`

**Usage Guidelines**
Use this command to return to the Exec mode.
exit

Exits the current mode and returns to the parent configuration mode.

Product
- All

Privilege
- Security Administrator, Administrator

Syntax Description
- exit

Usage Guidelines
Use this command to return to the parent configuration mode.
file

This command allows you to configure EDR file parameters.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > EDR Module Configuration

configure > context context_name > edr-module active-charging-service

Entering the above command sequence results in the following prompt:

[context_name]host_name(config-edr)#

Syntax Description

file [charging-service-name {include | omit}] [compression {gzip | none}] [current-prefix string] [delete-timeout seconds] [directory directory_name] [edr-format-name] [exclude-checksum-record] [field-separator {hyphen | omit | underscore}] [file-sequence-number rulebase-seq-num] [headers] [name file_name] [reset-indicator] [rotation num-records number] [tariff-time minute minute_value hour hour_value] [time-stamp {expanded-format | rotated-format | unix-format}] [trailing-text string] [trap-on-file-delete] [unique-seq-num] [xor-final-record]

default file [charging-service-name] [compression] [current-prefix] [delete-timeout] [directory] [edr-format-name] [field-separator] [file-sequence-number] [headers] [name] [reset-indicator] [rotation num-records] [tariff-time] [time] [volume] [sequence-number] [storage-limit] [time-stamp] [trailing-text] [unique-seq-num]

default

Configures the default setting for the specified keyword(s).

charging-service-name {include | omit}

Specifies to include/exclude name of the charging service in the file name.

• include: Include name of the charging service in the EDR file name.

• omit: Exclude name of the charging service in EDR file name.

compression {gzip | none}

Specifies compression of EDR files.
• **gzip**: Enables GNU zip compression of the EDR file at approximately 10:1 ratio.

• **none**: Disables Gzip compression.

**current-prefix string**
Specifies a string to add to the beginning of the EDR file that is currently being used to store EDR records.  

*string* must be an alphanumeric string of 1 through 31 characters.

Default: **curr**

**delete-timeout seconds**
Specifies a timeout period (in seconds) when completed EDR files are deleted. By default, files are never deleted.

*seconds* must be an integer from 3600 through 31536000.

Default: Disabled

**directory directory_name**
Specifies a subdirectory in the default directory in which to store EDR files.

*directory_name* must be an alphanumeric string of 1 through 191 characters.

Default: **/records/edr**

**edr-format-name**
Specifies creation of separate files for EDRs that have different formats. Name of the EDR format is included in the file name.

**exclude-checksum-record**
When entered, this keyword excludes the final record containing #CHECKSUM followed by the 32-bit Cyclic redundancy check (CRC) of all preceding records from the EDR file.

Default: Disabled (inserts checksum record into the EDR file header)

**field-separator [hyphen | omit | underscore]**
Specifies the field inclusion/exclusion type of separators between two fields of EDR file name:

- **hyphen**: Specifies to use ".-" (hyphen) as the field separator.

- **omit**: Excludes the field separator.

- **underscore**: Specifies to use "._" (underscore) as the field separator.

**file-sequence-number rulebase-seq-num**
Specifies that the file name sequence numbers must be unique per rulebase and EDR format name combination.

**headers**
Includes a file header summarizing the record layout.
name file_name

Specifies a string to be used as the base file name for EDR files.

Default: edr

file_name must be an alphanumeric string of 1 through 31 characters. The file name format is as follows:

base_rulebase_format_sequencenum_timestamp

- **base**: Specifies the type of record in file or contains the operator-specified string.
  
  Default: edr

- **rulebase**: Specifies the name of the ACS rulebase. EDRs from different rulebases go into different EDR files.

- **format**: Specifies the name of the EDR format if single-edr-format is specified, else the format field (and the trailing underscore) is omitted from the file name.

- **sequencenum**: This is a 5-digit sequence number to detect the missing file sequence. It is unique among all EDR files on the system.

- **timestamp**: Contains a timestamp based on file creation time in UTC time in MMDDYYYYHHMMSS format.

EDR files that have not been closed have a string added to the beginning of their filenames.

Filename for an EDR file in CSV format that contains information for rulebase named `rulebase1` and an EDR schema named `edr_schema1` appears as follows:

`edr_rulebase1_edr_schema1_00005_01302006143409`

If the file name is not configured the system will create files for EDRs/UDRs/FDRs(xDRs) using the following template with limits to 256 characters:

`basename_ChargSvcName_timestamp_SeqNumResetIndicator_FileSeqNumber`

- **basename**: A global-based configurable text string that is unique per system that uniquely identifies the global location of the system running ACS.

- **ChargSvcName**: A system context-based configurable text string that uniquely identifies a specific context-based charging service

- **timestamp**: Date and time at the instance of file creation. Date and time in the form of "MMDDYYYYHHmmSS" where HH is a 24-hour value from 00-23

- **SeqNumResetIndicator**: A one-byte counter used to discern the potential for duplicated FileSeqNumber with a range of 0 to 255, which is incremented by a value of 1 for the following conditions:

  - Failure of an ACS software process on an individual PAC/PSC.
  - Failure of the system such that a second system takes over. For example, a backup or standby system put in place according to Interchassis Session Recovery.
  - File Sequence Number (FileSeqNumber) rollover from 999999999 to 0

- **FileSeqNumber**: Unique file sequence number for the file with 9 digit integer having range from 000000000 to 999999999. It is unique on each system.
File name for a closed xDR file in CSV format that contains information for ACS system \texttt{xyz\_city1} and charging service name \texttt{prepaid2} with timestamp \texttt{12311969190000}, and file sequence number counter reset indicator to \texttt{002} for file sequence number \texttt{034939002} appears as follows:

\texttt{xyz\_city1\_prepaid2\_12311969190000\_002\_034939002}

File name for a running xDR file, not closed, in CSV format that contains information for the same parameters for file sequence number \texttt{034939003} prefixed with \texttt{curr\_} and appears as follows:

\texttt{curr\_xyz\_city1\_prepaid2\_12311969190000\_002\_034939002}

---

**Important**

When the "rulebase name" and "edr-format-name" options are enabled through this \texttt{file} command, if the "field-separator" value is "underscore" (default value) then, in the filename, the fields Rulebase name and EDR format name will be separated by "hyphen". If the "field-separator" value is "hyphen" then, in the filename, the fields Rulebase name and EDR format name will be separated by "underscore". This will ensure that the number of the fields in the filename is not increased and does not affect the backend billing system.

---

**reset-indicator**

Specifies inclusion of the reset indicator counter value, from 0 through 255, in the EDR file name, and is incremented (by one) whenever any of the following conditions occur:

- An ACSMgr/SessMgr process fails.
- A peer chassis has taken over in compliance with our Interchassis Session Recovery feature.
- The sequence number, see the \texttt{sequence-number} keyword, has rolled over to zero.

**rotation** \{ \texttt{num-records number} \mid \texttt{tariff-time minute minute_value hour hour_value} \mid \texttt{time seconds} \mid \texttt{volume bytes} \}

Specifies when to close an EDR file and create a new one.

- **num-records number**: Specifies the number of records that should be added to the file. When the number of records in the file reaches the specified value, the file is complete.  
  \begin{itemize}  
  \item number must be an integer from 100 through 1024.  
  \item Default: 1024  
  \end{itemize}

- **time seconds**: Specifies the period of time (in seconds) to wait before closing the EDR file and creating a new one.  
  \begin{itemize}  
  \item seconds must be an integer from 30 through 86400.  
  \item Default: 3600  
  \end{itemize}

- **tariff-time minute minute_value hour hour_value**: Specifies the time of day (hour and minute) at which the files are rotated once per day.  
  \begin{itemize}  
  \item minute_value is an integer value from "0" up to "59".  
  \item hour_value is an integer value from "0" up to "23".  
  \end{itemize}
The options **time** and **tariff-time** are mutually exclusive and only any one of them can be configured. Other file rotation options can be used with either of them.

**volume bytes**: Specifies the maximum size (in bytes) of the EDR file before closing it and creating a new one.

*bytes* must be an integer from 51200 through 62914560.

Note that a higher setting may improve the compression ratio when the compression keyword is set to gzip.

**sequence-number** \{ **length length** | **omit** | **padded** | **padded-six-length** | **unpadded** \}

Specifies including/excluding sequence number in the file name.

- **length length**: Includes the sequence number with the specified length.

  *length* must be the length of the file sequence number, with preceding zeroes, in the file name, and must be an integer from 1 through 9.

**Important**

The **length** keyword is applicable in both EDR and UDR modules. When applied in both modules without the **file udr-seq-num** configuration, the minimum among the two values will come into effect for both the modules. With the **file udr-seq-num** keyword, each module will use its own value of length.

- **omit**: Excludes the sequence number from the file name.

- **padded**: Includes the padded sequence number with preceding zeros in the file name. This is the default setting.

- **padded-six-length**: Includes the padded sequence number with six preceding zeros in the file name.

- **unpadded**: Includes the unpadded sequence number in the file name.

**single-edr-format**

Creates separate files for EDRs having different formats.

Default: Disabled

**storage-limit limit**

Specifies deleting files when the specified amount of space (in bytes) is used up for EDR/UDR file storage RAM on packet processing cards.

**ST16**: *limit* must be an integer from 10485760 through 268435456. Default: 33554432

**Important**

The total storage limit is 268435456 bytes (256 MB). This limit is for both UDR and EDR files combined.

**ASR 5000 and ASR 5500**: *limit* must be an integer from 10485760 through 536870912. Default: 33554432
The total storage limit is 536870912 bytes (512 MB). This limit is for both UDR and EDR files combined.

```
time-stamp { expanded-format | rotated-format | unix-format }
```

Specifies the timestamp of when the file was created be included in the file name.

- **expanded-format**: Specifies the UTC MMDDYYYYHHMMSS format.
- **rotated-format**: Specifies the timestamp format to YYYYMMDDHHMMSS format.
- **unix-format**: Specifies the UNIX format of \( x.y \), where \( x \) is the number of seconds since 1/1/1970 and \( y \) is the fractional portion of the current second that has elapsed.

```
trailing-text string
```

Specifies the inclusion of an arbitrary text string in the file name.

*string* must be an alphanumeric string of 1 through 30 characters.

```
trap-on-file-delete
```

Instructs the system to send an SNMP notification (starCDRFileRemoved) when an EDR/UDR file is deleted due to lack of space.

Default: Disabled

```
unique-seq-num
```

Specifies that the file sequence numbers that are part of the EDR file names be independently generated. If disabled, a single set of sequence numbers are shared by both UDR and EDR files.

Default: Disabled

```
xor-final-record
```

Specifies inserting an XOR checksum (in place of the CRC checksum) into the EDR file header if the *exclude-checksum-record* is left at its default setting.

Default: Disabled

```
+
```

Indicates that multiple keywords can be specified in a single command entry. When the "+" appears in the syntax, any of the keywords that appear prior to the "+" can be entered in any order.

**Usage Guidelines**

Use this command to configure EDR file characteristics.

**Examples**

The following command sets the prefix of the current active EDR file to *Current*:

```
file current-prefix Current
```

The following command sets the base file name to *EDRfile*:

```
file name EDRfile
```
eGTP Service Configuration Mode Commands

The eGTP Service Configuration Mode is used to create and manage Evolved GPRS Tunneling Protocol (eGTP) interface types and associated parameters.

Command Modes

Exec > Global Configuration > Context Configuration > eGTP Service Configuration

configure > context context_name > egtp-service service_name

Entering the above command sequence results in the following prompt:

{context_name'}host_name'(config-egtp-service)#

Important

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

- associate, page 60
- collision-handling, page 62
- end, page 64
- exit, page 65
- gtpc, page 66
- interface-type, page 72
- pool, page 74
- validation-mode, page 76
**associate**

Configures an association with a GTP-U service where parameters are applied to the GTP-U data flow. For an SGSN being configured for S4 functionality, this command associates a configured GTP-U service that will enable communication with the SGW over the S4 interface.

**Product**
- ePDG
- P-GW
- SAEGW
- SGSN
- SaMOG

**Important**
For StarOS releases prior to 16, the ePDG and SGSN are only supported on the ASR 5500 platform.

**Privilege**
Administrator

**Command Modes**

- Exec > Global Configuration > Context Configuration > eGTP Service Configuration

  `configure > context context_name > egtp-service service_name`

  Entering the above command sequence results in the following prompt:

  `{context_name}@host_name(config-egtp-service)#`

**Syntax Description**

- `associate gtpu-service name`
- `no associate gtpu-service`

**no**
Removes the association to the configured GTP-U service from this service.

- `gtpu-service name`
Associates a GTP-U service with this eGTP service. *name* must be an alphanumeric string of 1 through 63 characters.

**Usage Guidelines**

Use this command to associate a GTP-U service with this eGTP service.
Examples

The following command associates this eGTP service with a GTP-U service named `gtpu3`:

```plaintext
associate gtpu-service gtpu3
```
collision-handling

Enables operators to configure the behavior of the P-GW for collision handling of the Delete Bearer command (DBcmd) message when the Modify Bearer Request (MBreq) message for the default bearer is pending at the P-GW or S-GW.

Product

<table>
<thead>
<tr>
<th>P-GW</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-GW</td>
</tr>
</tbody>
</table>

Privilege

Administrator, Security Administrator

Command Modes

Exec > Global Configuration > Context Configuration > eGTP Service Configuration
configure > context context_name > egtp-service service_name

Entering the above command sequence results in the following prompt:

{context_name}@host_name(config-egtp-service)>

Syntax Description

collision-handling dbcmd-over-mbreq { drop | queue }
| default | no | collision-handling dbcmd-over-mbreq

default

Returns the collision handling for the DBcmd over MBReq transaction to the default behavior. The default behavior is to use pre-StarOS 19.0 behavior: abort the MBReq message and handle the DBcmd message.

no

Disables collision handling for the dbcmd-over-mbreq transaction.

collision-handling

Enables collision handling for the dbcmd-over-mbreq transaction.

drop

Configures the P-GW to drop the DBcmd message when the MBreq message is pending.

queue

Configures the P-GW to queue the DBcmd message when the MBreq is message is pending.
Usage Guidelines

Use this command when you want more flexibility in configuring the behavior of the P-GW for collision handling of the Delete Bearer command (DBcmd) message when the Modify Bearer Request (MBreq) message for the default bearer is pending at the P-GW.

An EGTP service must be configured in EGTP Service Configuration Mode in order to use this command.

Examples

This command configures the P-GW to queue the DBcmd message when the MBreq is pending.

```
collision-handling dbcmd-over-mbreq queue
```
end

Exits the current configuration mode and returns to the Exec mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

end

Usage Guidelines

Use this command to return to the Exec mode.
exit

Exits the current mode and returns to the parent configuration mode.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Syntax Description**
exit

**Usage Guidelines**
Use this command to return to the parent configuration mode.
gtpc

Configure the GPRS Tunneling Protocol Control (GTP-C) plane settings for this service.

Product
- ePDG
- MME
- P-GW
- S-GW
- SAEGW
- SaMOG
- SGSN

Privilege
Administrator

Command Modes
Exec > Global Configuration > Context Configuration > eGTP Service Configuration
configure > context context_name > egtp-service service_name

Entering the above command sequence results in the following prompt:
{context_name}host_name(config-egtp-service)#

Syntax Description
no gtpc { allow-on-congestion { apn-name apn_name | arp priority_level } | bind { ipv4-address ipv4_address | ipv6-address ipv6_address | ipv6-address ipv6_address | ipv4-address ipv4_address } | echo-interval | error-response-handling | node-feature { network-triggered-service-restoration | pgw-restart-notification | path-failure-detection-policy | private-extension | overcharge-protection | reject s2b-ho-no-context } | default gtpc { echo-interval | echo-max-retransmissions | echo-retransmission-timeout | ip qos-dscp | max-retransmissions | node-feature { network-triggered-service-restoration | pgw-restart-notification | path-failure-detection-policy | retransmission-timeout | retransmission-timeout-ms } }

no
Disables or removes the configured GTP-C setting.

default
Resets the specified parameter to its default value.
allow-on-congestion \{ apn-name \ apn_name | arp priority_level \}

**Important** *P-GW, SAEGW, and S-GW only.* This functionality requires that a valid VoLTE license key be installed. Contact your Cisco account representative for information on how to obtain a license.

Enables the prioritized handling for calls under congestion conditions for the specified APN/ARP(s).

- If prioritized APN/ARP handling is enabled, and if the APN/ARP received in a CSReq at the EGTP demux matches any of the configured prioritized APN/ARP values, any valid CSReq will not be rejected at EGTP demux because of congestion control.
- This feature impacts only CSReq handling for new incoming calls.
- P-GW initiated dedicated bearer creation/updating is not changed due to this configuration.

**apn-name \ apn_name**: Configures the gateway to allow calls for this Access Point Name (APN), even under congestion.

*apn_name* is a string between 1 and 64 alphanumeric characters. A maximum of 3 APNs can be configured.

**arp priority_level**: Configures the gateway to allow calls for this ARP, even under congestion.

*priority_level* sets the priority value as an integer from 1 through 15. A maximum of 3 ARP values can be configured.

**Important** There is no APN-to-ARP mapping.

**bind \{ ipv4-address \ ipv4_address | ipv6-address \ ipv6_address | ipv4-address \ ipv4_address \}

Binds the service to an interface with an IPv4 address, IPv6 address or both.

**ipv4-address \ ipv4_address | ipv6-address \ ipv6_address | ipv4-address \ ipv4_address \**: Binds this service to the IPv4 address of a configured interface. Optionally, bind the service to a configured interface with an IPv6 address.

*ipv4_address* must be entered using IPv4 dotted-decimal notation.

*ipv6_address* must be entered using IPv6 colon-separated-hexadecimal notation.

**ipv4-address \ ipv4_address | ipv4-address \ ipv4_address \**: Binds this service to the IPv6 address of a configured interface. Optionally, bind the service to a configured interface with an IPv4 address.

*ipv6_address* must be entered using IPv6 colon-separated-hexadecimal notation.

*ipv4_address* must be entered using IPv4 dotted-decimal notation.

**Important** For binding GTP-C service on S2b interface; either IPv6 or IPv4 bind address shall be used; binding both v4 and v6 address is not supported on ePDG

The **ipv6-address \ ipv6_address | ipv4-address \ ipv4_address \** option is not currently supported on the SGSN.
**echo-interval seconds** [ **dynamic** ] [ **smooth-factor multiplier** ]

Configures the duration (in seconds) between the sending of echo request messages as an integer from 60 through 3600. Default: 60

**dynamic**: Enables the dynamic echo timer for the eGTP service. The dynamic echo timer uses a calculated round trip timer (RTT) to support variances in different paths to peer nodes.

**smooth-factor multiplier**: Introduces a multiplier into the dynamic echo timer as an integer from 1 through 5. Default: 2

**echo-max-retransmissions number**

Default: 4

Configures the maximum retries for GTP Echo requests. This option must be an integer from 0 to 15. The default is 4. If **echo-max-retransmissions** configuration option is not configured, then the **max-retransmissions** configuration will be used for maximum number of echo retries.

**echo-retransmission-timeout seconds**

Default: 3

Configures the echo retransmission timeout, in seconds, for the eGTP service as an integer ranging from 1 to 20.

If dynamic echo is enabled (**gtpc echo-interval dynamic**) the value set in this command serves as the dynamic minimum (if the RTT multiplied by the smooth factor is less than the value set in this command, the service uses this value).

**error-response-handling**

Enables error-response-handling on the S-GW. If this command is enabled in the egtp-service, then on receiving a bad response from the peer instead of dropping the message while doing validation eGTP-C informs the S-GW about the bad response received. The S-GW uses this notification from eGTP-C that a bad response is received to send a proper response to the other peer.

**ip qos-dscp** { **forwarding_type** }

Specifies the IP QoS DSCP per-hop behavior (PHB) to be marked on the outer header of signalling packets originating from the LTE component. This is a standards-based feature (RFC 2597 and RFC 2474).

Note that CS (class selector) mode options below are provided to support backward compatibility with the IP precedence field used by some network devices. CS maps one-to-one to IP precedence, where CS1 is IP precedence value 1. If a packet is received from a non-DSCP aware router that used IP precedence markings, then the DSCP router can still understand the encoding as a Class Selector code point.

The following forwarding types are supported:

- **af11**: Designates the use of Assured Forwarding 11 PHB.
  This is the default setting.
- **af12**: Designates the use of Assured Forwarding 12 PHB.
- **af13**: Designates the use of Assured Forwarding 13 PHB.
- **af21**: Designates the use of Assured Forwarding 21 PHB.
- **af22**: Designates the use of Assured Forwarding 22 PHB.
The assured forwarding behavior groups are listed in the table below.

<table>
<thead>
<tr>
<th></th>
<th>Class 1</th>
<th>Class 2</th>
<th>Class 3</th>
<th>Class 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Drop</td>
<td>AF11</td>
<td>AF21</td>
<td>AF31</td>
<td>AF41</td>
</tr>
<tr>
<td>Medium Drop</td>
<td>AF12</td>
<td>AF22</td>
<td>AF32</td>
<td>AF42</td>
</tr>
<tr>
<td>High Drop</td>
<td>AF13</td>
<td>AF23</td>
<td>AF33</td>
<td>AF43</td>
</tr>
</tbody>
</table>

Traffic marked with a higher class is given priority during congestion periods. If congestion occurs to traffic with the same class, the packets with the higher AF value are dropped first.

**max-retransmissions** num
Configures the maximum number of retries for packets as an integer from 0 through 15. Default: 4
After max retransmissions is reached, the path is considered to be failed.

**node-feature pgw-restart-notification**
Enables P-GW Restart Notification functionality. Node will start announcement of new supported features to peer nodes in echo as soon as configuration is added.

From release 17.0 onwards the S4-SGSN and MME support receiving/advertising the P-GW Restart Notification (PRN). This command option must be configured in order to inform S-GW that S4-SGSN and/or MME supports receiving/advertising the PRN in EGTPC echo request/response messages.
Default: Disabled

**node-feature network-triggered-service-restoration**
This keyword applies to the MME and S-GW only.
Enables Network Triggered Service Restoration (NTSR) functionality as per 3GPP TS 23.007 Release 11 for this EGTP service.
 Upon receipt of a Downlink Data Notification (DDN) message including an IMSI, the MME will accept the request and initiate paging including the IMSI in order to force the UE to re-attach. IMSI-based DDN requests contain a zero TEID. Since the UE is not attached, the UE will be paged over the whole MME coverage area. A different MME may be selected by the eNodeB to service the attach request. Since the MME that serviced the DDN will not be aware that the UE has responded with the attach request, it will stop paging upon a timeout.

**path-failure detection-policy echo**
Enables session cleanup upon path failure detected via ECHO timeout toward a peer.
Default: Enabled
If disabled, there is no session cleanup upon path failure detected via ECHO timeout toward a peer; however, SNMP trap/logs will continue to indicate path failure.

**private-extension overcharge-protection**

<table>
<thead>
<tr>
<th>Important</th>
<th>From StarOS 19.0 and later releases, this command is obsolete.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Important</td>
<td>Use of Overcharging Protection requires that a valid license key be installed. Contact your Cisco account representative for information on how to obtain a license.</td>
</tr>
</tbody>
</table>

Controls whether the PDU will contain overcharge-protection related data in the Indication information element or in the private extension.

- If this keyword is enabled in the eGTP service, then eGTP-C will encode/decode overcharge-protection related data in/from the private extension instead of the Indication IE.
- If this option is disabled in the eGTP service, then the eGTP-C layer will encode/decode overcharge-protection related data in the Indication IE.
- By default, this option is disabled.

**reject s2b-ho-no-context**
Allows handoff call on S2b interface, even when eGTP-C does not have a UE context.
retransmission-timeout seconds

Important In 17.3 and later releases, this option has been deprecated. Use retransmission-timeout-ms.

Configures GTPv2 control packets (non-echo) retransmission timeout (in seconds) as an integer from 1 through 20.
Default: 5

retransmission-timeout-ms milliseconds

Configures the control packet retransmission timeout in GTP, in milliseconds <in steps of 100>, ranging from 1000 to 20000.
Default: 5000

Usage Guidelines

Use this command to configure GTP-C settings for the current service.
This interface assumes the characteristics of an S11 reference point on the S-GW or MME.
For communication between the S4-SGSN and the LTE S-GW, the interface assumes the characteristics of an S4 reference point on the S4-SGSN. Before using the gtpc command on the S4-SGSN, a new or existing service must be created or entered using the egtp-service command in Context Configuration Mode. Once the eGTP service is configured, the service must be associated with the configured 2G and/or 3G services on the S4-SGSN using the associate command in SGSN Service Configuration Mode and/or GPRS Service Configuration Mode.

Important For ePDG, IPv6 bind address should be used as ePDG supports IPv6 as transport on S2b interface.

Examples

The following command binds the service to a GTP-C interface with an IPv4 address of 112.104.215.177:
gtpc bind ipv4-address 112.104.215.177
interface-type

Configures the interface type used by this service.

**Product**
- ePDG
- MME
- P-GW
- SAEGW
- S-GW
- SaMOG
- SGSN

**Important**
Prior to release 16, the SGSN only supported this command on the ASR 5000 platform.

**Privilege**
Administrator

**Command Modes**
- Exec
- Global Configuration
- Context Configuration
- eGTP Service Configuration

```
configure > context context_name > egtp-service service_name
```

Entering the above command sequence results in the following prompt:

```
[context_name] host_name(config-egtp-service)#
```

**Syntax Description**

```
interface-type { interface-cgw-egress | interface-epdg-egress | interface-mme | interface-pgw-ingress [s2a | s2b] | interface-sgsn | interface-sgw-egress | interface-sgw-ingress }
```

- **interface-cgw-egress**: Specifies the SaMOG Gateway's EGTP interface for egress.
- **interface-epdg-egress**: Specifies that the interface has the characteristics of an ePDG's egress EGTP interface.
- **interface-mbms-egress**: This keyword is for future development.
- **interface-mme**: Specifies that the interface has the characteristics of an eGTP MME S11 reference point to/from an S-GW or an eGTP MME Sv reference point to/from a Mobile Switching Center (MSC).
**interface-pgw-ingress** \[s2a\] | \[s2b\]: Specifies that the interface has the characteristics of an eGTP P-GW S5/S8 reference point from an S-GW. The interface assumes the characteristics of either a GTP-C (control plane) or GTP-U (user plane) reference point.

- **s2a**: P-GW supports S2a the interface. The SAEGW does not support the S2a interface at this time.
- **s2b**: P-GW supports the S2b interface. S2b interface support is available on the SAEGW in release 18.2 and later releases.

**Note** The S2a and S2b keywords will be available only if a valid license is installed. For more information, contact your Cisco account or support representative.

**interface-sgsn**: Specifies that the interface has the characteristics of an eGTP S-GW S4 reference point to/from an SGSN. On an S4-SGSN, this option specifies that the eGTP service is used for an S4-SGSN and gives the service the characteristics required for messaging towards an SGW (S4) / MME (S3) / S4-SGSN (S16).

**interface-sgw-egress**: Specifies that the interface has the characteristics of an eGTP S-GW S5/S8 reference point to an eGTP P-GW. The interface assumes the characteristics of either a GTP-C (control plane) or GTP-U (user plane) reference point.

**interface-sgw-ingress**: Specifies that the interface has the characteristics of:

- an eGTP-C S-GW S11 reference point from the MME.
- an eGTP-U S-GW S1-U reference point from the eNodeB.

**Usage Guidelines** Use this command to specify the type of interface this service uses. By configuring this command, the interface takes on the characteristics of the selected type.

Disable specific interface support for P-GW by entering the following command:

```
interface-type interface-pgw-ingress
```

**Examples**

The following command configures the interface bound to this service to maintain the characteristics of an eGTP-C S-GW S11 reference point from an MME:

```
interface-type interface-sgw-ingress
```

The following command accepts or rejects Create Session Request (CSR) on GTP based S2a interface.

```
interface-type interface-pgw-ingress s2a
```
pool

This command enables the default S4-SGSN functionality for (flex) pooling and enables inclusion of the configured pool hop-counter count in new SGSN context/identity request messages. This command supports S4-SGSN pooling across the S16 interface. The S16 interface provides a GTPv2 path to a peer S4-SGSN. Support for this interface is provided as part of the S4 interface license. This command sets the S4-SGSN as the default SGSN within a pool. If the default S4-SGSN receives an inbound SGSN context request, it forwards it to the right SGSN in the pool based on the NRI bits of the P-TMSI.

Product
SGSN

Privilege
Security Administrator, Administrator

Command Modes
Exec > Global Configuration > Context Configuration > eGTP Service Configuration
configure > context context_name > egtp-service service_name

Entering the above command sequence results in the following prompt:
{context_name}host_name(config-egtp-service)#

Syntax Description
pool { default-sgsn | hop-counter count }
no pool default-sgsn

no
Disables the default SGSN pooling functionality or removes the SGSN pool hop-counter IE from the GTP Identity/context requests.

default-sgsn
Enables default SGSN pooling functionality.

hop-counter count
Enables and configures the SGSN pool hop-counter to set the number of hops and to include the configured count in the new SGSN Context Requests or the new SGSN Identity Requests.
If default-sgsn is enabled, then any messages relayed will have the default value of 4 for the counter if the message does not include this hop-counter ID.

count: Enter an integer from 1 to 255.
Default: 4
Usage Guidelines

Use this command to enable the default flex functionality without exposing the pool (flex) structure. This functionality provides a means for SGSNs outside of the pool to reach a pooled SGSN on the basis of its NRI.

Once the pooling has been enabled. Repeat the command using the hop-counter keyword to enable inclusion of the hop-counter IE in SGSN context/identity request messages and to configure the count for the pooling hop-counter. If the SGSN is behaving as the 'default SGSN', this SGSN will forward (relay) requests with the hop-count included to the target SGSN.

Examples

Enable the default pooling functionality which allows an outside SGSN to reach a pooled SGSN:

```
pool default-sgsn
```

Set the hop-count to be included in messages to 25:

```
pool hop-count
```
validation-mode

Configures the type of validation to be performed on messages received by this service.

**Product**
- ePDG
- P-GW
- SAEGW
- SGSN

**Important**
The ePDG and SGSN are not currently supported on the ASR 5500 platform.

**Privilege**
Administrator

**Command Modes**
Exec > Global Configuration > Context Configuration > eGTP Service Configuration
`configure > context context_name > egtp-service service_name`

Entering the above command sequence results in the following prompt:

```
{context_name}@host_name(config-egtp-service)#
```

**Syntax Description**

```
validation-mode { custom1 | standard }
default validation-mode
```

default
Returns the command to the default setting of **standard**.

{ custom1 | standard }

- **custom1**: Specifies that the message should be validated based on a vendor-specific set of mandatory elements.
- **standard**: Specifies that the message should be validated based on the set of mandatory elements as defined in 3GPP 29.274. This is the default option on an S4-SGSN.

**Usage Guidelines**
Use this command to specify the type of validation performed on messages received by this service. The information elements contained in messages have mandatory elements and conditional elements. The standard set of elements, as defined by 3GPP 29.274 is checked if this command is set to "standard". The **custom1** setting is for a vendor-specific set of mandatory elements.
Examples

The following command sets the validation mode for incoming messages to *standard*:

```
validation-mode standard
```
validation-mode
EIR Profile Configuration Mode Commands

The EIR is used for authentication and authorization of a subscriber's equipment during an Attach. The EIR database includes information about the subscriber's equipment (UE), such as the International Mobile Equipment Identity (IMEI) and the UE manufacturer's software version number (SV) which is usually paired with the IMEI. The IMEI(SV) can be in one of three lists in the EIR:

- white list - the subscriber equipment is permitted access
- black list - the subscriber equipment is not permitted access
- grey list - the subscriber equipment is being tracked for evaluation or other purposes

To view the configured values of the EIR profile, use the Exec mode `show sgsn-mode` command.

To associate the EIR profile with call control profile, see the call control profile mode's `eir-profile` command.

The EIR Profile configuration mode provides the commands to define Equipment Identify Register (EIR) parameters that can be used by the SGSN on a global level. The SGSN supports a total of 16 instances of the EIR profile.

**Command Modes**

Exec > Global Configuration > SGSN Global Configuration > EIR Profile Configuration

```
configure > sgsn-global > eir-profile eir_profile_name
```

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-eir-profile-eir_profile_name)#
```

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

- check-imei-every-n-events, page 81
- end, page 82
- eir-address, page 83
- exit, page 85
- include-imsi, page 86
- map-include-imsi, page 87
check-imei-every-n-events

Configures the frequency that 'check IMEI' is performed.

**Product**
SGSN

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > SGSN Global Configuration > EIR Profile Configuration

```
configure > sgsn-global > eir-profile eir_profile_name
```

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-eir-profile-eir_profile_name)#
```

**Syntax Description**

- `check-imei-every-n-events check_frequency`
- `no check-imei-every-n-events`

- **no**
  Removes the check-imei-every-n-events definition from the EIR profile configuration.

- **check_frequency**
  The frequency must be an integer from 1 to 15.
  When a value is configured, the SGSN skips sending the 'check IMEI' message for the first N-1 where IMDI/IMEISV is received.

**Usage Guidelines**

If a value is not defined for this parameter, then by default, the SGSN sends a 'check IMEI' message for every event.

**Examples**

Use a command similar to the following to remove the check frequency configuration from the EIR profile:

```
no check-imei-every-n-events
```
**end**

Exits the current configuration mode and returns to the Exec mode.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Syntax Description**
end

**Usage Guidelines**
Use this command to return to the Exec mode.
**eir-address**

Configures the address of the equipment identify register (EIR).

**Product**

SGSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > SGSN Global Configuration > EIR Profile Configuration

```
configure > sgsn-global > eir-profile eir_profile_name
```

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-eir-profile-eir_profile_name)#
```

**Syntax Description**

```
eir-address { isdn isdn_address | point-code point_code } | source-ssn source_ssn |
no eir-address
```

**no**

Erases the address of the EIR from this EIR profile.

**isdn isdn_address**

*isdn_address* enter a standard ISDN E.164 address of 1 to 15 digits to identify the EIR.

**point-code point_code**

*point_code* enter a standard SS7 formatted point-code address, a string of dotted decimal format of 1 to 11 digits, to identify the EIR. Format options include:

- 0.0.1 to 7.255.7 for point-code in the ITU range.
- 0.0.1 to 255.255.255 for point-code in the ANSI range.
- 0.0.1 to 15.31.255 for point-code in the TTC Range.
- a string of 1 to 11 digits in dotted-decimal to represent a point-code in a different range.

**source-ssn source_ssn**

*source_ssn* enter 1 to 3 digits to define the subsystem number of the element being identified. The default is 149 (SGSN).
**Usage Guidelines**  
Define a single EIR address to be used for multiple EIRs when this EIR profile is associated with a call control profile.

**Examples**  
Delete the EIR address definition from the EIR profile:  
```
no eir-address
```
exit

Exits the current mode and returns to the parent configuration mode.

Product
All

Privilege
Security Administrator, Administrator

Syntax Description
exit

Usage Guidelines
Use this command to return to the parent configuration mode.
include-imsi

Enables inclusion of the IMSI in the TCAP message.

Product  SGSN

Privilege  Security Administrator, Administrator

Command Modes  Exec > Global Configuration > SGSN Global Configuration > EIR Profile Configuration
configure > sgsn-global > eir-profile eir_profile_name

Entering the above command sequence results in the following prompt:
{context_name}host_name{config-eir-profile-eir_profile_name}#

Syntax Description  | no | include-imsi

no

Disables inclusion of the IMSI in the message sent to initiate the 'check IMEI' procedure.

Usage Guidelines  This command enables/disables inclusion of the IMSI in the message to enable IMSI checking during the IMEI check procedure. By default, IMSI checking is not included.

Examples  The following example configures IMSI checking during the 'check IMEI' procedure:
check-imsi
**map-include-imsi**

Enables adding IMSI in MAP message.

**Product**  
SGSN

**Privilege**  
privilege

**Command Modes**  
Exec > Global Configuration > SGSN Global Configuration > EIR Profile Configuration  
   configure > sgsn-global > eir-profile eir_profile_name

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-eir-profile-eir_profile_name)#
```

**Syntax Description**  
[ no ] map-include-imsi

  **no**  
  Disables inclusion of IMSI in the MAP message.

**Usage Guidelines**  
This command enables/disables inclusion of IMSI checking during the check IMEI procedure. By default, IMSI checking is not part of the IMEI check procedure.

**Examples**  
The following example adds IMSI to the MAP message to enable IMSI checking during check IMEI procedure:  
```
map-include-imsi
```
map-include-imsi
EPDG Service Configuration Mode Commands

Creates Evolved Packet Data GateWay service and enters EPDG service configuration mode.

**Command Modes**

Exec > Global Configuration > Context > EPDG Service Configuration

`configure > context context_name > epdg service service_name`

Entering the above command sequence results in the following prompt:

`{context_name}host_name(config-epdg-service)#`

- `aaa`, page 91
- `allow`, page 92
- `associate`, page 93
- `bind`, page 95
- `data-buffering`, page 96
- `dns-pgw`, page 97
- `end`, page 99
- `exit`, page 100
- `fqdn`, page 101
- `ip`, page 102
- `max-sessions`, page 104
- `mobile-access-gateway`, page 105
- `newcall`, page 106
- `pdn-type`, page 107
- `pgw-selection`, page 108
- `plmn`, page 109
- `setup-timeout`, page 110
- subscriber, page 111
- threshold, page 112
- username, page 114
- vendor-specific-attr, page 116
aaa

This command configures AAA parameters for ePDG service.

Product ePDG

Privilege Security Administrator, Administrator

Syntax Description

aaa send framed-mtu value
aaa send framed-mtu

no
Disables AAA parameters for ePDG service.

send
Configures AVP to be send to AAA server.

framed-mtu value
This is the framed-MTU AVP value to be sent in DER, which is an integer from 64 through 1500.

Usage Guidelines

Use this command to configure AAA parameters for ePDG service.

Examples

The following command configures framed-MTU AVP value 100 to be send to AAA server for ePDG service.

aaa send framed-mtu 100
allow

This command allows duplicate precedence in a TFT for a S2b ePDG session.

**Product**
ePDG

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context > EPDG Service Configuration

```
configure > context context_name > epdg service service_name
```

Entering the above command sequence results in the following prompt:

```
{context_name}@host_name(config-epdg-service)#
```

**Syntax Description**

```plaintext
| no | allow { custom-swm-swu-error-mapping | duplicate-prec-in-tft }
```

- **no**
  Disables allowing exception.

- **custom-swm-swu-error-mapping**
  Customises mapping of SWm errors with SWu Notify Error Type.

- **duplicate-prec-in-tft**
  The duplicate precedence is allowed in a tft for a S2b ePDG session.

**Usage Guidelines**

Use this command to allow exception with Spec or RFC.

**Examples**

The following command is used to allow duplicate precedence in a tft for a S2b ePDG session.

```
allow duplicate-prec-in-tft
```
This command associates configuration of ePDG service to qci-qos mapping and EGTP service.

Product ePDG

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context > EPDG Service Configuration
configure > context context_name > epdg service service_name

Entering the above command sequence results in the following prompt:
[context_name]host_name(config-epdg-service)#

Syntax Description

associate { egtp-service egtp_service_name | gtpc-load-control-profile gtpc_load_control_profile_name | gtpc-overload-control-profile gtpc_overload_control_profile_name | qci-qos-mapping qci_qos_mapping | subscriber-map subscriber_map_name }

no associate { egtp-service | gtpc-load-control-profile gtpc_load_control_profile_name | gtpc-overload-control-profile gtpc_overload_control_profile_name | qci-qos-mapping | subscriber-map }

Disables association.

egtp-service egtp_service_name

The eGTP service should be configured before associating the same with ePDG service. egtp_service_name is a string and the value must be between 1 and 63.

gtpc-load-control-profile gtpc_load_control_profile_name

Associates GTPC-load-control-profile for the epdg service. 1 and 64.

gtpc-overload-control-profile gtpc_overload_control_profile_name

Associates GTPC-overload-control-profile for the ePDG service. 1 and 64.
qci-qos-mapping qci_qos_mapping
The associated qci-qos mapping table should be configured prior to associating the same with ePDG service.
qci-qos_mapping is a string and the value must be between 1 and 63.

subscriber-map subscriber_map_name
Configures subscriber map association to get PGW address locally.
subscriber_map_name is a string and the size must be between 1 and 64.

Usage Guidelines
Use this command to associate the ePDG service to egtp service or QCI to QoS mapping.

Examples
The following command removes the association of epdg service to egtp service.
no associate egtp-service
bind

This command binds the services.

**Product**  
ePDG

**Privilege**  
Security Administrator, Administrator

**Command Modes**  
Exec > Global Configuration > Context > EPDG Service Configuration

```plaintext
configure > context context_name > epdg service service_name
```

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-epdg-service)#
```

**Syntax Description**

- `bind address bind_address crypto-template crypto_template_service_name`
- `no bind address`

- **no**  
Disables binding.

- **address bind_address**  
Specifies the address of the EPDG service. This must be followed by an IPv4 address, using dotted-decimal notation or an IPv6 address, using `xx::yy::zz` format.

- **crypto-template crypto_template_service_name**  
Specifyes the crypto template to use, this is a string of size between 0 and 127.

**Usage Guidelines**  
Use this command to bind the ePDG service.

**Examples**  
The following command binds the ePDG Service to the IPv4 address 12.32.44.56.

```plaintext
bind address 12.32.44.56
```
data-buffering

This command allows to downlink packets to be buffered, while session is in connecting state. By default it is enabled.

Product ePDG

Privilege Security Administrator, Administrator

Syntax Description

| no | default | data-buffering |

  no
  Disables data buffering.

  default
  Sets / restores the data buffering to its default value. By default, the data buffering is enabled.

Usage Guidelines

Use this command to allow to downlink packets to be buffered, while session is in connecting state.

Examples

The following command allows to set the default value of the data-buffering.

default data-buffering
**dns-pgw**

Configures context of dns-client.

**Product**
ePDG

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context > EPDG Service Configuration

```
configure > context context_name > epdg service service_name
```

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-epdg-service)#
```

**Syntax Description**

dns-pgw { context dns_client_context_name | selection { topology | weight | weight } } { no | default } dns-pgw { context | selection { topology | weight | weight } }

default

Configures context of dns-client to its default value.

no

Disables dns-client's context.

**context dns_client_context_name**

Specifies the dns-client's context name, which is a string and should be between 1 and 79.

**selection { topology | weight }**

Specifies the pgw dns selection criteria.

topology: Enables topology selection.
topology weight: Enables topology with weight.
weight: Enables selection with weight-only, disables topology selection.

**Usage Guidelines**

Enable/disable PGW Selection based on topology and load-balancing of PGWs on weight's from DNS.
Use this command to configure the source in which dns-client is configured, dns-pgw selection toplogy/weight will be used to enable/disable PGW Selection based on topology and load-balancing of PGWs.
Examples

Use the following command to configure dns-client context.

dns-pgw context 21
end

Exits the current configuration mode and returns to the Exec mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

end

Usage Guidelines

Use this command to return to the Exec mode.
exit

Exits the current mode and returns to the parent configuration mode.

Product
All

Privilege
Security Administrator, Administrator

Syntax Description
exit

Usage Guidelines
Use this command to return to the parent configuration mode.
fqdn

Designates ePDG fully qualified domain name.

**Product**
ePDG

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context > ePDG Service Configuration

```
configure > context context_name > epdg service service_name
```

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-epdg-service)#
```

**Syntax Description**

```
fqdn  epdg_fqdn
{ no | default } fqdn
```

- **default**
  
  Resets the ePDG fully qualified domain name to its default setting.

- **no**
  
  Disables ePDG FQDN.

```
fqdn epdg_fqdn
```

Designates ePDG with fully qualified domain name, name is a string between 1 and 256 alphanumeric characters.

**Usage Guidelines**

Use this command to configure ePDG FQDN under ePDG service which will be used for longest suffix match during dynamic allocation.

**Examples**

Use the following command to disable ePDG FQDN:

```
no fqdn
```
This command configures Internet Protocol (IP) parameters.

**Product**
ePDG

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context > EPDG Service Configuration

```
configure > context context_name > epdg service service_name
```

Entering the above command sequence results in the following prompt:

```
{context_name} host_name (config-epdg-service) #
```

**Syntax Description**

- `ip fragment-chain { max-ooo-fragment fragments | timeout secs }`
  - `default`
    - Resets the ePDG Internet Protocol(IP) parameters to default values.
  - `fragment-chain`
    - This option configures ip fragment chain settings during TFT handling.
  - `max-ooo-fragment fragments`
    - This is the number of fragments to buffer per fragment chain for out-of-order reception before receiving first fragment(for L4 packet filtering).
    - `fragments` is an integer value from 0 through 300.
    - The default value is 45.
    - 0 represents no buffering is done for out-of-order fragments, correct bearer will be selected with first fragment.
  - `timeout secs`
    - This is the time to hold an ip fragment chain.
    - `secs` is an integer value from 1 through 10.
    - The default value is 5.
**Usage Guidelines**

Use this command to configure ePDG Internet Protocol (IP) parameters.

**Examples**

Use the following command to configure ePDG IP parameter timeout to 6 seconds:

```
ip fragment-chain timeout 6
```
max-sessions

This command configures the approximate maximum number of sessions ePDG service can support, ranging from 0 to 1000000. Default is 1000000.

Product  ePDG

Privilege  Security Administrator, Administrator

Command Modes  Exec > Global Configuration > Context > EPDG Service Configuration
                configure > context context_name > epdg service service_name

Entering the above command sequence results in the following prompt:

{context_name}host_name(config-epdg-service)>

Syntax Description
max-sessions value
default max-sessions

default
Reset the approximate maximum number of sessions that ePDG service can support to default value (1000000).

value
This is the approximate maximum number of sessions that ePDG service can support, ranging from 0 to 1000000.
The default value is 1000000.

Usage Guidelines
Use this command to configure the approximate maximum number of sessions that ePDG service can support.

Examples
Use the following command to configure the approximate maximum number of sessions that ePDG service can support to 10.

max-sessions 10
mobile-access-gateway

Configures MAG context within epdg service.

**Product**

ePDG

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context > EPDG Service Configuration

`configure > context context_name > epdg service service_name`

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-epdg-service)#`

**Syntax Description**

`mobile-access-gateway context context_name [mag-service mag_service_name ]`

`no mobile-access-gateway context`

no

Disables MAG context.

`mobile-access-gateway context context_name [mag-service mag_service_name ]`

`context` designates the name of the context in which the MAG service is configured. This must be followed by `context_name` of MAG service of size 1 to 79 characters.

`mag-service` designates the name of the MAG service. This must be followed by `mag_service_name` of size 1 to 63 characters.

**Usage Guidelines**

Use this command to specify where MIPv6 sessions are routed through this service.

**Examples**

Use the following command to configure MAG context with context name fg.

`mobile-access-gateway context fg`
newcall

Configures new call related behavior.

**Product**
ePDG

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context > EPDG Service Configuration

```
configure > context context_name > epdg service service_name
```

Entering the above command sequence results in the following prompt:

```
{context_name} host_name(config-epdg-service) #
```

**Syntax Description**

```plaintext
[ no | default ] newcall duplicate-session notify-delete name
```

- **no**
  Disables new call related behavior.

- **default**
  Sets the default value for the new call related behavior. 'notify-delete' is enabled by default.

- **duplicate-session**
  Configures action regarding duplicate session.

- **notify-delete**
  Initiate delete session request to PGW during reattach if another PGW is selected. Enabled by default.

**Usage Guidelines**

Use this command to configure new call related behavior.

**Examples**

The following example configures new call related behavior:

```
newcall duplicate-session notify-delete
```
**pdn-type**

This command configures pdn-type related parameters for ePDG service.

**Product**
ePDG

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context > EPDG Service Configuration
configure > context context_name > epdg service service_name

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-epdg-service)#
```

**Syntax Description**
[ no ] pdn-type ipv6 path-mtu

- **no**
  Disables pdn-type related parameters for ePDG service.

**Usage Guidelines**
Use this command to configure pdn-type related parameters for ePDG service.

**Examples**
Use the following command to disable pdn-type related parameters for ePDG service.

```
no pdn-type ipv6 path-mtu
```
pgw-selection

Configures pgw-selection related parameters for the EPDG service.

Product ePDG

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context > EPDG Service Configuration
configure > context context_name > epdg service service_name

Entering the above command sequence results in the following prompt:
{context_name}host_name(config-epdg-service)#

Syntax Description

| no | pgw-selection { agent-info error-terminate | local-configuration-preferred } |

no
Disables pgw-selection related parameters for the EPDG service.

pgw-selection agent-info error-terminate
agent-info specifies the action to be taken when MIP6-agent-info is expected but not received from AAA/HSS.
error-terminate terminates the pgw-selection and rejects the call.

local-configuration-preferred
Configures local PGW selection as the preferred mechanism. Applicable for initial attach. Default is AAA/DNS based selection.

Usage Guidelines
Use this command to terminate the pgw-selection and reject the call when MIP6-agent-info is expected but not received from AAA/HSS.

Examples
Use the following command to terminate pgw-selection and reject the call.

pgw-selection agent-info error-terminate
plmn

Configures PLMN related parameters for the EPDG service.

**Product**

ePDG

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context > EPDG Service Configuration

```
configure > context context_name > epdg service service_name
```

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-epdg-service)#
```

**Syntax Description**

```
plmn id mcc mcc_plmn_id mnc mnc_plmn_id
no plmn id
```

no

Disables PLMN related parameters for the EPDG service.

```
plmn id mcc mcc_plmn_id mnc mnc_plmn_id
plmn id mcc mcc_plmn_id configures MCC part of PLMN ID for the EPDG service and prompts as "Enter a number, ranging from 200...999 - string of size 3 to 3". mcc_plmn_id is a string of three characters, entered as number between 200 and 999.

mnc mnc_plmn_id configures MNC part of PLMN ID for the EPDG service and prompts as "Enter a number, ranging from 00...999 - string of size 2 to 3". mnc_plmn_id is a string of two to three characters, entered as number between 00 and 999.
```

**Usage Guidelines**

Use this command to configure PLMN identifier (MCC and MNC Values) for ePDG Service.

**Examples**

Use the following command to configure PLMN identifier MCC 456 and MNC 64 for ePDG service.

```
plmn id mcc 456 mnc 64
```
setup-timeout

Maximum time allowed for session setup in seconds.

**Product**
ePDG

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context > EPDG Service Configuration
configure > context context_name > epdg service service_name

Entering the above command sequence results in the following prompt:

{context_name}host_name(config-epdg-service)#

**Syntax Description**

setup-timeout time
default setup-timeout
default

Sets up the maximum time allowed for a session to default value (as 60 seconds).

**Usage Guidelines**
Use this command to configure maximum time allowed for session setup in seconds.

**Examples**
Use the following command to configure maximum session time as 120 seconds:

setup-timeout 120
**subscriber**

Configures a subscriber with a given name.

**Product**
ePDG

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context > EPDG Service Configuration

```plaintext
configure > context context_name > epdg service service_name
```

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-epdg-service)#
```

**Syntax Description**

```
{ default | subscriber name
no subscriber
```

default
Configures a subscriber with a given default name.

no
Cancels the subscriber configuration.

**subscriber name**
Configures a subscriber with a given name, which is a string of size between 1 and 127.

**Usage Guidelines**
Use this command to configure the subscriber with a given name.

**Examples**
Use the following command to configure the subscriber as sss.

```plaintext
subscriber sss
```
threshold

This command is used to configure threshold values to set and clear the alarms for each monitoring parameters separately.

Product  ePDG

Privilege  Security Administrator, Administrator

Command Modes  Exec > Global Configuration > Context > EPDGS Service Configuration

configure > context context_name > epdg service service_name

Entering the above command sequence results in the following prompt:

<context_name>host_name(config-epdg-service)#

Syntax Description

threshold { epdg-ikev2-authentication-failures | epdg-ikev2-setup-attempts | epdg-ikev2-setup-failure | epdg-ikev2-setup-failure-rate | epdg-ikev2-setup-success } threshold_value [ clear clear_value ]

no threshold { epdg-ikev2-authentication-failures | epdg-ikev2-setup-attempts | epdg-ikev2-setup-failure | epdg-ikev2-setup-failure-rate | epdg-ikev2-setup-success }

no

Disables the configuration of a specific threshold for ePDG service.

epdg-ikev2-authentication-failures threshold_value

Configures the threshold value for IKEv2 Authentication Failures.

threshold_value is the threshold value for IKEv2 Authentication Failures, which is an integer between 0 and 1000000.

epdg-ikev2-setup-attempts threshold_value

Configures the threshold value for IKEv2 Setup Attempts.

threshold_value is the threshold value for IKEv2 Setup Attempts, which is an integer between 0 and 1000000.

epdg-ikev2-setup-failure threshold_value

Configures the threshold value for IKEv2 Setup Failure.

threshold_value is the threshold value for IKEv2 Setup Failure, which is an integer between 0 and 1000000.
**epdg-ikev2-setup-failure-rate** `threshold_value`

Configures the threshold value for IKEv2 Setup Failure Rate.

`threshold_value` is the percentage of IKEv2 Setup Failure Rate, which is an integer between 0 and 100.

**epdg-ikev2-setup-success** `threshold_value`

Configures the threshold value for IKEv2 Setup Success.

`threshold_value` is the threshold value for IKEv2 Setup Success, which is an integer between 0 and 1000000.

**clear** `clear_value`

Configures the alarm clear threshold for the following.

- IKEv2 Authentication Failures. `clear_value` is the number of IKEv2 Authentication Failures, which is an integer between 0 and 1000000.
- IKEv2 Setup Attempts. `clear_value` is the number of IKEv2 Setup Attempts, which is an integer between 0 and 10000000.
- IKEv2 Setup Failure. `clear_value` is the number of IKEv2 Setup Failure, which is an integer between 0 and 1000000.
- IKEv2 Setup Failure Rate. `clear_value` is the percentage of IKEv2 Setup Failure Rate, which is an integer between 0 and 100.
- IKEv2 Setup Success. `clear_value` is the number of IKEv2 Setup Success, which is an integer between 0 and 10000000.

**Usage Guidelines**

Use this command to configure a specific threshold for ePDG service.

**Examples**

The following command configures ePDG IKEV2 Authentication Failures threshold as 50 for a specific ePDG Service.

```
threshold epdg-ikev2-authentication-failures 50
```
**username**

Sets the options related to username received from mobile.

**Product**
ePDG

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context > EPDG Service Configuration

configure > context context_name > epdg service service_name

Entering the above command sequence results in the following prompt:

{context_name}host_name(config-epdg-service)#

**Syntax Description**

```
username { check-mac-address [ failure-handling { continue | terminate } ] | mac-address-delimiter { NAI-label | colon | colon-or-NAI-label } | mac-address-stripping }
no username { check-mac-address | mac-address-stripping }
```

**no**

Cancels the options related to username received from mobile.

```
username { check-mac-address [ failure-handling { continue | terminate } ] | mac-address-delimiter { NAI-label | colon | colon-or-NAI-label } | mac-address-stripping }
```

- **check-mac-address** validates Mac address. By default, Mac address is not validated.
- **failure-handling** { continue | terminate } : MAC Address validation failure handling configuration.
- **continue** ignores failure and continues.
- **terminate** terminates session on request failure.
- **mac-address-delimiter** is the second delimiter to be used to extract the MAC address from username when first delimiter is '@'.
- **NAI-label** NAI-label(.nai) to be used to extract the MAC Address from username as a second delimiter when first delimiter is '@'.
- **colon** Colon(;) to be used to extract the MAC Address from username as a second delimiter when first delimiter is '@'.
- **colon-or-NAI-label** Either colon(;) or NAI-Label(.nai) to be used to extract the MAC address from username as a second delimiter when first delimiter is '@'. This is the default option.
- **mac-address-stripping** strips Mac Address from the username. By default, it is disabled.
**Usage Guidelines**

Use this command to set the options (Validate Mac address / mac-address-delimiter / mac-address-stripping) related to username received from mobile.

**Examples**

Use the following command to set the options related to username received from mobile.

```
username check-mac-address failure-handling terminate
```
**vendor-specific-attr**

Configures the vendor-specific-attributes values on PMIP based S2b interface.

**Product**
ePDG

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context > EPDG Service Configuration
configure > context context_name > epdg service service_name

Entering the above command sequence results in the following prompt:
{context_name}host_name(config-epdg-service)#

**Syntax Description**
vendor-specific-attr { dns-server-req { apco | pco } | pcscf-server-req { apco | private-extn } }
default vendor-specific-attr { dns-server-req | pcscf-server-req }

default
Configures vendor-specific-attributes to default the value. Default setting is to use APCO IE for DNS Server Address and PrivateExtension IE for PCSCF Server Address.

dns-server-req
Configures the DNS Server Address to be present in PCO/APCO IE.

apco
Configures to use APCO IE to carry information over PMIP based S2b.

pco
Configures to use PCO IE to carry information over PMIP based S2b.

pcscf-server-req
Configures the PCSCF Server Address to be present in APCO/PrivateExtn IE.

apco
Configures to use APCO IE to carry information over GTP based S2b.
private-extn
Configure to use PrivateExtension IE to carry information over GTP based S2b.

Usage Guidelines
Use this command to configure the vendor-specific-attributes values on PMIP based S2b interface.

Examples
Use the following command to configure the vendor-specific-attributes values on PMIP based S2b interface to pco.

vendor-specific-attr dns-server-req pco
The Ethernet Interface Configuration Mode is used to create and manage Ethernet IP interface parameters within a specified context.

**Command Modes**

Exec > Global Configuration > Context Configuration > Ethernet Interface Configuration

`configure > context context_name > interface interface_name broadcast`

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-if-eth)#
```

---

**Important**

Available commands or keywords/variables vary based on platform type, product version, and installed license(s).

- bfd, page 121
- crypto-map, page 123
- description, page 124
- end, page 125
- exit, page 126
- ip access-group, page 127
- ip address, page 128
- ip igmp profile, page 129
- ip mtu, page 130
- ip ospf authentication-key, page 131
- ip ospf authentication-type, page 132
- ip ospf bfd, page 133
• ip ospf cost, page 134
• ip ospf dead-interval, page 135
• ip ospf hello-interval, page 136
• ip ospf message-digest-key, page 137
• ip ospf network, page 138
• ip ospf priority, page 139
• ip ospf retransmit-interval, page 140
• ip ospf transmit-delay, page 141
• ipv6 access-group, page 142
• ipv6 address, page 144
• ipv6 ospf, page 145
• ipv6 router advertisement, page 147
• logical-port-statistics, page 148
• mpls ip, page 149
• policy-forward, page 150
• pool-share-protocol, page 152
• port-switch-on-L3-fail, page 154
• vlan-map, page 156
**bfd**

Configures Bidirectional Forwarding Detection (BFD) interface parameters.

**Product**

All

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > Ethernet Interface Configuration

`configure > context context_name > interface interface_name broadcast`

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-if-eth)#
```

**Syntax Description**

```
[no] bfd [ echo [echo-interval interval_num] | interval interval_num ]
  min_rx milliseconds multiplier value
```

- **no**
  Disables the specified option on this interface.

- **echo**
  Enables BFD echo mode.
  BFD echo mode works with asynchronous BFD. Echo packets are sent by the forwarding engine and forwarded back along the same path in order to perform detection—the BFD session at the other end does not participate in the actual forwarding of the echo packets. The echo function and the forwarding engine are responsible for the detection process, therefore the number of BFD control packets that are sent out between two BFD neighbors is reduced.
  Since the forwarding engine is testing the forwarding path on the remote (neighbor) system without involving the remote system, there is an opportunity to improve the interpacket delay variance, thereby achieving quicker failure detection times than when using BFD Version 0 with BFD control packets for the BFD session.

- **echo-interval interval_num**
  Specifies the transmit interval between BFD echo packets. The default interval is 150 ms. The range is from 0 to 999 ms. (VPC only)

- **interval interval_num**
  Specifies the transmit interval (in milliseconds) between BFD packets.
• For releases prior to 17.0, interval_num is an integer from 50 through 999. (Default 50)
• For release 17.0 onwards, interval_num is an integer from 50 through 10000. (Default 50)

min_rx milliseconds
Specifies the receive interval in milliseconds for control packets.
• For releases prior to 17.0, milliseconds is an integer from 50 through 999. (Default 50)
• For release 17.0 onwards, milliseconds is an integer from 50 through 10000. (Default 50)

multiplier value
Specifies the value used to compute the hold-down time as a number from 3 to 50.

Usage Guidelines
Specify BFD parameters including echo mode and the transmit interval between BFD packets.

Examples
To apply enable echo mode on this interface, use the following command:
bfd echo
The following command sets BFD interval parameters:
bfd interval 3000 min_rx 300 multiplier 3
crypto-map

Applies the specified IPSec crypto-map to this interface.

Product
All

Privilege
Security Administrator, Administrator

Syntax Description

crypto-map map_name [ secondary-address sec_ip_addr ]
no crypto-map map_name

no
Deletes the application of the crypto map on this interface.

map_name
Specifies the name of the crypto map being applied as an alphanumeric string of 1 through 127 characters that is case sensitive.

secondary-address sec_ip_addr
Applies the crypto map to the secondary address for this interface. sec_ip_addr must be specified using the IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

Usage Guidelines
In order for ISAKMP and/or manual crypto maps to work, they must be applied to a specific interface using this command. Dynamic crypto maps should not be applied to interfaces.
The crypto map must be configured in the same context as the interface.

Examples
To apply the IPSec crypto map named cmap1 to this interface, use the following command:
crypto-map cmap1
description

Sets the descriptive text for the current interface.

Product
All

Privilege
Security Administrator, Administrator

Syntax Description

description text
no description

description text

Specifies the descriptive text as an alphanumeric string of 0 through 79 characters.

Usage Guidelines
Set the description to provide useful information on the interface's primary function, services, end users, etc. Any information useful may be provided.

Examples
description sampleInterfaceDescriptiveText
### end

Exits the current configuration mode and returns to the Exec mode.

**Product**

All

**Privilege**

Security Administrator, Administrator

**Syntax Description**

end

**Usage Guidelines**

Use this command to return to the Exec mode.
exit

Exits the current mode and returns to the parent configuration mode.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Syntax Description**
exit

**Usage Guidelines**
Use this command to return to the parent configuration mode.
**ip access-group**

Specifies the name of the Access Control List (ACL) group to assign to the interface.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Syntax Description**

```
[ no ] ip access-group  group_name  { in | out } priority
```

- **no**
  Removes the ACL group from this interface.

- **group_name**
  Specifies the name of an existing ACL group as an alphanumeric string of 1 through 47 characters.

- **Important**
  Up to eight ACLs can be applied to a group provided that the number of rules configured within the ACL(s) does not exceed the 128-rule limit for the interface.

- **{ in | out }**
  Specifies whether the ACL group will apply to inbound or outbound traffic.

- **priority**
  If more than one ACL group is applied, *priority-value* specifies the priority in which they will be compared against the packet. If not specified, the priority is set to 0. *priority-value* must be an integer from 0 through 4294967295. If access groups in the list have the same priority, the last one entered is used first.

**Usage Guidelines**
Specify the name of the Access Control List (ACL) group to assign to the interface along with its directionality and priority.

**Examples**

```
ip access-group acl-101 in 56
```
**ip address**

Specifies the primary and optional secondary IPv4 addresses and subnets for this interface.

**Product**

All

**Privilege**

Security Administrator, Administrator

**Syntax Description**

```
ip address  ip_address  { mask | /mask }  [ secondary ip_address ]  [ srp-activate ]
no ip address  ip_address
```

- **no**
  Removes the IPv4 address from this interface.

  `ip_address  { mask | /mask }`
  Configures the IPv4 address and mask for the interface. `ip_address` must be entered using IPv4 dotted-decimal notation. IPv4 dotted-decimal or CIDR notation is accepted for the mask.

- **Important**
  For IPv4 addresses, 31-bit subnet masks are supported per RFC 3021.

- **secondary ip_address**
  Configures a secondary IPv4 address on the interface.

- **Important**
  You must configure the primary IPv4 address before you will be allowed to configure a secondary address.

- **srp-activate**
  Activates the IP address for Interchassis Session Recovery (ICSR). Enable this IPv4 address when the Service Redundancy Protocol (SRP) determines that this chassis is ACTIVE. Requires an ICSR license on the chassis to activate.

**Usage Guidelines**

The following command specifies the primary IP address and subnets for this interface.

**Examples**

The following example configures an IPv4 address for this interface:

`ip address 192.154.3.5/24`
ip igmp profile

Associates an Internet Group Management Protocol (IGMP) profile with this interface.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Syntax Description**

```
[ no ] ip igmp profile  profile_name
```

*no*
Removes the IGMP profile from this interface.

*profile_name*
Specifies the name of an existing IGMP profile as an alphanumeric string of 1 through 63 characters.
If the name is not for an existing profile, you are prompted to create a new profile. You are then moved to the IGMP Profile Configuration mode.

**Usage Guidelines**
Associates an Internet Group Management Protocol (IGMP) profile with this interface.

**Examples**

```
ip igmp profile default
```
**ip mtu**

Configures the Maximum Transmission Unit (MTU) for this interface.

**Product**

All

**Privilege**

Security Administrator, Administrator

**Syntax Description**

`[no] ip mtu mtu-size`

- **no**
  - Removes the MTU value.

- **mtu-size**
  - Specifies the MTU in bytes as an integer from 576 though 2048.

**Usage Guidelines**

IP MTU is supported for a normal interface and point-to-point interface (OLC ports).

The maximum MTU size allowed with an OLC port is 1600.

The maximum MTU size allowed with an Ethernet port is 2048. The default MTU size is 1500.

The maximum sizes for ethernet MTUs are:

- **Untagged traffic** (non-VLAN) – `ip MPU mtu-size` + ethernet header (20 bytes)
- **VLAN traffic** – `ip MPU mtu-size` + ethernet header (20 bytes) + vlan header (4 bytes)

**Examples**

The following command sets the MTU value to 2048.

```
ip mtu 2048
```
ip ospf authentication-key

Configures the password for authentication with neighboring Open Shortest Path First (OSPF) routers.

**Product**
- PDSN
- HA
- GGSN

**Privilege**
- Security Administrator, Administrator

**Syntax Description**

```plaintext
ip ospf authentication-key [encrypted] password auth_key
no ip ospf authentication-key

no
Deletestheauthenticationkey.

encrypted
UsethiskeywordifyouarepastingapreviouslyencryptedauthenticationkeyintotheCLIcommand.

password auth_key
Specifiesthepasswordtouseforauthenticationasanalphanumericstringof1through16charactersentered
incleartextformat.
```

**Usage Guidelines**

Use this command to set the authentication key used when authenticating with neighboring routers.

**Examples**

To set the authentication key to 123abc, use the following command:

```
ip ospf authentication-key password 123abc
```

Use the following command to delete the authentication key:

```
no ip ospf authentication-key
```
ip ospf authentication-type

Configures the OSPF authentication method to be used with OSPF neighbors over the logical interface.

**Product**
- PDSN
- HA
- GGSN

**Privilege**
- Security Administrator, Administrator

**Syntax Description**

```
ip ospf authentication-type { message-digest | null | text }
no ip ospf authentication-type { message-digest | null | text }
```

- **no**
  Disable this function.

- **message-digest**
  Uses the message digest (MD) authentication method.

- **null**
  Uses no authentication, thus disabling either MD or clear text methods.

- **text**
  Uses the clear text authentication method.

**Usage Guidelines**
Use this command to set the type of authentication to use when authenticating with neighboring routers.

**Examples**
To set the authentication type to use clear text, enter the following command;

```
ip ospf authentication-type text
```
### ip ospf bfd

Enables or disables OSPF Bidirectional Forwarding Detection (BFD) on this interface.

**Product**
- PDSN
- HA
- GGSN

**Privilege**
- Security Administrator, Administrator

**Syntax Description**

```plaintext
ip ospf bfd [disable]
no ip ospf cost

no
Disable this function.

disable
Disables OSPF BFD on this interface.
```

**Usage Guidelines**

Enable or disable OSPF Bidirectional Forwarding Detection (BFD) on this interface.

**Examples**

Use the following command to enable OSPF BFD:

```
ip ospf bfd
```
**ip ospf cost**

Configures the cost associated with sending a packet over the OSPF logical interface.

**Product**
- PDSN
- HA
- GGSN

**Privilege**
Security Administrator, Administrator

**Syntax Description**

```
ip ospf cost value
no ip ospf cost
```

- `no` Disable this function.

- `value`
  Specifies the cost to assign to OSPF packets as an integer from 1 through 65535. Default: 10

**Usage Guidelines**
Use this command to set the cost associated with routes from the interface.

**Examples**

Use the following command to set the cost to 20;
```
ip ospf cost 20
```

Use the following command to disable the cost setting;
```
no ip ospf cost
```
**ip ospf dead-interval**

Configures the interval that the router should wait, during which time no packets are received and after which the router considers a neighboring router to be off-line.

**Product**
- PDSN
- HA
- GGSN

**Privilege**
Security Administrator, Administrator

**Syntax Description**

```
[ no ] ip ospf dead-interval seconds
```

- **no**
  - Returns the value to its default of 40 seconds.

- **seconds**
  - Specifies the interval (in seconds) as an integer from 1 through 65535. This number is typical four times the hello-interval. Default: 40

**Usage Guidelines**
Use this command to set the dead intervals for OSPF communications.

**Examples**
To set the dead-interval to 100, use the following command;

```
ip ospf dead-interval 100
```
ip ospf hello-interval

Configures the interval (in seconds) between sending OSPF hello packets.

**Product**
- PDSN
- HA
- GGSN

**Privilege**
Security Administrator, Administrator

**Syntax Description**

```
ip ospf hello-interval  seconds
no ip ospf hello-interval
```

- **no**
  - Returns the value to its default of 10 seconds.

- **seconds**
  - Specifies the number of seconds between sending hello packets as an integer from 1 through 65535. Default: 10

**Usage Guidelines**

Specify the interval (in seconds) between sending OSPF hello packets.

**Examples**

To set the hello-interval to 25, use the following command;

```
ip ospf hello-interval 25
```
ip ospf message-digest-key

Enables or disables the use of MD5-based OSPF authentication.

**Product**
- PDSN
- HA
- GGSN

**Privilege**
Security Administrator, Administrator

**Syntax Description**

```plaintext
ip ospf message-digest-key key_id md5 | encrypted | password authentication_key
no ip ospf message-digest-key key_id
```

- **no**
  Deletes the key.

- **message-digest-key key_id**
  Specifies the key identifier number as an integer from 1 through 255.

- **encrypted**
  Use this if you are pasting a previously encrypted authentication key into the CLI command.

- **password authentication_key**
  Specifies the password to use for authentication as an alphanumeric string of 1 through 16 characters entered in clear text format.

**Usage Guidelines**
Use this command to create an authentication key that uses MD5-based OSPF authentication.

**Examples**
To create a key with the ID of 25 and a password of 123abc, use the following command;

```
ip ospf message-digest-key 25 md5 password 123abc
```

To delete the same key, enter the following command;

```
no ip ospf message-digest-key 25
```
**ip ospf network**

Configures the Open Shortest path First (OSPF) network type.

**Product**

PDSN
HA
GGSN

**Privilege**

Security Administrator, Administrator

**Syntax Description**

`ip ospf network { broadcast | non-broadcast | point-to-multipoint | point-to-point }`

`no ip ospf network`

**no**

Disable this function.

**broadcast**

Sets the network type to broadcast.

**non-broadcast**

Sets the network type to non-broadcast multi access (NBMA).

**point-to-multipoint**

Sets the network type to point-to-multipoint.

**point-to-point**

Sets the network type to point-to-point.

**Usage Guidelines**

Use this command to specify the OSPF network type.

**Examples**

To set the OSPF network type to `broadcast`, enter the following command;

`ip ospf network broadcast`

To disable the OSPF network type, enter the following command;

`no ip ospf network`
ip ospf priority

Designates the OSPF router priority.

**Product**

- PDSN
- HA
- GGSN

**Privilege**

Security Administrator, Administrator

**Syntax Description**

```
ip ospf priority value
no ip ospf priority value
```

**no**

Disable this function.

**value**

Sets the priority value as an integer from 0 through 255.

**Usage Guidelines**

Use this command to set the OSPF router priority.

**Examples**

To set the priority to 25, enter the following command:

```
ip ospf priority 25
```

To disable the priority, enter the following command:

```
no ip ospf priority
```
ip ospf retransmit-interval

Configures the interval in (seconds) between LSA (Link State Advertisement) retransmissions.

**Product**
- PDSN
- HA
- GGSN

**Privilege**
- Security Administrator, Administrator

**Syntax Description**

```
ip ospf retransmit-interval seconds
no ip ospf retransmit-interval
```

- **no**
  - Returns the value to its default of 5 seconds.

- **seconds**
  - Specifies the number of seconds between LSA (Link State Advertisement) retransmissions as an integer from 1 through 65535. Default: 5

**Usage Guidelines**
Configure the interval in (seconds) between LSA (Link State Advertisement) retransmissions.

**Examples**
To set the retransmit-interval to 10, use the following command;
```
ip ospf retransmit-interval 10
```
ip ospf transmit-delay

Configures the interval (in seconds) that the router should wait before transmitting an OSPF packet.

**Product**
- PDSN
- HA
- GGSN

**Privilege**
- Security Administrator, Administrator

**Syntax Description**
- `ip ospf transmit-delay seconds`
- `no ip ospf transmit-delay`

  **no**
  Returns the value to its default of 1 second.

  **seconds**
  Specifies the number of seconds that the router should wait before transmitting a packet as an integer from 1 through 65535. Default: 1

**Usage Guidelines**
Configure the interval (in seconds) that the router should wait before transmitting an OSPF packet.

**Examples**
To set the transmit-delay to 5, use the following command:

```
ip ospf transmit-delay 5
```
ipv6 access-group

Specifies the name of the access control list (ACL) group to assign to this interface. You can filter for either inbound or outbound traffic.

**Product**
- PDSN
- HA

**Privilege**
- Security Administrator, Administrator

**Command Modes**
- Exec > Global Configuration > Context Configuration > Ethernet Interface Configuration
- `configure > context context_name > interface interface_name broadcast`

Entering the above command sequence results in the following prompt:

```
{context_name|host_name/config-if-eth}#
```

**Syntax Description**

```
[ no ] ipv6 access-group group name { in | out } { priority-value priority_value }
```

- **no**
  - Removes a previously configured access group association.

- **group_name**
  - Specifies the name of the access group as an alphanumeric string of 1 to 79 characters.

- **in**
  - Applies the filter to the inbound traffic.

- **out**
  - Applies the filter to the outbound traffic.

- **priority-value**
  - Specifies the priority of the access group as an integer from 0 to 4294967295. 0 is the highest priority. If priority-value is not specified, the priority is set to 0.

  If access groups in the list have the same priority, the last one entered is used first.
Usage Guidelines

Use this command to specify the ACL group to assign the interface to. Specify an ACL group name with this command.

Important

Up to eight ACLs can be applied to a group provided that the number of rules configured within the ACL(s) does not exceed the 128-rule limit for the interface.

Examples

Use the following command to associate the `group_1` access group with the current IPv6 profile for inbound access:

```
ipv6 access-group group_1 in 1
```
**ipv6 address**

Specifies an IPv6 address and subnet mask.

**Product**

PDSN

HA

**Privilege**

Security Administrator, Administrator

**Syntax Description**

<table>
<thead>
<tr>
<th>no</th>
<th>ipv6 address</th>
<th>ipv6_address/mask</th>
</tr>
</thead>
</table>

*no*

Removes the IPv6 address from this interface.

*ipv6_address/mask*

Specifies an individual host IP address to add to this host pool in IPv6 colon-separated-hexadecimal CIDR notation.

**Important**

On the ASR 5000, routes with IPv6 prefix lengths less than /12 and between the range of /64 and /128 are not supported.

**Usage Guidelines**

Configures the IPv6 address and subnet mask for a specific interface.

**Examples**

The following example configures an IPv6 address for this interface:

```shell
ipv6 address 2002::0:0:0:0:c014:101/128
```
ipv6 ospf

Enables Open Shortest Path First Version 3 (OSPFv3) functionality on this IPv6 interface.

**Product**
- PDSN
- HA
- GGSN

**Privilege**
- Security Administrator, Administrator

**Syntax Description**

```
[ no ] ipv6 ospf area { integer | ipv4-address } | cost cost-value | dead-interval dead-intrv | hello-interval hello-intrvl | priority p-value | retransmit-interval retx-interval | transmit-delay td-interval ]
```

- **no**
  - Removes a previously configured access group association.

- **area { integer | ipv4-address }**
  - Specifies an OSPFv3 area.
    - `decimal_value`: Specifies the identification number of the area as an integer from 0 through 4294967295.
    - `ipv4-address`: Specifies the IP address of the area in IPv4 dotted-decimal notation.

- **cost cost-value**
  - Specifies a link cost as an integer from 1 through 65535. The link cost is carried in the LSA updates for each link. The cost is an arbitrary number.

- **dead-interval dead-intrv**
  - Specifies the interval (in seconds) after which a neighbor is declared dead when no hello packets as an integer from 1 through 65535.

- **hello-interval hello-intrvl**
  - Specifies the interval (in seconds) between hello packets that OSPFv3 sends on an interface as an integer from 1 through 65535.

- **priority p-value**
  - Specifies the of the interface as an integer from 0 through 255.
**retransmit-interval** *retx-interval*

Specifies the time (in seconds) between link-state advertisement (LSA) retransmissions for adjacencies belonging to the OSPFv3 interface as an integer from 1 through 65535.

**transmit-delay** *td-interval*

Specifies the estimated time (in seconds) required to send a link-state update packet on the interface as an integer from 1 through 65535.

**Usage Guidelines**

Configure an OSPFv3 interface in this context.

**Examples**

```
ipv6 ospf area 334 cost 555 dead-interval 40 hello-interval 10 priority 10 retransmit-interval 5
transmit-delay 10
```
ipv6 router advertisement

Enables or disables the system to send IPv6 router advertisements.

**Product**  
PDSN  
HA

**Privilege**  
Security Administrator, Administrator

**Command Modes**  
Exec > Global Configuration > Context Configuration > Ethernet Interface Configuration

configure > context context_name > interface interface_name broadcast

Entering the above command sequence results in the following prompt:

[context_name]host_name(config-if-eth)#

**Syntax Description**  
[ no ] ipv6 router advertisement

**Usage Guidelines**  
Enables sending of router advertisements on the interface. All of the pool prefixes in the context (belonging to the interface) will be advertised in the router advertisement.

The router-lifetime in the advertisement is sent as 0 to indicate to the receiver that the sender cannot be a default-router. For all the prefixes (pools), the valid and preferred lifetime are sent as default. The router-advertisement is sent every 600 seconds.

If the pool-prefix is deleted, then an router-advertisement is sent for that particular prefix with the valid and preferred time set to 0.
logical-port-statistics

Enables or disables the collection of logical port (VLAN and NPU) bulk statistics for the first 32 configured Ethernet or PVC interface types.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context Configuration > Ethernet Interface Configuration
```
configure > context context_name > interface interface_name broadcast
```
Entering the above command sequence results in the following prompt:
```
<context_name>host_name(config-if-eth)#
```

**Syntax Description**

| no | logical-port-statistics

no

 Stops the collection of logical port statistics on this interface.

**Usage Guidelines**

Starts or stops the collection of logical port bulkstats. Default: This feature is not enabled.

Statistics are collected for up to 32 logical ports. The system collects statistics on a per minute basis and maintains samples for the last 5-minute and 15-minute intervals when this feature is enabled.

**Examples**

To start collection of logical port statistics on this interface, enter the following command:
```
logical-port-statistics
```
**mpls ip**

Enables or disables dynamic Multiprotocol Label Switching (MPLS) distribution and forwarding of IP packets on this interface.

**Product**

GGSN

HA

P-GW

SAEGW

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > Ethernet Interface Configuration

`configure > context context_name > interface interface_name broadcast`

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-if-eth)#`

**Syntax Description**

`[no] mpls ip`

- **no**
  
  Stops dynamic label distribution and forwarding on this interface.

**Usage Guidelines**

Starts label distribution and forwarding over an interface for a context that has MPLS enabled. For additional information, refer to the Context Configuration Mode Commands chapter. Default: This feature is not enabled.

**Examples**

To start dynamic MPLS distribution and forwarding on this interface, enter the following command:

`mpls ip`
**policy-forward**

This command supports downlink IPv4 data packets received from the SGi that are forwarded/redirected to a configured next-hop address if the subscriber session does not exist in the P-GW.

**Product**

- PDSN
- P-GW

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > Ethernet Interface Configuration

```bash
configure > context context_name > interface interface_name broadcast
```

Entering the above command sequence results in the following prompt:

```
{context_name}@host_name(config-if-eth)#
```

**Syntax Description**

```bash
policy-forward { icmp unreachable next-hop ip_address | unconnected-address next-system ip_address } 
no policy-forward unconnected-address
```

**no**

Deletes the policy forwarding configuration for unconnected address for the current interface.

**icmp unreachable next-hop ip_address**

Specifies routing of Internet Control Message Protocol (ICMP) unreachable is required in overlapping pool configuration. `ip_address` must be expressed in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

**unconnected-address next-system ip_address**

Specifies the IP address of the next system P-GW to handle processing during P-GW upgrade. `ip_address` must be an IP address expressed in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

---

**Important**

The `unconnected-address next-system ip_address` keyword enables IPv4 downlink data packet forwarding/redirection.
Usage Guidelines

Use this command to set the redirecting policy for IP packets from an existing P-GW to a new P-GW during upgrade. To configure this command both keywords will be in separate interface.

Important

This is a customer specific command.

Examples

To configure existing P-GW system for redirecting the P-GW packets to new P-GW during existing P-GW upgrade enter the following commands:

`policy-forward unconnected-address next-system ip_address`

`policy-forward icmp unreachable next-hop ip_address`
pool-share-protocol

Configures the primary or secondary system for the IP pool sharing protocol and enter IPSP configuration mode.

**Product**

PDSN

HA

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > Ethernet Interface Configuration

`configure > context context_name > interface interface_name broadcast`

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-if-eth)#`

**Syntax Description**

`pool-share-protocol { primary ip_address | secondary ip_address } | mode { active | inactive | check-config }`

`no pool-share-protocol`

`no`

Deletes the IP pool sharing protocol information from the current interface.

**primary address**

On the secondary system, defines the IP address of an interface on the primary system that has identical IP pools configured for use with the IP pool sharing protocol. `ip_address` must be expressed in IP v4 dotted-decimal notation.

**secondary ip_address**

On the primary system, define the IP address of an interface on the secondary system that has identical IP pools configured for use with the IP pool sharing protocol. `ip_address` must be expressed in IP v4 dotted-decimal notation.

**mode { active | inactive | check-config }**

This is an optional command to manage the mode for IP pool sharing protocol for primary or secondary HA.

**active**: Activates the IP pool sharing protocol mode.

**inactive**: Inactivates the IP pool sharing protocol mode.
check-config: Verifies the IP pool sharing protocol configuration.

Usage Guidelines

Use this command to set the IP address of the primary or secondary system for use with the IP pool sharing protocol and enter ipsp configuration mode. This command must be configured for an interface in each context that has IP pools configured. Refer to the System Administration Guide for information on configuring and using the IP pool sharing protocol.

<table>
<thead>
<tr>
<th>Important</th>
<th>Both the primary and secondary systems must be in the same subnet.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Important</th>
<th>For information on configuring and using IP Pool Sharing Protocol (IPSP), refer to the PDSN Administration Guide.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Important</th>
<th>Reserve free addresses on the primary HA for this command via the reserved-free-percentage command as described in the IPSP Configuration Mode Commands chapter of this guide.</th>
</tr>
</thead>
</table>

Examples

To configure a secondary system with an IP address of 192.168.100.10 for use with the IP pool sharing protocol, enter the following command:

```
pool-share-protocol secondary 192.168.100.10
```

To inactivate a secondary system with an IP address of 192.168.100.10 for use with the IP pool sharing protocol, enter the following command:

```
pool-share-protocol secondary 192.168.100.10 mode inactive
```
**port-switch-on-L3-fail**

Causes the ASR 5000 line card port or the ASR 5500 MIO port to which the current interface is bound to switch over to the port on the redundant line card or MIO when connectivity to the specified IP address is lost.

**Product**

All

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > Ethernet Interface Configuration

configure > context context_name > interface interface_name broadcast

Entering the above command sequence results in the following prompt:

`(context_name)host_name(config-if-eth)`

**Syntax Description**

`port-switch-on-L3-fail address { ip_address | ipv6_address } [ minimum-switchover-period switch_time ] [ interval int_time ] [ timeout time_out ] [ num-retry number ]`

`no port-switch-on-L3-fail`

`no`

Disable port switchover on failure.

`ip_address`

The IP address to monitor for connectivity, entered in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

`minimum-switchover-period switch_time`

After a switchover occurs, another switchover cannot occur until the specified amount of time (in seconds) has elapsed. `switch_time` must be an integer from 1 through 3600. Default: 120

`interval int_time`

Specifies how often (in seconds) monitoring packets are sent to the IP address being monitored. `int_time` must be an integer from 1 through 3600. Default: 60

`timeout time_out`

Specifies how long to wait (in seconds) without a reply before resending monitoring packets to the IP address being monitored. `time_out` must be an integer from 1 through 10. Default: 3
**num-retry number**

Specifies how many times to retry sending monitor packets to the IP address being monitored before performing the switchover. *number* must be an integer from 1 through 100. Default: 5

**Usage Guidelines**

Use this command to monitor a destination in your network to test for L3 connectivity. The destination being monitored should be reachable from both the active and standby line cards.

**Examples**

The following command enables port switchover on connectivity failure to the IP address 192.168.10.100 using default values:

```
port-switch-on-L3-fail address 192.168.10.100
```

The following command disables port switchover on connectivity failure:

```
no port-switch-on-L3-fail
```
**vlan-map**

Sets a single next-hop IP address so that multiple VLANs can use a single next-hop gateway. The vlan-map is associated with a specific interface.

**Product**

- PDSN
- HA
- SGSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > Ethernet Interface Configuration

```
configure > context context_name > interface interface_name broadcast
```

Entering the above command sequence results in the following prompt:

```
<context_name>host_name(config-if-eth)#
```

**Syntax Description**

```
vlan-map next-hop ip_address
```

**next-hop ip_address**

Specifies the IP address for the next-hop gateway in IPv4 dotted-decimal notation.

**Usage Guidelines**

Use this command to combine multiple VLAN links to go through a single IP address. This feature is used in conjunction with nexthop forwarding and overlapping IP pools.

After configuring the vlan-map, move to the Ethernet Port Configuration mode to attach the vlan-map to a specific VLAN.

**Examples**

The following command sets an IPv4 address for a next-hop gateway.

```
vlan-map next-hop 123.123.123.1
```
Ethernet Port Configuration Mode Commands

The Ethernet Port Configuration Mode is used to create and manage Ethernet ports and their bindings between contexts.

**Command Modes**

Exec > Global Configuration > Ethernet Port Configuration

`configure > port ethernet slot_number/port_number`

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-port-slot_number/port_number)#
```

**Important**

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

- bind interface, page 159
- boxertap, page 160
- description, page 161
- end, page 162
- exit, page 163
- fault-unidirect-mode, page 164
- flow-control, page 165
- ingress-mode, page 166
- link-aggregation, page 167
- media, page 171
- medium, page 172
- preferred slot, page 174
- shutdown, page 176
- snmp trap link-status, page 177
• srp virtual-mac-address, page 178
• threshold high-activity, page 179
• threshold monitoring, page 181
• threshold rx-utilization, page 183
• threshold tx-utilization, page 185
• vlan, page 187
bind interface

Configures an association (binds) between a virtual IP interface, an SS7 or Frame Relay link to a specific context.

Product
All

Privilege
Security Administrator, Administrator

Command Modes
Exec > Global Configuration > Ethernet Port Configuration
configure > port ethernet slot_number/port_number
Entering the above command sequence results in the following prompt:
[local]host_name(config-port-slot_number/port_number)#

Syntax Description
| no | bind interface interface_name context_name |

no
Indicates the virtual interface specified is to be unbound from the context.

interface_name
Specifies the name of an existing virtual interface to be bound to the context as an alphanumeric string of 1 through 79 characters. The interface must be previously defined using the Context Configuration mode interface command.

context_name
Specifies the name of the context to be bound to the virtual port. context_name must refer to a previously configured context.

Usage Guidelines
Bind an interface to a context to allow the context to provide service.

Examples
The following command binds the ethernet10 interface with the allstar4 context:
bind interface ethernet10 allstar4
boxertap

Binds a physical port to a named interface for debugging purposes.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Ethernet Port Configuration
configure > port ethernet slot_number/port_number

Entering the above command sequence results in the following prompt:
[local]host_name(config-port-slot_number/port_number)#

Syntax Description

| no | boxertap interface_name

no
Unbinds the physical port to the interface.

interface_name
Specifies the name of the virtual interface to be bound to the physical port as an alphanumeric string of 1 through 79 characters.

Usage Guidelines

Bind a physical port to a named interface for debugging purposes.

Examples

The following command binds the ggsn01 interface to the boxertap port.
boxertap ggsn01
description

Allows you to enter descriptive text for this configuration.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Syntax Description**

description text

no description

**no**
Clears the description for this configuration.

text
Enter descriptive text as an alphanumeric string of 1 to 100 characters.
If you include spaces between words in the description, you must enclose the text within double quotation marks (" "), for example, "AAA BBBB".

**Usage Guidelines**
The description should provide useful information about this configuration.
end

Exits the current configuration mode and returns to the Exec mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

end

Usage Guidelines

Use this command to return to the Exec mode.
exit

Exits the current mode and returns to the parent configuration mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

exit

Usage Guidelines

Use this command to return to the parent configuration mode.
fault-unidirect-mode

Configures the unidirectional mode that generates fault messages for the connection's peer when local faults are detected and remote faults are received.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Ethernet Port Configuration
configure > port ethernet slot_number/port_number
Entering the above command sequence results in the following prompt:
[local]host_name(config-port-slot_number/port_number)#

**Syntax Description**

```
[ no ] fault-unidirect-mode ( clause-46 | clause-66 )
```

- **no fault-unidirect-mode**
  Disables fault message generation.

  `( clause-46 | clause-66 )`

- **clause-46**: On local fault reception, continuous remote faults are sent. On remote fault reception, continuous idles are sent. [IEEE 802.3, Clause 46, Reconciliation Sublayer (RS) and 10 Gigabit Media Independent Interface (XGMII)]

- **clause-66**: On local fault reception, frame transmit is continued, remote fault indication is sent during Inter-Frame Gap (IFG). On remote fault reception, frame transmit is continued. [IEEE 802.3, Clause 66, Extensions of the 10 Gb/s Reconciliation Sublayer (RS), 100BASE-X PHY, and 1000BASE-X PHY for unidirectional transport]

**Usage Guidelines**
Configure the unidirectional mode that generates fault messages for the connection's peer when local faults are detected and remote faults are received.

**Examples**
After flow control has been disabled, use the following command to enable flow control:
```
fault-unidirect-mode clause-46
```
flow-control

Enables and disables flow control on the ASR 5000 Quad Gig-E line card (QGLC) and 10-Gig-E line card (XGLC).

**Product**
- PDSN
- SGSN
- GGSN

**Privilege**
- Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Ethernet Port Configuration

```
configure > port ethernet slot_number/port_number
```

Entering the above command sequence results in the following prompt:

```
[local] host_name(config-port-slot_number/port_number)#
```

**Syntax Description**

```
| no | flow-control
```

- **no**
  Disables flow control on the specified port.

**Usage Guidelines**
Flow control is enabled by default on the QGLC and can be disabled using the no command on a per-port basis. This command does not work on the Fast Ethernet Line Card (FELC) and Gigabit Ethernet Line Card (GELC/GLC2) which do not support flow control.

**Important**

Flow control must be enabled on all XGLCs in the chassis. To prevent XGLC shutdowns, you should also enable flow control at 6Gbps on the peer ports of all routers in your network that connect with the ASR 5000.

**Examples**
After flow control has been disabled, use the following command to enable flow control:

```
flow-control
```
**ingress-mode**

Labels this port as an ingress port (incoming traffic).

**Product**
IPSG  
SaMOG

**Privilege**  
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Ethernet Port Configuration  
configure > port ethernet slot_number/port_number

Entering the above command sequence results in the following prompt:

 lokal\host_name\(config-port-slot_number/port_number)\# 

**Syntax Description**

| no | ingress-mode |

no  
Disables ingress port tag.

**Usage Guidelines**

Use this command to label this port in order for the session manager to recognize the interface from which IP data packets are being received. This command should be used in single context configurations. In single context configurations, the ingress port can only be identified if labeled.

<table>
<thead>
<tr>
<th>Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is recommended to enable the <strong>ingress-mode</strong> configuration for IPv6 traffic to avoid packet drops.</td>
</tr>
</tbody>
</table>
link-aggregation

Aggregates ports on ASR 5000 Quad Gig-E line cards (QGLCs), ASR 5000 10 Gig-E line cards (XGLCs), or ASR 5500 Management Input/Output (MIO) cards, and sets related parameters in accordance with IEEE 802.3ad.

Product
WiMAX
PDSN
HA
FA
GGSN
SGSN

Privilege
Security Administrator, Administrator

Command Modes
Exec > Global Configuration > Ethernet Port Configuration
configure > port ethernet slot_number/port_number

Entering the above command sequence results in the following prompt:
[local]host_name(config-port-slot_number/port_number)#

Syntax Description

link-aggregation { distribution { block | random | rotate | simple } | lacp { active | passive } | rate { auto | fast | slow } | timeout { long | short } | master { global group_number | group group_number | local group group_number } | member { global group_number | group group_number | local group group_number | min-link number_links' mode { non-redundant | redundant } | redundancy { standard | switched } | hold-time sec | preferred slot { card_number | none } | toggle-link } | no link-aggregation | toggle-link

default link-aggregation { distribution | lacp | redundancy | toggle-link }

distribution { block | random | rotate | simple }

Important

The distribution keyword is not supported on the ASR 5500.

Configures link aggregation distribution and controls how a Link Aggregation Group (LAG) hash map is generated. This method is required for Equal Cost Multi-Path (ECMP) routing over LAG. Set this option on the master port for use with the whole group. The following list defines the distribution options (assuming port index 0,1,2,3 were selected.)
**block**: Blocks of the same port index (Example: 0000111122223333)

**random**: Based on pseudo random number

**rotate**: Repetition of rotated port index (Example: 0123123013013012...)

**simple**: Repetition of all selected port indexes (Example: 0123012301230123...)

**lACP** { **active** | **passive** }

Configures the Link Aggregation Control Protocol (LACP). Set this option on the master port for use with the whole group.

- **active**: mode sends out LACP packets periodically. (Default)
- **passive**: mode only responds to LACP packets received.

**rate** { **auto** | **fast** | **slow** }

Configures the rate at which the LACP sends packets.

- **auto**: rate is controlled by the peer
- **fast**: 1 seconds
- **slow**: 30 seconds (Default) [ASR 5000 only]

**timeout** { **long** | **short** }

Configures LACP timeout events. Set this option on the master port for use with the whole group.

- **long**: Set LACP to long timeout (30 seconds)
- **short**: Set LACP to short timeout (3 seconds)

**master** { **global group group_number** | **group group_number** | **local group group_number** }

This command creates the Master port for the aggregated group.

- **global**: Set group global across slots.
- **group group_number**: Set link aggregation group number. group_number must be an integer between 1 and 1023.
- **local**: Set group local within same slot.

**member** { **global group group_number** | **group group_number** | **local group group_number** }

This command makes the port a member of the aggregated group.

- **global**: Set group global across slots.
- **group group_number**: Set link aggregation group number. group_number must be an integer from 1 through 1023.
- **local**: Set group local within same slot.

**min-link number_links**

---

**Important**: This feature is only supported on the ASR 5500.
Specifies that a Link Aggregation Group (LAG) is up/usable only when a minimum number of links are available for aggregation. This guarantees that a minimum amount of bandwidth is available for use.

`number_links` specifies the minimum number of links required to avoid a LAG switchover as an integer from 1 through 255.

When this feature is enabled, a LAG is not usable when the number of links in a LAG goes below the configured min-link value. Switchover to another LAG bundle (if available) automatically occurs when the number of links in the current active bundle goes below the configured min-link value.

```
mode { non-redundant | redundant }
```

**Important** This feature is only supported on the ASR 5500.

This specifies whether the LAG is configured in non-redundant (Active-Active mode) or redundant (Active-Standby) mode.

```
redundancy { standard | switched } [ hold-time sec ] [ preferred slot { card_number | none } ]
```

Connects top and bottom ASR 5000 QGLCs, side-by-side ASR 5000 XGLCs cards, or ASR 5500 MIOs to different Ethernet switches. The master port must be set to make this effective for the group.

- **standard**: Treats all cards in the group as one group. (Default)
- **switched**: Assumes cards are connected to different switches. [ASR 5000 only]
- **hold-time sec**: Sets the amount of time to hold (in seconds) before switching between cards. Applies to standard and switched modes. `sec` must be an integer from 0 through 3600. Default: 10
- **preferred slot { card_number | none }**: Specifies the preferred behavior for a LAG using two Ethernet switches. Applies to standard and switched modes. `card_number` is an integer between 1 and 48 on an ASR 5000, or 5 or 6 on an ASR 5500.

When a card number is specified, system behavior varies based on the card type.

- **QGLC (ASR 5000)** – the preferred slot is selected only when both the top and bottom slots have the same number of active LACP ports.
- **XGLC (ASR 5000)** – the preferred slot is selected for the initial timeout period to make the selection of an Ethernet switch less random.
- **MIO (ASR 5500)** – the preferred slot is selected for the initial timeout period to make the selection of an Ethernet switch less random.

**none**: Specifies no preferred slot.

```
toggle-link
```

**Important** The `toggle-link` keyword is not supported on the ASR 5500.

Set to toggle link on port switch.
**default**

Restores the default values.

**no**

This command deletes the Ethernet port from any group it might be in. If the port was the Master of a group, the whole group would be deleted.

### Usage Guidelines

Configure from one to four ports on a QGLC (vertical aggregation) or the single port on XGLCs (horizontal aggregation), or traffic ports on an MIO card to be in an aggregation group that links to an aggregation group on a remote Ethernet switch. Very large files can be downloaded across all ports in a group, which makes for a faster download when compared to serial downloads over a single link.

Related `link-aggregation` commands are described in the *Card Configuration Mode Commands* and *Global Configuration Mode Commands* chapters of this guide. For additional information, also refer to the *System Administration Guide*.

### Examples

The following example configures the port to be part of Master Group 2:

```
link aggregation master group 2
```
**media**

Configures the port interface type. (ASR 5000 only)

**Product**

All

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Ethernet Port Configuration

*configure > port ethernet slot_number/port_number*

Entering the above command sequence results in the following prompt:

[local] *host_name* (config-port-slot_number/port_number)#

**Syntax Description**

`media { rj45 | sfp }`

- **rj45**
  - *rj45*: Sets the physical interface to a copper RJ-45 connector.

- **sfp**
  - *sfp*: Sets the physical interface connection to optical Small Form Factor (SFP) gigabit via an SFP transceiver.

**Usage Guidelines**

Set the media option when the physical cabling interface is changed.

**Examples**

The following command sets the physical interface to RJ-45:

`media rj45`
**medium**

Configures the port speed and communication mode. (ASR 5000 only)

**Product**

All

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Ethernet Port Configuration

```
configure > port ethernet slot_number/port_number
```

Entering the above command sequence results in the following prompt:

```
[local] host_name(config-port-slot_number/port_number)#
```

**Syntax Description**

```
medium { auto | speed { 10 | 100 | 1000 | 10000 } duplex { full | half } }
```

- `{ auto | speed { 10 | 100 | 1000 | 10000 } duplex { full | half } }
- Default: auto

Optionally sets the speed of the interface and the communication mode.

- **auto**: configures the interface to auto-negotiate the interface speed.
- **speed { 10 | 100 | 1000 | 10000 }**: specifies the speed to use at all times.
- **duplex { full | half }**: sets the communication mode of the interface to either full or half duplex.

**Important**

Ethernet networking rules dictate that if a device whose interface is configured to auto-negotiate is communicating with a device that is manually configured to support full duplex, the first device will negotiate to the manually configured speed of the second device but will only communicate in half duplex mode.

**Usage Guidelines**

Set the medium options when the physical interface changes.

**Important**

The **speed** keyword for the **medium** command is not supported on the ASR 5500.
Examples

The following configures the port's speed and communication mode to be auto negotiated.

medium auto

The following command configures the port's interface speed to gigabit with full duplex communication.

medium speed 1000 duplex full
preferred slot

Assigns revertive or non-revertive control to port redundancy auto-recovery. (ASR 5x00 only)
Default: non-revertive operation

Product

PDSN
FA
HA
SGSN
GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Ethernet Port Configuration
 configure > port ethernet slot_number/port_number

Entering the above command sequence results in the following prompt:
 [local]host_name(config-port-slot_number/port_number)#

Syntax Description

| no | preferred slot slot_number |

no
Disables revertive or auto-recovery operation for the selected port.

preferred slot slot_number
Identifies the physical chassis slot where the ASR 5000 line card or SPIO card, or the ASR 5500 MIO card is installed.

Usage Guidelines

This command enables or disables revertive port redundancy, wherein after a port failover, when the original port is restored to service (such as link up) the system will return service to that port automatically.

Disabled, which is the default setting, causes non-revertive operation; requiring an administrative user to manually issue an Exec mode link-aggregation port switch to command to return service to the original port.

This command must be issued on a per port basis, allowing you to configure specific ports to be used on individual line card, SPIO, or an MIO card.
Important  This command is not supported on all platforms.

Examples  For ASR 5000:
preferred slot 17
For ASR 5500:
preferred slot 5
**shutdown**

Terminates all processes supporting the port or blocks the shutting down of the port. Conversely, the port is enabled with the use of the **no** keyword.

**Product**

All

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Ethernet Port Configuration

**configure > port ethernet slot_number/port_number**

Entering the above command sequence results in the following prompt:

```
[local] host_name(config-port-slot_number/port_number)#
```  

**Syntax Description**

| no | shutdown |

**no**

Enables the port and places it in service.

**Usage Guidelines**

Shut down a port prior to re-cabling and/or other maintenance activities.

For Release 15.0 and higher, this command powers down the port on FELC, GELC and QGLC line cards (ASR 5000). This command already powers down the ports on MIO/UMIO cards (ASR 5500).

To enable a port (bring it into service) use the **no** keyword.

**Examples**

Use the following command to disable the port:

```
shutdown
```  

Use the following command to enable the port for service:

```
no shutdown
```
snmp trap link-status

Enables or disables the generation of an SNMP trap for link status changes.

Product
All

Privilege
Security Administrator, Administrator

Command Modes
Exec > Global Configuration > Ethernet Port Configuration
configure > port ethernet slot_number/port_number

Entering the above command sequence results in the following prompt:
[local] host_name(config-port-slot_number/port_number)#

Syntax Description

[ no ] snmp trap link-status

no
Disables the sending of traps for link status changes.

Usage Guidelines
Enable link status change traps when a monitoring facility can use the information or if there are troubleshooting activities in progress.

Examples
Use the following command to disable sending of traps:
no snmp trap link-status
srp virtual-mac-address

Configures the Standby Router Protocol (SRP) virtual MAC address for the port on an ICSR chassis.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Ethernet Port Configuration
configure > port ethernet slot_number/port_number

Entering the above command sequence results in the following prompt:
[local]host_name(config-port-slot_number/port_number)#

Syntax Description

srp virtual-mac-address mac_address
no srp virtual-mac-address

no

Disables the SRP virtual MAC addressing for Ethernet ports. The block of virtual MAC addresses is not saved.

mac_address

Enables SRP virtual addressing for the specified MAC address. The MAC address should be specified as six groups of two hexadecimal digits separated by hyphens. For example, 01-23-45-67-89-ab.

Usage Guidelines

The SRP virtual MAC address is applied to the port when the chassis is in SRP ACTIVE state. The default is no srp virtual-mac-address.

Important

This command is not supported on all platforms.

Examples

Use the following command to enable the SRP's virtual MAC addressing:
srp virtual-mac-address 09-33-48-67-99-ae
threshold high-activity

Configures thresholds for high port activity for the port.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Ethernet Port Configuration

`configure > port ethernet slot_number/port_number`

Entering the above command sequence results in the following prompt:

```
[local] host_name(config-port-slot_number/port_number)#
```

**Syntax Description**
`threshold high-activity high_thresh [ clear low_thresh ]`

**high_thresh**
Specifies the high threshold high port activity percentage that must be met or exceeded within the polling interval to generate an alert or alarm. The percentage is expressed as an integer from 0 through 100. Default: 50

**clear**
Allows the configuration of the low threshold.

**low_thresh**
Specifies the low threshold high port activity percentage that maintains a previously generated alarm condition. If the activity percentage falls below the low threshold within the polling interval, a clear alarm will be generated. The percentage is expressed as an integer from 0 through 100. Default: 50

---

**Important**
This value is ignored for the Alert model. In addition, if this value is not configured for the Alarm model, the system assumes it is identical to the high threshold.

**Usage Guidelines**
High port activity thresholds generate alerts or alarms based on the utilization percentage of each configured port during the specified polling interval. This threshold is configured on a per-port basis.

Alerts or alarms are triggered for high port activity based on the following rules:
• **Enter condition**: Actual percent utilization of a port is greater than High Threshold.

• **Clear condition**: Actual percent utilization of a port is less than Low Threshold.

If a trigger condition occurs within the polling interval, the alert or alarm will not be generated until the end of the polling interval.

Refer to the `threshold poll` command in the *Global Configuration Mode Commands* chapter to configure the polling interval and the `threshold monitoring` command in this chapter to enable thresholding for this value.

### Examples

The following command configures a high port utilization threshold percent of 70 and a low threshold percent of 50 for a system using the Alarm thresholding model:

`threshold high-activity 70 clear 50`
threshold monitoring

Enables or disables thresholding for port-level values.

Product
All

Privilege
Security Administrator, Administrator

Command Modes
Exec > Global Configuration > Ethernet Port Configuration

configure > port ethernet slot_number/port_number

Entering the above command sequence results in the following prompt:

[local] host_name(config-port-slot_number/port_number)#

Syntax Description
[ no ] threshold monitoring

no
Disables threshold monitoring for port-level values. This is the default setting.

Usage Guidelines
Thresholding on the system is used to monitor the system for conditions that could potentially cause errors or outage. Typically, these conditions are temporary (such as high-activity) and are quickly resolved. However, continuous or large numbers of these error conditions within a specific time interval may be indicative of larger, more severe issues. Thresholding helps identify potentially severe conditions so that immediate action can be taken to minimize and/or avoid system downtime.

Thresholding reports conditions using one of the following mechanisms:

- **SNMP traps**: SNMP traps have been created that indicate the condition (high threshold crossing and/or clear) of each of the monitored values. Complete descriptions and other information pertaining to these traps is located in the stagentMIB(8164).stagentTraps(2) section of the SNMP MIB Reference. The generation of specific SNMP traps can be enabled or disabled on the system allowing you to view only those traps that are most important to you.

- **Logs**: The system provides a facility called threshold for which active and event logs can be generated. As with other system facilities, logs are generated Log messages pertaining to the condition of a monitored value are generated with a severity level of WARNING.

- **Alarm System**: High threshold alarms generated within the specified polling interval are considered "outstanding" until a the condition no longer exists and/or a condition clear alarm is generated.
"Outstanding" alarms are reported to through the system's alarm subsystem and are viewable through the system's CLI.

The following table indicates the reporting mechanisms supported by each of the above models.

**Table 1: Thresholding Reporting Mechanisms by Model**

<table>
<thead>
<tr>
<th>Model</th>
<th>SNMP Traps</th>
<th>Logs</th>
<th>Alarm System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alert</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Alarm</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

This command enables thresholding for port-level values. Refer to the `threshold high-activity`, `threshold rx-utilization`, and `threshold tx-utilization` commands in this chapter for information on configuring these values. In addition, refer to the `threshold poll` command in the *Global Configuration Mode Commands* chapter for information on configuring the polling interval over which these values are monitored.
threshold rx-utilization

Configures thresholds for receive port utilization.

Product
All

Privilege
Security Administrator, Administrator

Command Modes
Exec > Global Configuration > Ethernet Port Configuration
configure > port ethernet slot_number/port_number

Entering the above command sequence results in the following prompt:
[local]host_name(config-port-slot_number/port_number)#

Syntax Description
threshold rx-utilization  high_thresh  [ clear  low_thresh ]

high_thresh
Specifies the high threshold receive port utilization percentage that must be met or exceeded within the polling interval to generate an alert or alarm. The percentage is expressed as an integer from 0 through 100. Default: 80

clear
Allows the configuration of the low threshold.

low_thresh
Specifies the low threshold receive port utilization percentage that maintains a previously generated alarm condition. If the utilization percentage falls below the low threshold within the polling interval, a Clear Alarm will be generated. The percentage is expressed as an integer from 0 through 100. Default: 80

Important
This value is ignored for the Alert model. In addition, if this value is not configured for the Alarm model, the system assumes it is identical to the high threshold.

Usage Guidelines
Receive port utilization thresholds generate alerts or alarms based on the utilization percentage of each configured port in relation to data received during the specified polling interval. This threshold is configured on a per-port basis.
Ports configured for half-duplex do not differentiate between data received and data transmitted. Therefore, to avoid redundant alarms, it is recommended that only the receive or transmit utilization threshold be configured.

Important

Alerts or alarms are triggered for receive port utilization based on the following rules:

- **Enter condition**: Actual percent utilization of a port for received data is greater than High Threshold
- **Clear condition**: Actual percent utilization of a port for received data is less than Low Threshold

If a trigger condition occurs within the polling interval, the alert or alarm will not be generated until the end of the polling interval.

Refer to the `threshold poll` command in the *Global Configuration Mode Commands* chapter to configure the polling interval and the `threshold monitoring` command in this chapter to enable thresholding for this value.

Examples

The following command configures a receive port high utilization threshold percent of 70 and a low threshold percent of 50 for an system using the Alarm thresholding model:

```
threshold rx-utilization 70 clear 50
```
threshold tx-utilization

Configures thresholds for transmit port utilization.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Ethernet Port Configuration

configure > port ethernet slot_number/port_number

Entering the above command sequence results in the following prompt:
[local]host_name(config-port-slot_number/port_number)#

Syntax Description

threshold tx-utilization high_thresh [ clear low_thresh ]

high_thresh
The high threshold transmit port utilization percentage that must be met or exceeded within the polling interval to generate an alert or alarm. The percentage is expressed as an integer from 0 through 100. Default: 80

clear
Allows the configuration of the low threshold.

low_thresh
The low threshold transmit port utilization percentage that maintains a previously generated alarm condition. If the utilization percentage falls below the low threshold within the polling interval, a clear alarm will be generated. The percentage is expressed as an integer from 0 through 100. Default: 80

Important
This value is ignored for the Alert model. In addition, if this value is not configured for the Alarm model, the system assumes it is identical to the high threshold.

Usage Guidelines

Transmit port utilization thresholds generate alerts or alarms based on the utilization percentage of each configured port in relation to data transmitted during the specified polling interval. This threshold is configured on a per-port basis.
Important

Ports configured for half-duplex do not differentiate between data received and data transmitted. Therefore, to avoid redundant alarms, it is recommended that only the receive or transmit utilization threshold be configured.

Alerts or alarms are triggered for transmit port utilization based on the following rules:

- **Enter condition**: Actual percent utilization of a port for transmit data is greater than High Threshold
- **Clear condition**: Actual percent utilization of a port for transmit data is less than Low Threshold

If a trigger condition occurs within the polling interval, the alert or alarm will not be generated until the end of the polling interval.

Refer to the `threshold poll` command in the *Global Configuration Mode Commands* chapter to configure the polling interval and the `threshold monitoring` command in this chapter to enable thresholding for this value.

Examples

The following command configures a transmit port high utilization threshold percent of 70 and a low threshold of 50 for an system using the Alarm thresholding model:

`threshold tx-utilization 70 clear 50`
**vlan**

Enters VLAN Configuration mode. Creates VLAN if necessary.

**Product**

<table>
<thead>
<tr>
<th>HA</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSGW</td>
</tr>
<tr>
<td>PDSN</td>
</tr>
<tr>
<td>P-GW</td>
</tr>
<tr>
<td>SAEGW</td>
</tr>
<tr>
<td>SGSN</td>
</tr>
</tbody>
</table>

**Privilege**

Security Administrator, Administrator

**Command Modes**

- Exec > Global Configuration > Ethernet Port Configuration
- `configure > port ethernet slot_number/port_number`

Entering the above command sequence results in the following prompt:

```
[local] host_name(config-port-slot_number/port_number) #
```

**Syntax Description**

```
vlan  vlan_id  [inline-process]  [subscriber-vlan]  [-noconfirm ]
```

---

**vlan_id**

Specifies a VLAN identifier as an integer from 1 through 4094. If this identifier does not already exist you are prompted to confirm the identifier an a new one is created.

**inline-process**

Specifies that this VLAN will be used for inline processing.

**subscriber-vlan**

Specifies that this VLAN will be used for subscriber-based processing.

**-noconfirm**

Specifies that the command must execute without any prompts and confirmation from the user.
Usage Guidelines

Use this command to specify an existing VLAN ID or create a new VLAN ID and enter the VLAN Configuration mode.

For additional information, refer to the *VLAN Configuration Mode Commands* chapter.

Examples

The following command creates the VLAN ID 234.

```
vlan 234
Are you sure? [Yes|No]: y
```
Exec Mode Commands (A-C)

The Exec Mode is the initial entry point into the command line interface system. Exec mode commands are useful in troubleshooting and basic system monitoring.

This section includes the commands **aaa test** through **crypto-group**.

## Command Modes

**Exec**

The following prompt is displayed in the Exec mode:

```
[local] host_name
```

---

**Important**

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

- aaa test, page 196
- abort, page 198
- active-charging service, page 199
- alarm, page 201
- aps, page 202
- autoconfirm, page 204
- bulkstats force, page 205
- call-home send, page 206
- call-home test, page 207
- card busy-out, page 208
- card halt, page 210
- card migrate, page 212
- card reboot, page 213
- card restart, page 215
• card switch, page 217
• card upgrade, page 219
• cdr-push, page 221
• chassis, page 222
• clear aaa, page 224
• clear active-charging analyzer statistics, page 225
• clear active-charging charging-action statistics, page 236
• clear active-charging content-filtering server-group statistics, page 237
• clear active-charging credit-control statistics, page 238
• clear active-charging dns-learnt-ip-addresses, page 239
• clear active-charging edr-format statistics, page 240
• clear active-charging edr-udr-file statistics, page 241
• clear active-charging firewall statistics, page 242
• clear active-charging firewall track-list, page 244
• clear active-charging fw-and-nat policy statistics, page 245
• clear active-charging group-of-ruledefs statistics, page 246
• clear active-charging nat statistics, page 247
• clear active-charging regex statistics, page 248
• clear active-charging rulebase statistics, page 249
• clear active-charging ruledef statistics, page 250
• clear active-charging subsystem, page 252
• clear active-charging tcp-proxy statistics, page 253
• clear active-charging tethering-detection statistics, page 255
• clear active-charging tpo policy statistics, page 256
• clear active-charging tpo profile statistics, page 257
• clear active-charging url-blacklisting statistics, page 258
• clear active-charging video detailed-statistics, page 259
• clear administrator, page 260
• clear alarm, page 261
• clear alcap, page 262
• clear asngw-service, page 263
• clear asnpc-service, page 264
• clear apn statistics, page 265
• clear bcmcs statistics, page 267
• clear blacklisted-gtpu-bind-address, page 268
• clear bssap+ statistics, page 269
• clear bssgp statistics, page 270
• clear bulkstats, page 272
• clear cae-group statistics server, page 273
• clear call-home statistics, page 274
• clear cdr statistics, page 275
• clear cli history, page 276
• clear cmp cert-name, page 277
• clear cmp statistics, page 278
• clear config, page 279
• clear congestion-control statistics, page 280
• clear content-filtering category statistics, page 282
• clear crash, page 283
• clear credit-control statistics, page 284
• clear crypto, page 285
• clear cs-network statistics, page 287
• clear dhcp statistics, page 288
• clear dhcpv6 statistics, page 290
• clear diameter aaa-statistics, page 292
• clear diameter route, page 294
• clear diameter statistics, page 296
• clear diameter-service, page 298
• clear dns-client, page 300
• clear dns-proxy statistics, page 302
• clear dynamic-policy statistics, page 303
• clear egtpc, page 305
• clear event-notif statistics, page 308
• clear event-record, page 309
• clear firewall, page 310
• clear fng-service statistics, page 311
• clear gmb statistics, page 312
• clear gmm-sm statistics, page 313
• clear gprsns statistics, page 316
• clear gprsssf statistics, page 318
• clear gtpc statistics, page 320
• clear gtpp statistics, page 322
• clear gtpp storage-server local file statistics, page 323
• clear gtpp storage-server statistics, page 324
• clear gtpu statistics, page 325
• clear hd-storage-policy, page 327
• clear hnbwg-access-service statistics, page 328
• clear hnbwg-network-service statistics, page 330
• clear hnbwg sessions, page 332
• clear hnbwg statistics, page 334
• clear hsgw-service, page 336
• clear hss-peer-service, page 337
• clear ims-authorization, page 338
• clear ims-sh-service statistics, page 339
• clear ip access-group statistics, page 340
• clear ip arp, page 341
• clear ip bgp peer, page 342
• clear ip localhosts, page 344
• clear ip ospf process, page 345
• clear ipne statistics, page 346
• clear ipsg statistics, page 347
• clear ipv6 neighbors, page 348
• clear ipv6 ospf process, page 349
• clear l2tp, page 350
• clear lawful-intercept, page 352
• clear llc statistics, page 353
• clear lma-service statistics, page 354
• clear local-policy, page 355
• clear local-user, page 356
• clear location-service, page 358
• clear mag-service statistics, page 359
• clear map statistics, page 360
• clear maximum-temperatures, page 361
• clear mipfa statistics, page 362
• clear mipha statistics, page 363
• clear mipmn statistics, page 364
• clear mipv6ha statistics, page 365
• clear mme-service db record, page 366
• clear mme-service db statistics, page 368
• clear mme-service statistics, page 369
• clear multicast-sessions, page 371
• clear nat-ip, page 373
• clear orbem statistics, page 375
• clear pcc-policy service statistics, page 376
• clear pcc-policy session, page 377
• clear pcc-sp-endpoint statistics, page 379
• clear pdg-service statistics, page 380
• clear pgw-service, page 381
• clear port, page 382
• clear ppp statistics, page 384
• clear prepaid 3gpp2 statistics, page 386
• clear prepaid wimax, page 388
• clear ps-network statistics, page 389
• clear qos npu stats, page 390
• clear radius accounting archive, page 391
• clear radius counters, page 393
• clear rlf-context-statistics, page 395
• clear rohc statistics, page 397
• clear rp service-option, page 398
• clear rp statistics, page 399
• clear rsvp statistics, page 400
• clear saegw-service, page 401
• clear samog-service statistics, page 402
• clear sbc statistics, page 403
• clear scp statistics, page 405
• clear session disconnect-reasons, page 407
• clear session-event-record statistics, page 408
• clear session setuptime, page 409
• clear session subsystem, page 410
• clear sgsn-fast-path statistics, page 411
• clear sgsn-map-app, page 412
• clear sgsn rlf-context-statistics, page 413
• clear sgs-service, page 415
• clear sgtpc statistics, page 416
• clear sgtpu statistics, page 417
• clear sgw-service statistics, page 419
• clear sls-service statistics, page 420
• clear sms statistics, page 422
• clear snep statistics, page 423
• clear snmp trap, page 424
• clear srp, page 425
• clear ss7-routing-domain, page 426
• clear subscribers, page 428
• clear super-charger, page 445
• clear supplementary-service statistics, page 446
• clear task resources, page 447
• clear tcap statistics, page 452
• clear wsg-service statistics, page 453
• cli, page 454
• clock set, page 456
• cmp enroll current-cert, page 458
• cmp fetch cert-name, page 460
• cmp initialize, page 461
• cmp poll, page 463
• cmp update, page 464
• commandguard, page 466
• configure, page 467
• context, page 469
• copy, page 470
• crash copy, page 473
• crypto blacklist file update, page 475
• crypto rsa-keygen modulus, page 476
• crypto whitelist file update, page 477
• crypto-group, page 478
aaa test

Tests Authentication, Authorization and Accounting (AAA) functionality between this system and a remote server.

Product

- ASN-GW
- GGSN
- HA
- PDSN
- SGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

```bash
aaa test { accounting username user_name | authenticate user_name password | session user_name password }

accounting username user_name
Tests RADIUS or GTPP accounting functionality for the specified user.
user_name must be the name of a user configured on the RADIUS or CFG server.

authenticate user_name password
Tests RADIUS authentication functionality for the specified user.
user_name is the name of a user configured on the RADIUS server. password is the user's password.

session user_name password
Tests both RADIUS authentication and RADIUS or GTPP accounting functionality for the specified user.
user_name is the name of a user configured on the RADIUS server. password is the user's password.
```

Important

GTPP is used only in conjunction with the GGSN or SGSN product.
GTPP is used only in conjunction with the GGSN or SGSN product.

Usage Guidelines
This command is used to test RADIUS-based authentication and RADIUS or GTPP accounting. This command may be useful for diagnosing problems with subscribers and access to the system and/or billing data.

Examples
The following command verifies accounting for a user named *user1*:
```plaintext
aaa test accounting username user1
```

The following command tests authentication for a user named *user1* with the password *abc123*:
```plaintext
aaa test authentication user1 abc123
```

The following command tests both accounting and authentication for the user named *user1* with the password *abc123*:
```plaintext
aaa test session user1 abc123
```
**abort**

Stops software patch or upgrade process.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name>
```

**Syntax Description**

```
abort { patch | upgrade } [ -noconfirm ]
```

- **patch**
  Stops a running software patch process.

- **upgrade**
  Stops a running software upgrade process.

**Important**
The `abort upgrade` command can only be used during Stage 1 (busy-out) of an on-line software upgrade.

- **-noconfirm**
  Executes the command without any additional prompt and confirmation from the user.

**Usage Guidelines**
Use this command to stop a running StarOS patch or upgrade process. For additional information on software patches and upgrades, refer to the *System Administration Guide*.

**Examples**
The following command stops an in-progress StarOS upgrade:

```
abort upgrade
```
active-charging service

Creates an active charging service (ACS).

Product
ACS

Privilege
Security Administrator, Administrator, Operator

Command Modes
Exec

The following prompt is displayed in the Exec mode:
[local]\host_name#

Syntax Description
active-charging service ecs_service_name [ -noconfirm ]

ecs_service_name
Specifies name of the active charging service.
ecs_service_name must be an alphanumeric string of 1 through 15 characters.
If the named service does not exist, it is created and the CLI mode changes to the ACS Configuration Mode wherein the service can be configured.
If the named service already exists, the CLI mode changes to the ACS Configuration mode wherein the specified active charging service can be configured.

-noconfirm
Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines
Use this command to create an active charging service in the system. This command can be used directly in Exec Mode after issuing the require active-charging command in the Global Configuration Mode.
This command allows an operator (rather than security administrators and administrators) to configure the ACS functionality only.
On entering this command, the CLI prompt changes to:
[context_name]\hostname(config-acs)#

Important
Operators need special CLI privilege for ACS functionality to be able to use this CLI command.
The following command creates an active charging service named test:

```
active-charging service test
```
alarm

Disables the internal audible alarm on the system management card.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
alarm cutoff

**Usage Guidelines**
Alarm cutoff disables the audible alarm. The alarm may be enabled following this command if an event within the system results in the audible alarm being enabled.

**Examples**
alarm cutoff
aps

Allows the operator to perform SONET Automatic Protection Switching (APS) administrative operations.

**Important**
Use of this command is limited to the OLC2 and the CLC2 line cards.

**Product**
SGSN

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```plaintext
aps { clear slot#/port# | exercise slot#/port# | lockout slot#/port# | switch { force | manual } slot#/port# }
```

- **clear slot#/port#**
  Clears the last switch command on the specified channelized port.
  `slot#/port#` is the CLC2/OLC2 slot number (valid range is 17 - 48) and appropriate port number (CLC2 valid range is 1 - 4; OLC2 valid value is 1).

- **exercise slot#/port#**
  Tests the APS protocol on line connected to port.
  `slot#/port#` is the CLC2/OLC2 slot number (valid range is 17 - 48) and appropriate port number (CLC2 valid range is 1 - 4; OLC2 valid value is 1)

- **lockout slot#/port#**
  Prevents the working port from switching to the protection port.
  `slot#/port#` is the CLC2/OLC2 slot number (valid range is 17 - 48) and appropriate port number (CLC2 valid range is 1 - 4; OLC2 valid value is 1)

- **switch { force | manual } slot#/port#**
  Switch to either the working port or the protection port:

  - **force**: Forces a switch of ports, even if there is an active alarm state.
• **manual**: Implements a switch of ports if there are no active alarms.

`slot#/port#` is the CLC2/OLC2 slot number (valid range is 17 - 48) and appropriate port number (CLC2 valid range is 1 - 4; OLC2 valid value is 1)

**Usage Guidelines**

This command allows an operator to perform administrative/maintenance APS tasks such as testing the APS protocol, switching the working port to the protection port, and locking out the switching function.

**Examples**

The following command starts an APS protocol test on port 2 of card 27:

`aps exercise 27/2`
autoconfirm

Enables or disables confirmation for certain commands. This command affects the current CLI session only.

**Important**

Use the `autoconfirm` command in the Global Configuration Mode to change the behavior for all future CLI sessions.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
[ no ] autoconfirm
```

**no**

Disables autoconfirm if it has been enabled.

**Usage Guidelines**

When `autoconfirm` is enabled, certain commands ask you to answer yes or no to confirm that you want to execute the command. When `autoconfirm` is disabled, the confirmation prompts never appear. Disabling `autoconfirm` in the Exec mode is active for the current CLI session only.

By default `autoconfirm` is enabled.

**Important**

If commandguard is enabled, autoconfirm will disable commandguard.

**Examples**

The following command enables command confirmation:

`autoconfirm`
bulkstats force

Manages the collection and delivery of system statistics (bulkstats) to the configured server.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
bulkstats force { gather | transfer }
```

gather

Immediately collects the system statistics.

transfer

Immediately sends the currently collected statistics to the configured server.

Usage Guidelines

When the current system statistics are desired immediately as opposed to the normal scheduled collection and delivery intervals issue this command.

Troubleshooting the system may require the review of statistics at times when the scheduled delivery is not timely.

Examples

The following causes the chassis to immediately collect system statistics. This would be in anticipation of a transfer command.

```
bulkstats force gather
```

The following command causes the chassis to immediately send all collected statistics to the configured server.

```
bulkstats force transfer
```
call-home send

Manages how Cisco Smart Call Home messages are sent to alert groups.

Product: All

Privilege: Security Administrator, Administrator, Operator

Command Modes: Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description:

`call-home send alert-group { configuration profile profile name | inventory profile profile name }`

**configuration profile profile name**

Sends configuration messages to the previously defined profile, expressed as an alphanumeric string of 1 through 31 characters.

**inventory profile profile name**

Sends inventory messages to the previously defined profile, expressed as an alphanumeric string of 1 through 31 characters.

Usage Guidelines:

Use this command to send specified alert-group call-home message from the CLI to all profiles subscribed to the specified alert group, or to a specified profile which does not need to be subscribed to the specified alert-group. For additional information, refer to the *Call-Home Configuration Mode Commands* and *Call-Home Profile Configuration Mode Commands* chapters.

Examples:

The following command sets the system to send configuration related call-home messages to the profile named *Profile1*.

`call-home send alert-group configuration profile Profile1`
call-home test

Sends a test Smart Call Home event message to a specified profile.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

**Syntax Description**

`call-home test message { test_message_content | profile profile_name }`

`call-home test message message test_message_content`

Defines the message to send to the defined profile as an alphanumeric string of 1 through 128 characters.

`profile profile_name`

Specifies the previously defined profile to which the message will be sent, expressed as an alphanumeric string of 1 through 31 characters.

**Usage Guidelines**

Use this command to send test call-home messages from the CLI to a specified profile. If a message is not specified, the system sends out a default message.

**Examples**

The following command sets the system to send a test call-home message *Test_Message_1* to the profile named *Profile1*.

```
call-home test message Test_Message_1 profile Profile1
```
card busy-out

Moves processes from the source packet processing card to the destination packet processing card, or disables the packet processing card from accepting any new calls. When busy-out is enabled, the packet processing card stops receiving new calls but continues to process calls until they are completed. The command prompt is returned once the command is initiated. The busy-out procedure is completed in background. (ASR 5x00 only)

Product
All

Privilege
Security Administrator, Administrator, Operator

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

- card busy-out { migrate from src_slot to dst_slot } [ -noconfirm ]
- no card busy-out

no
Disables busy-out. The packet processing card is re-enabled to accept new calls.

migrate from src_slot to dst_slot
Moves processes from the specified source packet processing card to the specified destination packet processing card. The command prompt is returned once the command is initiated. The card migration is completed in background.

src_slot indicates the source slot number of the card from which processes will be migrated. dst_slot indicates the destination slot number of the card to which processes will be migrated.

-noconfirm
Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines
Migrating a packet processing card changes the active/standby status of a packet processing card. This results in the active sessions/processes being moved to the newly active card. This is useful when there is a maintenance activity on the active card which requires removing the card from service.
The destination slot specified must contain a packet processing card which is in the standby state for the command to complete successfully.

⚠️ Caution

Be cautious when executing this command. Depending on the number of active sessions being migrated, some subscribers may experience service interruptions.

Using busy-out to refuse new calls on a packet processing card allows you to take a card out of service without any interruptions to the end user. An individual system can be taken completely out of service gracefully by enabling busy-out on all packet processing cards and waiting for current calls to complete. The `show card info` command shows if busy-out is enabled.

โปรดเตือน

When a packet processing card fails, is migrated, or is restarted for any reason, busy-out is reset to disabled, the default behavior.

⚠️ Important

This command is not supported on all platforms.

### Examples

The following command migrates the active processes from the packet processing card in slot 12 to the card in slot 14. This command executes after you provide confirmation of the request.

```
card migrate from 12 to 14
```

The following command migrates the active processes from the packet processing card in slot 1 to the card in slot 8. This command executes after you provide confirmation of the request.

```
card migrate from 1 to 8
```

The following command sets the packet processing card in slot 1 to stop accepting new calls:

```
card busy-out 1
```
card halt

Halts all StarOS processes on a card. A card reboot command must be issued to bring the card back into service after it is halted. (ASR 5x00 only)

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

`card halt slot_num [ -force ] [ -noconfirm ]`

`slot_num`
Indicates the slot number of the card of interest.

`-force`
Over-rides any warnings to force the card to be halted.

`-noconfirm`
Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines

Halt a card to stop the card for maintenance or emergency situations.

Caution

Caution should be taken in using this command. Halting a card which has no redundant card available may cause a service interruption and loss of active sessions.

Important

On the ASR 5500, do not initiate a card halt for an active FSC if there are less than two active FSCs in the system. The system returns an error message if there are less than four active FSCs.
Caution

The `-force` and `-noconfirm` options should only be used concurrently by experienced users as this will cause an immediate halt regardless of warnings and no confirmation from the user.

Important

This command is not supported on all platforms.

Examples

The following command temporarily stops the card in slot 1.

```
card halt 1
```

The following commands force the card to halt and indicate no confirmation is to take place, respectively.

```
card halt 1 -force -noconfirm
card halt 1 -noconfirm
```
card migrate

Migrates StarOS processes from an active packet processing card to a standby packet processing card. (ASR 5x00 only)

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]\host_name#

Syntax Description

card migrate from src_slot to dst_slot [ -noconfirm ]

src_slot
Indicates the slot number of the packet processing card from which processes will be migrated. The packet processing card in this slot must be in Active mode.

dst_slot
Indicates the slot number of the packet processing card to which processes will be migrated.

-noconfirm
Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines

This command allows an operator to move processes from an active to a standby packet processing card.

Examples

The following will cause processes currently running on the card in slot 8 to migrate to the standby card in slot 9. The migration will not occur if any warnings are generated.

card migrate from 8 to 9
**card reboot**

Performs reset of the target card. For ASR 5000, rebooting a packet processing or line card will result in the card downloading the image from the active system management card. For ASR 5500, rebooting a card will result in the card downloading the image from the active MIO card.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
card reboot target_slot [-force] [-noconfirm]
```

*target_slot*

Initiates a reboot of the card in the specified the slot number.

*-force*

Indicates that the reboot is to take place ignoring any state or usage warnings that might be generated.

*-noconfirm*

Executes the command without any additional prompt and confirmation from the user.

**Usage Guidelines**

A reboot is used to reset the card and receive a new download. This may be useful when a card is not responding or when it is necessary to cause the card to reload its image and restart.

**Caution**

Caution should be taken in using this command. Rebooting a card which has no redundant card available may cause a service interruption and loss of active sessions.

**Important**

On the ASR 5500, do not initiate a `card reboot` for an active FSC if there are less than four active FSCs in the system. The system returns an error message if there are less than four active FSCs.
Caution

The `-force` and `-noconfirm` options should only be used concurrently by experienced users as this will cause an immediate reboot regardless of warnings and no confirmation from the user.

Important

This command is not supported on all platforms.

Examples

The following will cause the card in slot 8 to reboot without any confirmation from the user. The card will not reboot if there are any warnings generated.

```bash
card reboot 8 -noconfirm
```

The following command will cause the card in slot 8 to reboot regardless of any warnings. The user must provide confirmation prior to this command executing.

```bash
card reboot 8 -force
```

The following command will cause the card in slot 8 to reboot regardless of any warnings with no additional user confirmation.

```bash
card reboot 8 -force -noconfirm
```
card restart

Performs a soft-reset of the target card causing all application processes to restart. (ASR 5x00 only)

Product
All

Privilege
Security Administrator, Administrator, Operator

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

```
card restart target_slot [-force] [-noconfirm]
```

target_slot
Initiates a restart of the card in the specified slot number.

-force
Indicates the restart is to take place ignoring any state or usage warnings that might be generated.

-noconfirm
Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines

Restarting a card may be useful when a card is not performing as expected (performance drop, increased response delays, etc.). A restart may be preferred to a reboot as the card becomes available in less time than a reboot.

When this command is issued for an active card, the user is prompted for confirmation unless the -force and/or -noconfirm keywords are used. Because the reboot of standby or redundant cards is non-service impacting, the reboot proceeds immediately after the command execution without user confirmation.

Caution

Caution should be taken in using this command. Restarting a card which has no redundant card available may cause a service interruption and loss of active sessions.
Important  This command is not supported on all platforms.

Caution  The `-force` and `-noconfirm` options should only be used concurrently by experienced users as this will cause an immediate restart regardless of warnings and no confirmation from the user.

Examples  
The following will cause the card in slot 8 to restart without any confirmation from the user. The card will not reboot if there are any warnings generated. 

```bash
card restart 8 -noconfirm
```

The following command will cause the card in slot 8 to restart regardless of any warnings. The user must provide confirmation prior to this command executing. 

```bash
card restart 8 -force
```

The following command will cause the card in slot 8 to restart regardless of any warnings with no additional user confirmation. 

```bash
card restart 8 -force -noconfirm
```
card switch

Manages card pairs and their active/standby status. (ASR 5x00 only)

Product
All

Privilege
Security Administrator, Administrator, Operator

Command Modes
Exec
The following prompt is displayed in the Exec mode:
[local]host_name#

Syntax Description
card switch { from target_slot | to target_slot } [ -noconfirm ]

from target_slot
Specifies the slot number of a currently active card that is to be switched. The slot number must be valid and contain a card in active mode.

to target_slot
Specifies the slot number of a standby card which is to become the active card. The slot number must be valid and contain a card in standby.

-noconfirm
Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines
Card switch-overs change the active/standby status of a card. This is useful when there is a maintenance activity on the active card which requires removing the card from service.

Caution
Caution should be taken in using this command. Depending on the amount of bandwidth/traffic being switched, some subscribers may experience service interruptions.

Important
This command is not supported on all platforms.
Examples

The following command switches the active/standby status of the line cards in slots 17 and 18. This command only executes after you provide confirmation of the request.

card switch from 17 to 18

The following command switches the active/standby status of the cards in slots 1 and 2. This command executes immediately with no additional user confirmation.

card switch from 1 to 2 -noconfirm
card upgrade

Upgrades the programmable memory on a card. (ASR 5x00 only)

**Product**
All

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
card upgrade slot_number [ -noconfirm ]

*slot_number*
The slot number of the card to be upgraded, for ASR 5000: from 1 through 16, and for ASR 5500: from 1 through 10.

*-noconfirm*
Executes the command without any additional prompt and confirmation from the user.

⚠️ **Caution**
Use this command only if instructed by or working with Technical Assistance Center personnel.

❗️ **Important**
On the ASR 5500, do not initiate a card upgrade for an active FSC if there are less than four active FSCs in the system. The system returns an error message if there are less than four active FSCs.

**Usage Guidelines**
You can only initiate an upgrade if:

- there is no migration occurring,
- the card is active or standby,
- there is no online upgrade in progress.
The following operations are not allowed while a card is upgrading: change edc requirement (config), change card [no] shutdown (config), change card active (config), change card redundancy (config), card halt (exec), card reboot (exec), start an online upgrade.

Important
Level unlock operations are ignored while a card is upgrading.

Important
This command is not supported on all platforms.

Examples
The following command initiates a packet processing card upgrade on slot number 10:

`card upgrade 10`
**cdr-push**

Initiates a manual push of CDR files to a configured URL or Local - External Storage System (L-ESS).

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
cdr-push { all | local-filename file_name }
```

**all**

Pushes all CDR files to the configured URL.

**local-filename file_name**

Pushes only the specified file to the configured URL.

*file_name* must be the absolute path of the local file to push, and must be an alphanumeric string of 1 through 1023 characters.

**Usage Guidelines**

Use this command to manually push CDR files to the configured URL or L-ESS.

For information on configuring the L-ESS, see the **cdr** command in the EDR Module Configuration Mode Commands and the UDR Module Configuration Mode Commands chapters.

**ST16**: This command must be run only from the context where the EDR/UDR module is configured. Running in any other context would fail with the following reason: "Failure: Manual PUSH of CDRs supported in the context where EDR/UDR module is configured"

**ASR 5000**: Run this command only from the local context. If you are in any other context, you will see this failure message: "Failure: Manual PUSH of CDRs supported only in the local context"

**ASR 5500**: Run this command only from the local context. If you are in any other context, you will see this failure message: "Failure: Manual PUSH of CDRs supported only in the local context"

**Examples**

The following command pushes all CDR files to the URL:

```
cdr-push all
```
chassis

Specifies the chassis key that will be used to encrypt and decrypt encrypted passwords in the configuration file. If two or more chassis are configured with the same chassis key value, the encrypted passwords can be decrypted by any of the chassis sharing the same chassis key value. As a corollary to this, a chassis key value will not be able to decrypt the passwords that were encrypted using a different chassis key value.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

| no | chassis { key value key_string | keycheck key_string } |

no

Resets the chassis key to the factory default value. The factory default value is a local MAC address for the chassis. Once this command is executed, the chassis key value command can be used to change the default chassis key.

key value key_string

Specifies the chassis key value as an alphanumeric string of 1 through 16 characters.

The chassis key value is stored as a one-way encrypted value, much like a password. It is never displayed in its plain-text form.

keycheck key_string

Generates a one-way encrypted key value based on the entered alphanumeric string of 1 through 16 characters.

The generated encrypted key value is compared against the encrypted key value of the previously entered chassis key value. If the encrypted values match, the command succeeds and key check passes. If the comparison fails, a message is displayed indicating that the key check has failed. Note that if the default chassis key MAC address) is currently being used, this key check will always fail since there will be no chassis key value to compare against.
Important  Fro detailed information regarding the impact of using these commands in various StarOS releases, refer to the System Settings chapter of the System Administration Guide.

Usage Guidelines  Establish multiple, unique chassis keys to encrypt and decrypt passwords in configuration files.

Examples  The following command generates a one-way encrypted key based on the string tewks367.

```
chassis key value tewks367
```
clear aaa

Clears all Authentication, Authorization, and Accounting (AAA) statistics for the current context.

**Product**
- ASN-GW
- GGSN
- PDSN
- P-GW
- SAEGW

**Privilege**
- Security Administrator, Administrator, Operator

**Command Modes**
- Exec
  
  The following prompt is displayed in the Exec mode:

  ```
  [local] host_name#
  ```

**Syntax Description**
- clear aaa local counters

**Usage Guidelines**
Clearing the AAA statistics may be useful when monitoring the statistics manually. Clearing resets the counters to zero.

The keyword `local` is not intended to imply the local context defined for all systems. Rather, it indicates the statistics within the current context are to be cleared.

**Examples**
- The following command zeroes out all the AAA statistics in the current context.

  `clear aaa local counters`
clear active-charging analyzer statistics

Clears protocol analyzer statistics.

**Product**

ACS

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
clear active-charging analyzer statistics [ name protocol_name ] | | { grep grep_options | more } |
```

**name protocol_name**

Clears statistics for the specified protocol analyzer.
If this keyword is not specified all statistics are cleared.

*protocol_name* must be one of the following:

- cdp
- dns
- file-transfer
- ftp
- http
- icmp
- icmpv6
- imap
- ip
- ipv6
- ipv6
- mms
- p2p | application p2p_list | protocol-group group_list |: Peer-to-peer analyzer.
**p2p application** *p2p_list*: The supported applications are:

- 8tracks
- actionvoip
- actsync
- adobeconnect
- aimini
- amazoncloud
- amazonmusic
- amazonvideo
- antsp2p
- apple-push
- apple-store
- applejuice
- applemaps
- ares
- armagettron
- avi
- badoo
- baidumovie
- battlefd
- bbm
- beatport
- bitcasa
- bittorrent
- bittorrent-sync
- blackberry-store
- blackberry
- blackdialer
- box
- callofduty
- chikka
- cisco-jabber
- citrix
• clubbox
• clubpenguin
• comodounite
• crackle
• crossfire
• cyberghost
• ddlink
• didi
• directconnect
• dish-anywhere
• dofus
• dropbox
• ebuddy
• edonkey
• espn
• facebook
• facetime
• fandor
• fasttrack
• feidian
• fical
• fiesta
• filetopia
• flash
• flickr
• florensia
• foursquare
• fox-sports
• freenet
• friendster
• fring
• funshion
• gadugadu
• clear active-charging analyzer statistics
• gamekit
• gmail
• gnutella
• go90
• goober
• google-music
• google-push
• google
• googleplay
• googleplus
• gotomeeting
• gtalk
• guildwars
• halflife2
• hamachivpn
• hbogo
• hbonow
• heytell
• hgtv
• hike-messenger
• hls
• hotspotvpn
• hulu
• hyves
• iax
• icall
• icecast
• icloud
• idrive
• igo
• iheartradio
• idrive
• imesh
• imessage
• imgur
• imo
• implus
• instagram
• iplayer
• iptv
• irc
• isakmp
• iskoot
• itunes
• jabber
• jap
• jumblo
• kakaotalk
• kik-messenger
• kontiki
• kugoo
• kuro
• linkedin
• lync
• magicjack
• manolito
• mapfactor
• mapi
• maplestory
• meebo
• mgcp
• mig33
• mlb
• mojo
• monkey3
• mozy
• msn
• msrp
• mute
• mypeople
• myspace
• nateontalk
• naverline
• navigon
• nbc-sports
• netflix
• netmotion
• newsy
• nimbuzz
• nokia-store
• octoshape
• off
• ogg
• oist
• oovoo
• opendrive
• openft
• openvpn
• operamini
• orb
• oscar
• outlook
• paltalk
• pando
• pandora
• path
• pcanywhere
• periscope
• pinterest
• plingm
clear active-charging analyzer statistics

- poco
- popo
- pplive
- ppstream
- ps3
- qq
- qqgame
- qqlive
- quake
- quic
- quicktime
- radio-paradise
- rdp
- rdt
- regram
- rfactor
- rhapsody
- rmstream
- rodi
- rynga
- samsung-store
- scydo
- secondlife
- shoutcast
- showtime
- silverlight
- siri
- skinny
- skydrive
- skype
- slacker-radio
- slingbox
- slingtv
• smartvoip
• snapchat
• softether
• sopcast
• soribada
• soulseek
• soundcloud
• spdy
• speedtest
• splashfighter
• spotify
• ssdp
• ssl
• starz
• stealthnet
• steam
• stun
• sudaphone
• svtplay
• tagged
• talkatone
• tango
• teamspeak
• teamviewer
• telegram
• thunder
• tmo-tv
• tor
• truecaller
• truphone
• tumblr
• tunnelvoice
• tvants
• tvuplayer
• twitter
• twitch
• ultrabac
• ultrasurf
• univision
• upc-phone
• usenet
• ustream
• uusee
• vchat
• voohtv
• vessel
• vevo
• viber
• vine
• voipdiscount
• vopium
• voxer
• vpnx
• vtok
• vtun
• vudu
• warcft3
• waze
• webex
• wechat
• weibo
• whatsapp
• wii
• windows-azure
• windows-store
• winmx
• winny
• wmstream
• wofkungfu
• wofwarcraft
• wuala
• xbox
• xdcc
• xing
• yahoo
• yahoomail
• youku
• yourfreetunnel
• youtube
• zattoo

p2p protocol-group group_list: The supported P2P protocol groups are:
• generic
• anonymous-access
• business
• communicator
• cloud
• e-store
• e-mail
• e-news
• internet-privacy
• filesharing
• gaming
• p2p-filesharing
• p2p-anon-filesharing
• remote-control
• social-nw-gaming
• social-nw-generic
• social-nw-videoconf
• standard


• streaming
• pop3
• pptp
• r tcp
• rtp
• rtsp
• sdp
• secure-http
• sip
• smtp
• tcp
• tftp
• udp
• wsp
• wtp

grep grep_options | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to clear ACS analyzer statistics.

Examples
The following command clears active charging service analyzer information for TCP analyzer:
clear active-charging analyzer statistics name tcp
clear active-charging charging-action statistics

Clears ACS charging action statistics.

Product

ACS

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:
[local]host_name#

Syntax Description

clear active-charging charging-action statistics | name charging_action_name | | {grep grep_options | more }

name charging_action_name

Clears statistics for the specified charging action.

charging_action_name must be the name of a charging action, and must be an alphanumeric string of 1 through 63 characters.

grep grep_options | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines

Use this command to clear active charging action statistics.

Examples

The following command clears active charging action statistics information for charging action named pre-paid:
clear active-charging charging-action statistics name pre-paid
clear active-charging content-filtering server-group statistics

Clears statistics for all/a specific CF server group.

**Product**

CF

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

**Syntax Description**

`clear active-charging content-filtering server-group statistics [name cf_server_group_name] | | { grep grep_options | more } ]`

`name cf_server_group_name`

Clears statistics for the specified CF server group.

`cf_server_group_name` must be the name of a CF server group, and must be an alphanumeric string of 1 through 15 characters.

`grep grep_options | more`

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to clear content filtering statistics for CF server groups.

**Examples**

The following command clears category-based content filtering statistics information for Rulebase named `cf_rule1`:

`clear active-charging content-filtering category statistics rulebase name cf_rule1`
clear active-charging credit-control statistics

Clears credit control statistics.

**Product**
ACS

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
clear active-charging credit-control statistics [ group cc_group_name ] [ server { all | ip-address ip_address | name cc_group_name } ]
```

**clear active-charging credit-control statistics**
Clears statistics for all credit control groups.

**group cc_group_name**
Clears statistics for the specified credit control group.

`cc_group_name` must be an alphanumeric string of 1 through 63 characters.

**server { all | ip-address ip_address | name cc_group_name }**
Clears statistics for the credit control server specified as:

- **all**: for all the Diameter peers and hosts
- **ip-address**: an IP address for the credit control group entered in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation
- **cc_group_name**: name of the credit control group server entered as an alphanumeric string of 1 through 127 characters.

**Usage Guidelines**
Use this command to clear credit control statistics.

**Examples**
The following command clears statistics information for credit control:

```
clear active-charging credit-control statistics
```
clear active-charging dns-learnt-ip-addresses

Clears DNS learnt IP address statistics for the DNS Snooping feature.

**Product**
ACS

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
clear active-charging dns-learnt-ip-addresses statistics sessmgr { all | instance sessmgr_instance } [ | grep grep_options | more ]
```

**Clears statistics** for all or the specified Session Manager (SessMgr) instance.

- **all**: Clears statistics for all SessMgr instances.
- **instance sessmgr_instance**: Clears statistics for the specified SessMgr instance.
  
  * `sessmgr_instance` must be an integer from 1 through 65535.

**grep grep_options | more**

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**
Use this command to clear DNS learnt IP address statistics for the DNS Snooping feature.

On clearing the statistics using this command, only the entries-flushed, entries-replaced, and IP-Overflows statistics are cleared as these are cumulative statistics. Total-entries will not be cleared as it is an instantaneous statistic of the current total entries in that rule line.

**Examples**
The following command clears all DNS learnt IP address statistics:
```
clear active-charging dns-learnt-ip-addresses statistics sessmgr all
```
clear active-charging edr-format statistics

Clears ACS statistics for all or a specific Event Data Record (EDR) format.

Product
ACS

Privilege
Security Administrator, Administrator, Operator

Command Modes
Exec

The following prompt is displayed in the Exec mode:
[local] host_name#

Syntax Description
clear active-charging edr-format statistics [ name edr_format_name ]

name edr_format_name
Clears statistics for the specified EDR format.
edr_format_name must be the name of an EDR format, and must be an alphanumeric string of 1 through 63 characters.

Important
If an EDR format name is not specified, statistics for all EDR formats are cleared.

Usage Guidelines
Use this command to clear the accumulated statistics for the specified EDR format.

Examples
The following command clears the statistics for all EDR formats:
clear active-charging edr-format statistics
clear active-charging edr-udr-file statistics

Clears Event Data Record (EDR) and Usage Data Record (UDR) file related statistics.

**Product**
ACS

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
clear active-charging edr-udr-file statistics

**Usage Guidelines**
Use this command to clear EDR and UDR file statistics.

**Examples**
The following command clears statistical information for EDR and UDR files:

clear active-charging edr-udr-file statistics
clear active-charging firewall statistics

Clears Stateful Firewall statistics.

Product | PSF
Privilege | Security Administrator, Administrator, Operator
Command Modes | Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description:

clear active-charging firewall statistics [ callid call_id | domain-name domain_name | nat-realm nat_realm_name | protocol { icmp | icmpv6 | ip | ipv6 | other | tcp | udp } | username user_name | | acsmgr instance instance_id | | | { grep grep_options | more } ]

acsmgr instance instance_id
Specifies an ACS Manager instance ID as an integer from 1 through 65535.

callid call_id
Specifies a call identification number as an eight-byte hexadecimal number.

domain-name domain_name
Specifies the domain name.

domain_name must be an alphanumeric string of 1 through 127 characters.

nat-realm nat_realm_name
Specifies the NAT realm.

nat_realm_name must be an alphanumeric string of 1 through 31 characters.

protocol { icmp | ip | other | tcp | udp }
Specifies a protocol for the statistics.

• icmp: ICMPv4
• icmpv6
• ip: IPv4
• ipv6
• other: Protocols other than TCP, UDP, and ICMPv4/ICMPv6
• tcp
• udp

username user_name
Specifies the user name.
user_name must be an alphanumeric string of 1 through 127 characters.

grep grep_options | more
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to clear Stateful Firewall statistics.

Examples
The following command clears all Stateful Firewall statistics:
clear active-charging firewall statistics
clear active-charging firewall track-list

Clears the list of servers being tracked for involvement in any Denial-of-Service (DOS) attacks.

**Product**

PSF

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

clear active-charging firewall track-list attacking-servers

**Usage Guidelines**

Use this command to clear the list of servers being tracked for involvement in any DOS attacks.

**Examples**

The following command clears the list of servers being tracked for involvement in any DOS attacks:

clear active-charging firewall track-list attacking-servers
clear active-charging fw-and-nat policy statistics

Clears statistics for all or a specific Firewall-and-NAT policy.

**Product**
- PSF
- NAT

**Privilege**
- Security Administrator, Administrator, Operator

**Command Modes**
- Exec
  
  The following prompt is displayed in the Exec mode:

  `[local] host_name#`

**Syntax Description**

```
clear active-charging fw-and-nat policy statistics { all | name policy_name } | grep grep_options | more
```

- **all**
  Clears information for all Firewall-and-NAT policies.

- **name policy_name**
  Clears information for the specified Firewall-and-NAT policy.
  
  *policy_name* must be the name of a Firewall-and-NAT policy, and must be an alphanumeric string of 1 through 63 characters.

- **grep grep_options | more**
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
  
  For details on the usage of **grep** and **more**, refer to the *Regulating a Command’s Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to clear statistics for all or a specific firewall-and-NAT policy.

**Examples**

The following command clears statistics for the firewall-and-NAT policy named *test123*:

```
clear active-charging fw-and-nat policy statistics name test123
```
clear active-charging group-of-ruledefs statistics

Clears ACS group of ruledefs statistics.

**Product**
ACS

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
clear active-charging group-of-ruledefs statistics [ name group_of_ruledefs | [ | { grep grep_options | more } ] ]
```

**name group_of_ruledefs**
Clears statistics for the specified group of ruledefs.

*group_of_ruledefs* must be the name of a group of ruledefs, and must be an alphanumeric string of 1 through 63 characters.

**grep grep_options | more**
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of *grep* and *more*, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to clear statistical information related to all or specified Active Charging Service group of ruledefs.

**Examples**
The following command clears statistical information related to the group of ruledefs named *ruledef_group12*:
```
clear active-charging group-of-ruledefs statistics name ruledef_group12
```
clear active-charging nat statistics

Clears NAT realm statistics.

**Product**
NAT

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

**Syntax Description**

clear active-charging nat statistics [ nat-realm nat_realm_name ] | | { grep grep_options | more } |

descriptions

This command when issued in the local context clears statistics for all NAT realms in all contexts. When issued within a specific context, this command clears statistics for all NAT realms in that context.

**nat-realm nat_realm_name**

This command when issued in the local context clears statistics for the specified NAT realm in all contexts. When issued in a specific context, this command clears statistics for the specified NAT realm in that context.

*nat_realm_name*: Specifies name of the NAT realm as an alphanumeric string of 1 through 31 characters.

**grep grep_options | more**

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of *grep* and *more*, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to clear NAT realm statistics.

**Examples**

The following command when issued in the local context, clears NAT realm statistics for NAT realms named *test135* in all contexts:

*clear active-charging nat statistics nat-realm test135*
clear active-charging regex statistics

Clears regular expression (regex) related statistics.

**Product**
ACS

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

[local] `host_name`

**Syntax Description**

`clear active-charging regex statistics ruledef { all | instance instance_number }`

- **all**
  Clears all regex-related statistics.

- **instance instance_number**
  Clears regex-related statistics for specified Session Manager instance.
  `instance_number` must be an integer from 1 through 65535.

**Usage Guidelines**
Use this command to clear regular expression (regex) related statistics.

**Examples**
The following command clears all regex-related statistics:

`clear active-charging regex statistics ruledef all`
clear active-charging rulebase statistics

Clears ACS rulebase statistics.

Product
ACS

Privilege
Security Administrator, Administrator, Operator

Command Modes
Exec

The following prompt is displayed in the Exec mode:
[local] host_name#

Syntax Description
clear active-charging rulebase statistics [ name rulebase_name ] [ | { grep grep_options | more } ]

rulebase_name
Clears statistics for the specified ACS rulebase.
rulebase_name must be the name of a rulebase, and must be an alphanumeric string of 1 through 15 characters.

grep grep_options | more
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to clear ACS rulebase statistics.

Examples
The following command clears statistics for the ACS rulebase named postpaid:
clear active-charging rulebase statistics name postpaid
clear active-charging ruledef statistics

Clears statistics for rule definitions configured in the Active Charging Service (ACS).

Product
ACS

Privilege
Security Administrator, Administrator, Operator

Command Modes
Exec

The following prompt is displayed in the Exec mode:
[local] host_name#

Syntax Description

```
clear active-charging ruledef statistics [charging | firewall | name ruledef_name | tpo ] [ [ | { grep grep_options | more } ]
```

charging
Clears statistics for all charging ruledefs.

firewall
Clears statistics for all Stateful Firewall ruledefs.

name ruledef_name
Clears statistics for the specified ruledef.

`ruledef_name` must be the name of a ruledef, and must be an alphanumeric string of 1 through 63 characters.

tpo

Important
The Traffic Performance Optimization (TPO) in-line service is not supported in this release.

grep grep_options | more
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter.
Usage Guidelines

Use this command to clear ACS ruledef statistics.

Examples

The following command clears all ruledef statistics:

clear active-charging ruledef statistics
clear active-charging subsystem

Clears all ACS subsystem information.

**Product**
ACS

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]\host_name#
```

**Syntax Description**
clear active-charging subsystem

**Usage Guidelines**
Use this command to clear all ACS subsystem information.

**Examples**
The following command clears all ACS subsystem information:

```
clear active-charging subsystem
```
clear active-charging tcp-proxy statistics

Clears ACS TCP Proxy statistics.

Product
ACS

Privilege
Security Administrator, Administrator, Operator

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description
clear active-charging tcp-proxy statistics | all | ip-layer | proxy-fac | rulebase rulebase_name | socket-migration | tcp-layer |

clear active-charging tcp-proxy statistics

all
Clears all TCP Proxy statistics.

ip-layer
Clears TCP Proxy statistics for IP layer.

proxy-fac
Clears TCP Proxy Flow Admission Control statistics.

rulebase rulebase_name
Clears TCP Proxy statistics for the specified rulebase.

rulebase_name must be the name of a rulebase, and must be an alphanumeric string of 1 through 63 characters.

socket-migration
Clears TCP Proxy Socket Migration related statistics.

tcp-layer
Clears TCP Proxy statistics for TCP layer.

Usage Guidelines
Use this command to clear TCP Proxy statistics.
clear active-charging tcp-proxy statistics

Examples

The following command clears TCP Proxy statistics for the rulebase named test14:

```
clear active-charging tcp-proxy statistics rulebase test14
```
clear active-charging tethering-detection statistics

Clears statistics pertaining to the Tethering Detection feature.

**Product**

ACS

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

clear active-charging tethering-detection statistics

**Usage Guidelines**

Use this command to clear statistics pertaining to the Tethering Detection feature.
clear active-charging tpo policy statistics

The Traffic Performance Optimization (TPO) in-line service is not supported in this release.
clear active-charging tpo profile statistics

The Traffic Performance Optimization (TPO) in-line service is not supported in this release.
clear active-charging url-blacklisting statistics

Clears URL Blacklisting feature related statistics.

Product
CF

Privilege
Security Administrator, Administrator, Operator

Command Modes
Exec

The following prompt is displayed in the Exec mode:
[local]host_name$

Syntax Description
clear active-charging url-blacklisting statistics [ rulebase name rulebase_name ] [ | { grep grep_options | more } ]

rulebase name rulebase_name
Clears URL Blacklisting information for the specified rulebase.

rulebase_name must be the name of a rulebase, and must be an alphanumeric string of 1 through 63 characters.

grep grep_options | more
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to clear URL Blacklisting feature related statistics, optionally for a specific rulebase.

Examples
The following command clears URL Blacklisting feature related statistics for rulebase12:
clear active-charging url-blacklisting statistics rulebase name rulebase12
clear active-charging video detailed-statistics

Resets the detailed statistics for TCP video flows.

**Product**
MVG

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
clear active-charging video detailed-statistics

**Usage Guidelines**
Use this command to reset the detailed statistics for TCP video flows.

**Examples**
The following command resets the detailed statistics for TCP video flows:

clear active-charging video detailed-statistics
clear administrator

Ends the session of an administrative user specified by either user name or session ID.

**Product**

All

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

`clear administrator { name user_name | session id id_num }`

- **name user_name**
  Identifies the user name of the administrative user.

- **session id id_num**
  Identifies the ID number of the administrative user session as displayed in the output of the `show administrators session id` command.

**Usage Guidelines**

This command is used to terminate command line interface sessions for other administrative users.

**Examples**

The following command ends the session of the administrative user identified as `user1`:
```
clear administrator name user1
```

The following command ends the session of the administrative user with the session ID of 3:
```
clear administrator session id 3
```
clear alarm

Cleans outstanding alarm conditions

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
clear alarm { all | chassis | id num | port slot/port | slot slot }
```

- **all**
  Clear all outstanding alarms.

- **chassis**
  Clears chassis-wide and fan tray alarms.

- **id num**
  Clears a specific alarm by its internal alarm ID. *num* is the internal alarm identification number.

- **port slot/port**
  Clears alarms for the specified port. *slot/port* is the card slot and port on the card for which to clear alarms.

- **slot slot**
  Clears alarms for the specified slot. *slot* is the card slot for which to clear alarms.

**Usage Guidelines**
Use this command to clear outstanding alarm conditions.

**Examples**

To clear all outstanding alarms, use the following command:

```
clear alarm all
```

To clear all alarms for slot 7, enter the following command:

```
clear alarm slot 7
```
clear alcap

Cleans the Access Link Control Application Part (ALCAP) session statistics of an ALCAP service associated with a Home-NodeB Gateway (HNB-GW) service instance configured and running on a system.

**Product**

HNB-GW

**Privilege**

Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
clear alcap statistics [alcap-service alcap_svc_name | aal2-node aal2_node_name | aal2-path aal2_path_id]
```

- **alcap-service alcap_svc_name**
  Specifies the name of the ALCAP service for which statistics are to be cleared.

- **aal2-node aal2-node**
  Specifies the name of the ATM Adaptation Layer 2 (AAL2) node for which ALCAP service statistics will be cleared.

- **aal2-path aal2_path_id**
  Specifies the identity number of the AAL2 path on a specific ATM Adaptation Layer 2 (AAL2) node for which ALCAP service statistics will be cleared.

**Usage Guidelines**

This command is used to clear the sessions statistics and counters for ALCAP service.

**Examples**

The following command clears the service session statistics of ALCAP service named as `alcap_hnb_svc1`:

```
clear alcap statistics alcap-service alcap_hnb_svc1
```
clear asngw-service

Clears the service session statistics for an Access Service Network Gateway (ASN-GW) service specified by either service name or trusted peer address.

**Product**
ASN-GW

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
clear asngw-service statistics [ name svc_name | peer-address ip_address ]
```

- **name svc_name**
  Identifies the name of the ASN-GW service for which statistics will be cleared. *svc_name* must be an alphanumeric string of 1 through 63 characters.

- **peer-address ip_address**
  Identifies the IP address of the ASN-GW peer for which service statistics will be cleared. *ip_address* must be entered in IPv4 dotted-decimal notation.

**Usage Guidelines**
This command is used to terminate command line interface sessions for ASN GW services.

**Examples**
The following command clears the service session statistics of the ASN-GW service named *aasn_svc1*:
```
clear asngw-service statistics name aasn_svc1
```
clear asnpc-service

Clears the service session statistics of an ASN paging controller service specified by either ASN PC service name or trusted paging controller peer address.

**Product**

ASN-GW

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
clear asnpc-service statistics [ name svc_name | peer-address ip_address ]
```

**name svc_name**

Identifies the name of the ASN PC service for which session statistics will be cleared. *svc_name* must be an alphanumeric string of 1 through 63 characters.

**peer-address ip_address**

Identifies the IP address of the ASN PC peer for which all service statistics will be cleared. *ip_address* must be entered in IPv4 dotted-decimal notation.

**Usage Guidelines**

This command is used to terminate command line interface sessions for ASN PC services.

**Examples**

The following command clears the service session statistics of ASN PC service named as *asnpc_svc1*:

```
clear asnpc-service statistics name asnpc_svc1
```
clear apn statistics

Deletes all previously gathered statistics for either a specific Access Point Name (APN) or all APNs configured with the given context.

**Product**
- GGSN
- P-GW
- SAEGW

**Privilege**
- Security Administrator
- Administrator
- Operator

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
clear apn statistics [ name apn_name | smgr-instance instance ] [ | | { grep grep_options | more } ]
```

- `name apn_name`
  Specifies the name of a specific APN configured in the context for which to clear statistics. `apn_name` is the name of the APN expressed as an alphanumeric string of 1 through 63 characters that is case sensitive.

- `smgr-instance instance`
  Specifies a particular Sessmgr instance in the context for which to clear APN statistics. `instance` must be an integer from 1 to 4294967295.

- `grep grep_options | more`
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of `grep` and `more`, refer to the `Regulating a Command's Output` section of the `Command Line Interface Overview` chapter.

**Usage Guidelines**

Statistics for a single APN can be cleared using the `name` keyword. Statistics for all APNs in the context can be deleted by entering the command with no keywords.

If this command is executed from within the local context with no keywords, statistics will be cleared for every APN configured on the system regardless of context. In addition, if the `name` keyword is used when
executing from within the local context, statistics for all APNs configured with the specified name will be cleared regardless of context.

**Examples**

The following command clears statistics for an APN called *isp1*:

```
clear apn statistics name isp1
```
clear bcmcs statistics

Clears Broadcast Multicast Service (BCMCS) statistics.

**Product**
PDSN

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
clear bcmcs statistics [pdsn-service service_name ]
```

- `pdsn-service service_name`
  Specifies a specific PDSN service for which to clear BCMCS-specific statistics. This value must be an alphanumeric string of 1 through 63 characters.

**Usage Guidelines**
Use this command to clear accumulated BCMCS statistics. You may specify an individual PDSN or peer to selectively clear statistics.

**Examples**
```
clear bcmcs statistics
clear bcmcs statistics pdsn-service service_name
```
clear blacklisted-gtpu-bind-address

Clears the GTP-U loopback address blacklisted by a specific radio network controller (RNC) as defined for a specific IuPS Service configuration.

**Product**
SGSN

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
clear blacklisted-gtpu-bind-address ip_address rnc-id rnc_id mcc mcc_num mnc mnc_num iups-service name
```

**ip_address**
Specifies the IP loopback address that has been blacklisted in IPv4 dotted-decimal notation. This loopback address was originally defined with the `associate-gtpu-bind-address` command in the Radio-Network-Controller Configuration mode of the IuPS Service.

**Usage Guidelines**
This command enables this loopback address to be used for future RAB-assignment requests.

**Examples**
```
clear blacklisted-gtpu-bind-address 1.1.1.1 rnc-id 2 mcc 123 mnc 321 iups-service iups1
```
clear bssap+ statistics

Clears the BSSAP+ protocol (base station subsystem GPRS protocol) statistics collected for the Gs interface between the SGSN and the MSC/VLR.

Product

SGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:
[local]host_name#

Syntax Description

`clear bssap+ statistics | gs-service gs_svc_name | vlr { isdn-number ISDN_Num| name vlr_name } | | { grep grep_options | more } ]`

`gs-service gs_svc_name`

Specifies the name of a preconfigured Gs service handling BSSAP+ information as an alphanumeric string of 1 through 63 characters that is case sensitive.

`vlr { isdn-number ISDN_Num| name vlr_name }`

Specifies a VLR (by ISDN number or name) handling BSSAP+ information.

`isdn-number ISDN_num` is the configured E.164-type ISDN number for the VLR. Enter a numerical string of 1 to 15 digits.
`name vlr_name` is the configured name of the VLR entered as an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to delete or clear collected BSSAP+ protocol statistics for the entire SGSN or for a specified Gs interface. Using the keywords of this command, the interface can be identified by defining a specific VLR connected to the SGSN or by identifying the Gs service to which the interface has been configured.

Examples

The following command clears the BSSAP+ statistics collected for the Gs interface configured for the Gs service named gssvc1.

`clear bssap+ statistics gs-service gssvc1`
clear bssgp statistics

Clears collected BSSGP protocol (base station subsystem GPRS protocol) statistics for traffic between the base station subsystem (BSS) and the SGSN.

**Product**

SGSN

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
clear bssgp statistics [ gprs-service gprs_svc_name | nse nse_id | bvc bvc_id ] | { grep grep_options | more }
```

- **gprs-service gprs_svc_name**
  Specifies the name of a preconfigured GPRS service for which the BSSGP statistics have been collected as an alphanumeric string of 1 through 63 characters that is case sensitive.

- **nse nse_ID**
  Clears the BSSGP statistics collected for the network service entity (NSE) specified as an integer from 0 through 65535.

- **bvc bvc_ID**
  Enter this keyword to clear the BSSGP statistics collected for the identified BSSGP virtual connection (BVC) specified as an integer from 0 through 65000.

- **grep grep_options | more**
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to clear the BBSGP statistics for a particular GPRS service or NSEI.
The following command deletes the collected BSSGP statistics for the GPRS service named `gprs1`.

```
clear bssgp statistics gprs-service gprs1
```
clear bulkstats

Clears counters and accumulated bulk statistics related information.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
clear bulkstats { counters | data }

counters
Clears the counters maintained by the system's "bulkstats" facility.

data
Clears any accumulated data that has not been transferred. This includes any "completed" files that have not been successfully transferred.

**Usage Guidelines**
Once bulk statistics collection is enabled, the system stores the information until the specified transfer criteria is met or until a manual transfer is initiated. The system maintains counters for the "bulkstats" software facility. (Refer to the data keyword for the show bulkstats command for information on viewing the counters.)

This command can be used to delete bulk statistics information that has been collected but not transferred and/or to clear the counters that have been maintained.

**Examples**
The following command clears bulk statistics-related counters:

clear bulkstats counters
clear cae-group statistics server

This command resets the discardable statistics, which are the Hit Count, Timeout Consecutive (Cumulative), and Last Failure statistics, for all CAEs or for a specific CAE. The CAE (Content Adaptation Engine) is an optional component of the Mobile Videoscape.

**Product**

MVG

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
clear cae-group statistics server { all | name cae_name }
```

- **all**
  
  Resets the discardable statistics for all CAEs.

- **name cae_name**
  
  Specifies the name of a CAE.

**Usage Guidelines**

Use this command to reset the discardable statistics for all CAEs or for a specific CAE. This command must be issued in the same context in which the associated CAE group is defined.

**Examples**

The following command clears the discardable statistics for the CAE named `server_1`:

```
clear cae-group statistics server name server_1
```
clear call-home statistics

Clears Cisco Call Home feature statistics.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
clear call-home statistics

**Usage Guidelines**
Use this command to reset the statistics for all Call Home events.

**Examples**
The following command clears the discardable statistics for the Call Home feature:

clear call-home statistics
clear cdr statistics

Clears statistics related to charging data records (CDRMOD).

**Product**

All

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]\host_name#
```

**Syntax Description**

`clear cdr statistics`

**Usage Guidelines**

Use this command to reset the statistics for charging data records.

**Examples**

The following command clears the discardable statistics related to CDRs:

```
clear cdr statistics
```
clear cli history

Clears the tracking history of command line interface (CLI) command usage.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
clear cli history

**Usage Guidelines**
Use this command to clear the tracking history of CLI command usage.

**Examples**
The following command clears the CLI history:

```
clear cli history
```
clear cmp cert-name

Clears information stored for the specified IPSec Certificate Management Protocol v2 (CMPv2) certificate.

**Product**
All products supporting IPSec CMPv2 features

**Important**
This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

**Privilege**
Security Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
clear cmp cert-name cert_name

**Usage Guidelines**
Use this command to clear the information for the specified CMP certificate.

**Examples**
The following command clears information for the specified CMP certificate:
clear cmp cert-name certificate01
clear cmp statistics


**Product**
All products supporting IPSec CMPv2 features

**Important**
This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

**Privilege**
Security Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
clear cmp statistics

**Usage Guidelines**
Use this command to clear statistics for IPSec CMPv2 certificates.

**Examples**
The following command clears CMPv2 certificates:

```
clear cmp statistics
```
clear config

Replaces the active configuration source file with an empty configuration where possible.

**Product**

All

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

`clear config [-noconfirm]`

- `-noconfirm`
  
  Executes the command without any additional prompt and confirmation from the user.

**Usage Guidelines**

This command clears the current configuration when a complete overwrite is desired or if it is necessary to start from an empty configuration.

---

**Important**

Clearing the configuration will cause the active configuration source file to be empty and of no use in configuring the system to an active state providing service.

---

**Important**

This command should only be performed on configurations that have been previously backed up for easy restoration.

**Examples**

The following command clears the active configuration after the user provides confirmation of the request.

```
clear config
```

The following command clears the active configuration source file immediately with no user confirmation.

```
clear config -noconfirm
```
clear congestion-control statistics

Clears the congestion control statistics for all instances of the specified manager type.

**Product**

*All*

**Privilege**

*Security Administrator, Administrator, Operator*

**Command Modes**

*Exec*

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

`clear congestion-control statistics { a11mgr | asngwmgr | asnpcmgr | bindmux | gtpcmgr | hamgr | hnbmgr | imsimgr | ipsecmgr | ipsgmgr | imsimgr | l2tpmgr }

**a11mgr**

Clears the statistics for all A11 Manager instances.

**asngwmgr**

Clears the statistics for all ASN GW Manager instances

**asnpcmgr**

Clears the statistics for all ASN PC-LR Manager instances

**bindmux**

Clears the statistics for all IPCF BindMux-Demux Manager instances.

**gtpcmgr**

Clears the statistics for all GTPC Manager instances.

**hamgr**

Clears the statistics for all HA Manager instances.

**hnbmgr**

Clears the statistics for all HNB Manager instances.
**imsimgr**
Clears the statistics for all IMSI Manager instances.

**ipsecmgr**
Clears the statistics for all IPSEC Manager instances.

**ipsgmgr**
Clears the statistics for all IPSG Manager instances.

**l2tpmgr**
Clears the statistics for all L2TP Manager instances.

**Usage Guidelines**
Use this command to statistics for all instances of the specified manager.

**Important**
When this command is issued in any context other than the local context, only instances of the specified manager for the current context have the statistics cleared. When the current context is the local context, all instances of the specified manager type in all contexts have the statistics cleared.

**Examples**
The following command clears the statistics for all instances of the A11 manager:

`clear congestion-control statistics a11mgr`
clear content-filtering category statistics

Clears the Category-based Content Filtering application statistics.

**Product**
CF

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

**Syntax Description**
`clear content-filtering category statistics [ facility srdbmgr instance instance_value ]`

`facility srdbmgr instance instance_value`
Clears logged events for the specified SRDB Manager instance.

`instance_value` must be an integer from 1 through 8.

In release 9.0 and later, `instance_value` must be an integer from 1 through 10000.

**Usage Guidelines**
Use this command to clear all Category-based Content Filtering application statistics, or statistics for a specific SRDB Manager instance.

**Examples**
The following command clears all Category-based Content Filtering application statistics:

`clear content-filtering category statistics`
clear crash

Removes a specific crash file or all crash files.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

clear crash [ list | number crash_num ]

list | number crash_num

list: removes all crash files.

number crash_num: removes only the crash file specified as an integer from 1 through 30.

Usage Guidelines

Clear crashes for general maintenance activities in cleaning out old, unused, or files which are of no importance.

Examples

The following will remove all crash files.

clear crash list

The following command will remove only crash file 27.

clear crash number 27
clear credit-control statistics

Clears credit control statistics.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name# 
```

**Syntax Description**

```
clear credit-control statistics cc-service cc_service_name
```

- **cc-service cc_service_name**
  Specifies an existing Credit Control service name as an alphanumeric string of 1 through 63 characters.

**Usage Guidelines**

Use this command to clear active credit control statistics.

**Examples**

The following command clears the configured credit control statistics for a service named *service1*:

```
clear credit-control statistics cc-service service1
```
clear crypto

Clears crypto associations or crypto statistics.

**Product**
- ePDG
- PDSN
- HA
- GGSN
- PDG/TTG
- PDIF
- SCM

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
clear crypto { isakmp | tag map_name | peer peer_ip | | security-association { counters tag map_name { tx | rx | | tag map_name | peer peer_ip { sa-index numbr } } | statistics { ikev2 | { service-ip-address ip-address | service-name name } } }
```

- **isakmp | tag map_name | peer peer_ip |**
  
  When no keywords are specified, this command clears all of the ISAKMP security associations for the current context.

  **tag map_name**: Clears the ISAKMP SAs for the specified crypto map. *map_name* is the name of an existing crypto map.

  **peer peer_ip**: Deletes the ISAKMP SAs for the specified peer. *peer_ip* must be entered in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

- **security-association { counters map map_name | tx | rx | | tag map_name | peer peer_ip [ sa-index numbr ] }**

  **counters tag map_name | tx | rx**: Resets the counters for the specified crypto map. *map_name* is the name of an existing crypto map. **tx** specifies that only the transmit SA counters are reset. **rx** specifies that only the receive SA counters are reset. If neither **tx** or **rx** are specified, both transmit and receive SA counters are reset.
**clear crypto**

**tag map_name:** Tears down a Security Association (SA) for the specified crypto map. *map_name* is the name of an existing crypto map.

**peer peer_ip:** Clears the SAs for all tunnels who have the peer at the specified IP address. *peer_ip* must be entered in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

**| sa-index numbr:** Clears a specified security association. *numbr* is an integer from 1 to 4 for releases prior to 15.0, or 1 to 5 for release 15.0 and higher.

---

**Caution**

Modification(s) to an existing crypto map and/or ISAKMP policy configuration will not take effect until the related security association has been cleared.

---

**statistics ikev2 [ service-ip-address ip-address | service-name name ]**

**ikev2:** Clears global IKEv2 statistics for the current context.

**service-ip-address ip-address:** Clears statistics for the specified service-ip address. **service-name name:** Clears statistics for the specified service name.

---

**Usage Guidelines**

Clear SAs and apply changes to the crypto map or clear the crypto statistics for this context.

---

**Examples**

The following clears all IKEv2 crypto statistics for the current context:

`clear crypto statistics ikev2`
clear cs-network statistics

Clears the HNB-Circuit Switched (CS) network service associated for an HNB-GW service instance.

**Product**

HNB-GW

**Privilege**

Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#  
```

**Syntax Description**

```
clear cs-network statistics [ name cs_svc_name | ranap-only | rtp-only | sccp-only ]  
```

- **name cs_svc_name**
  
  Clears the session statistics for an HNB-CS Network service name configured and running on this system. `cs_svc_name` must be an alphanumeric string of 1 through 63 characters.

- **ranap-only**
  
  Clears the session statistics limited to Radio Access Network Application Protocol (RANAP) traffic only for the specified HNB-CS Network service.

- **rtp-only**
  
  Clears the session statistics limited to Real Time Protocol (RTP) traffic only for the specified HNB-CS Network service.

- **sccp-only**
  
  Clears the session statistics limited to Signaling Connection Control Part (SCCP) traffic only for the specified HNB-CS Network service.

**Usage Guidelines**

Use this command to clear the session statistics for overall session or in selected part of user session for HNB-CS Network services configured and running on a system.

**Examples**

The following command clears the session statistics for RANAP part of session for the HNB-CS Network service `hnb_CS_1`:

```
clear cs-network statistics name hnb_CS_1 ranap-only  
```
clear dhcp statistics

Deletes all previously gathered statistics for either a specific or all DHCP IPv4 servers configured within the given context.

**Product**

- GGSN
- ASN-GW
- P-GW
- SAEGW

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name>
```

**Syntax Description**

```
clear dhcp statistics [ dhcp-service svc_name | server ip_address ]
```

- **dhcp-service svc_name**
  
  Specifies the name of a specific DHCP service for which to clear statistics as an alphanumeric string of 1 through 63 characters that is case sensitive.

- **server ip_address**
  
  Specifies the IP address of a DHCP server in IPv4 dotted-decimal notation as configured in the context for which to clear statistics.

**Usage Guidelines**

Statistics for a single server can be cleared using the `server` keyword. Statistics for all DHCP servers in the context can be deleted by entering the command with no keywords.

This command can be executed from any context configured on the system.

If this command is executed from within the local context with no keywords, statistics will be cleared for every DHCP server configured on the system regardless of context. In addition, if the server keyword is used when executing from within the local context, statistics for all DHCP servers configured with the specified name will be cleared regardless of context.
**Examples**

The following command clears statistics for all configured DHCP servers within the context:

```plaintext
clear dhcp statistics
```
clear dhcpv6 statistics

Deletes all previously gathered statistics for either a specific or all DHCP IPv6 (DHCPv6) servers configured within the given context.

**Product**
- ASN-GW
- GGSN
- P-GW
- SAEGW

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name>
```

**Syntax Description**
```
clear dhcpv6 statistics [server ipv6_address | service svc_name ]
```

**server ipv6_address**
Specifies the IP address of a DHCP server in IPv6 colon-separated-hexadecimal notation as configured in the context for which to clear statistics.

**service svc_name**
Specifies the name of a specific DHCPv6 service for which to clear statistics as an alphanumeric string of 1 through 63 characters that is case sensitive.

**Usage Guidelines**
Statistics for a single server can be cleared using the `server` keyword. Statistics for all DHCPv6 servers in the context can be deleted by entering the command with no keywords.

This command can be executed from any context configured on the system.

If this command is executed from within the local context with no keywords, statistics will be cleared for every DHCPv6 server configured on the system regardless of context. In addition, if the server keyword is used when executing from within the local context, statistics for all DHCPv6 servers configured with the specified name will be cleared regardless of context.
Examples

The following command clears statistics for all configured DHCPv6 servers within the context:

```bash
clear dhcpv6 statistics
```
clear diameter aaa-statistics

Clears Diameter AAA statistics.

**Product**
All

**Privilege**
Security Administrator, Administrator, Inspector, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name>
```

**Syntax Description**
```
clear diameter aaa-statistics [ all | debug-info | group aaa_group | server diameter_server ] [ | { grep grep_options | more } ]
```

- **all**
  Clears all Diameter server statistics.

- **debug-info**
  Clears Diameter debug statistics.

- **group aaa_group**
  Clears Diameter server statistics for the specified AAA group.
  *aaa_group* must be the name of a AAA server group, and must be an alphanumeric string of 1 through 64 characters.

- **server diameter_server**
  Clears Diameter server statistics for the specified Diameter server.
  *diameter_server* must be an alphanumeric string of 1 through 64 characters.

- **grep grep_options | more**
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of *grep* and *more*, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.
Usage Guidelines

Use this command to clear Diameter AAA statistics.

Examples

The following command clears Diameter server statistics for the specified AAA group:

```
clear diameter aaa-statistics group aaagroup3
```
clear diameter route

Clears the Diameter routes in the Diabase.

<table>
<thead>
<tr>
<th>Product</th>
<th>ASN GW</th>
<th>ePDG</th>
<th>GGSN</th>
<th>HA</th>
<th>HSGW</th>
<th>IPSG</th>
<th>MME</th>
<th>PDG/TTG</th>
<th>PDSN</th>
<th>P-GW</th>
<th>SCM</th>
<th>SGSN</th>
<th>S-GW</th>
</tr>
</thead>
</table>

| Privilege | Security Administrator, Administrator, Operator |

<table>
<thead>
<tr>
<th>Command Modes</th>
<th>Exec</th>
</tr>
</thead>
<tbody>
<tr>
<td>The following prompt is displayed in the Exec mode:</td>
<td>[local]host_name#</td>
</tr>
</tbody>
</table>

| Syntax Description | clear diameter route dynamic [ endpoint endpoint_name peer peer_name facility { aaamgr | sessmgr } instance instance_number | | | grep grep_options | more |
|--------------------|-----------------------------------------------|
| dynamic            | Clears all dynamic routes under all the Diameter endpoints. |
| endpoint endpoint_name | Clears the dynamic routes for the specified endpoint. |
**endpoint_name** must be the name of a Diameter endpoint, and must be an alphanumeric string of 1 through 63 characters.

**peer peer_name**
Clears the dynamic routes for the specified peer.
peer_name must be an alphanumeric string of 1 through 63 characters.

**facility { aaamgr | sessmgr } [ instance instance_number ]**
Clears the dynamic routes for the specified facility – AAA Manager or Session Manager.
Specify the instance number to clear the dynamic routes for a particular facility's instance. The instance_number must be an integer from 1 through 99999.

**grep grep_options | more**
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
For details on the usage of **grep** and **more**, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to clear the Diameter routing tables that gets added in the system whenever messages are routed through the Diameter proxy/Diabase. These message remain in the system for a long period.
The user has the flexibility to clear the route based on any combination of these keyword options. Running the command **clear diameter route dynamic endpoint endpoint-name peer peer-name** will result in flushing of the routes that match both endpoint and peer value. Similarly, with this CLI command "**clear diameter route dynamic endpoint endpoint-name peer peer-name facility { aaamgr | sessmgr } instance instance_number**, the routes in a particular facility with the specified endpoint and peer name can be deleted.

**Examples**
The following command clears all dynamic Diameter routes for the specified peer:
**clear diameter route dynamic peer p1**
clear diameter statistics

Clears the Diameter statistics.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]\host_name#

Syntax Description

clear diameter statistics [ | proxy | endpoint endpoint_name | peer-host host_id | peer-realm realm_id | ] | | | { grep grep_options | more } |

depth endpoint endpoint_name

Clears statistics for the specified endpoint.

endpoint_name must be the name of a diameter endpoint, and must be an alphanumeric string of 1 through 63 characters.

proxy

Clears proxy related statistics.

peer-host host_id

Clears statistics for the specified Diameter peer host ID.

host_id must be an alphanumeric string of 1 through 255 characters.

peer-realm realm_id

Clears statistics for the specified Diameter peer realm.

realm_id must be an alphanumeric string of 1 through 127 characters.

grep grep_options | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
For details on the usage of `grep` and `more`, refer to the *Regulating a Command’s Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to clear Diameter statistics.

**Examples**

The following command clears all Diameter statistics for the specified endpoint:

```
clear diameter statistics endpoint endpt345
```
clear diameter-service

Clears information pertaining to configured Diameter services.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
clear diameter-service { eap { all | session-id session_id } | lte-s6b { all | session-id session_id } | lte-sta { all | session-id session_id } | mbms { bearer-contexts { all | bmsc-bearer-service name service_name } | ue-context { all | bmsc-bearer-service name service_name } } | statistics name service_name [ vpn-name vpn context_name ] }
```

eap { all | session-id session_id }
Clears subscribers from the EAP interface.
all: Clears all subscribers.

session-id session_id: Clears a call for the session ID specified as an alphanumeric string of 1 through 63 characters.

lte-s6b { all | session-id session_id }
Clears subscribers from the S6b interface.
all: Clears all subscribers.

session-id session_id: Clears a call for the session ID specified as an alphanumeric string of 1 through 63 characters.

lte-sta { all | session-id session_id }
Clears subscribers from STa interface.
all: Clears all subscribers.

session-id session_id: Clears a call for the session ID specified as an alphanumeric string of 1 through 63 characters.
clear diameter-service

mbms { bearer-contexts { all | bmsc-bearer-service name service_name } | ue-context { all | bmsc-bearer-service name service_name } }
Clears information from the SGSN-APP interface.

bearer-contexts { all | bmsc-bearer-service name service_name }: Clears information from the bearer-context gmb-interface.
all: Clears all subscribers.
bmsc-bearer-service name service_name: Specifies the name of a bmsc-bearer-service as an alphanumeric string of 1 through 63 characters.

ue-context { all | bmsc-bearer-service name service_name }: Clear information UE context for gmb-interface.
all: Clears all subscribers.
bmsc-bearer-service name service_name: Specifies the name of a bmsc-bearer-service as an alphanumeric string of 1 through 63 characters.

service_name
service_name must be a name of a Diameter service expressed as an alphanumeric string of 1 through 63 characters.

statistics name service_name [ vpn-name vpn context_name ]
Clears the Diameter service associated with the specified statistics.
name service_name: Specifies the name of a Diameter service as an alphanumeric string of 1 through 63 characters.

vpn-name vpn context_name: Clears statistics for the vpn-context name specified as an alphanumeric string of 1 through 63 characters.

**Usage Guidelines**
Use this command to clear information pertaining to configured Diameter services.

**Examples**
The following command clears Diameter service information for all subscribers associated with EAP interface:
clear diameter-service eap all
clear dns-client

Clears DNS cache and/or statistics for a specified DNS client.

Product
SCM

Privilege
Security Administrator, Administrator, Operator

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

token

token

token

Syntax Description

clear dns-client name { cache | query-name name | query-type { A | AAAA | NAPTR | SRV } } | statistics

dns-client name

Specifies the name of an existing DNS client whose cache and/or statistics are being cleared as an alphanumeric string of 1 through 255 characters.

cache | query-name name | query-type { A | AAAA | NAPTR | SRV } }

Specifies that the cache for the defined DNS client is to be cleared.

query-name name: Filters DNS results based on the domain name. The name is an alphanumeric string of 1 through 255 characters. that is the domain name used to perform the DNS query. This name is different from the actual domain name which is resolved. For example, to resolve the SIP server for service.com, the query name is _sip._udp.service.com and the query type is SRV.

query-type:

• A: Filters DNS results based on domain IP address records (A records).
• AAAA: Filters DNS results based on AAAA records (AAAA resource records).
• NAPTR: Filters DNS results based on Name Authority Pointer records.
• SRV: Filters DNS results based on service host records (SRV records).

statistics

Specifies that statistics for the defined DNS client are to be cleared.
Usage Guidelines

Use this command to clear DNS cache and/or statistics for a specified DNS client.

Examples

The following command clears statistics for a DNS client named domain1.com:

```
clear dns-client domain1.com statistics
```
clear dns-proxy statistics

Clears all DNS proxy statistics.

Product
SCM

Privilege
Security Administrator, Administrator, Operator

Command Modes
Exec
The following prompt is displayed in the Exec mode:
[local] host_name#

Syntax Description
clear dns-proxy statistics

Usage Guidelines
Use this command to clear all DNS proxy statistics.

Examples
The following command clears DNS proxy statistics:
clear dns-proxy statistics
clear dynamic-policy statistics

Clears policy control and charging (PCC) statistics from the interface communicating with the Policy and Charging Rules Function (PCRF) via Gx(x).

**Product**

HSGW
PDSN
SAEGW
S-GW

**Privilege**

Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
clear dynamic-policy statistics { hsgw-service name | pdsn-service name | sgw-service name }
```

**hsgw-service name**

Clears policy control and charging statistics from the Gxa interface communicating with the PCRF. *name* must be an existing HSGW service name and be from 1 to 63 alphanumeric characters.

**pdsn-service name**

Clears policy control and charging statistics from the Gx interface communicating with the PCRF. *name* must be an existing PDSN service name and be from 1 to 63 alphanumeric characters.

**sgw-service name**

Clears policy control and charging statistics from the Gxc interface communicating with the PCRF. *name* must be an existing S-GW service name and be from 1 to 63 alphanumeric characters.

**Usage Guidelines**

Use this command to clear PCC statistics for the specified service and its Gx interface communicating with the PCRF.

**Examples**

The following command clears HSGW statistics for an HSGW service named *hsgw4*:

```
clear dynamic-policy statistics hsgw-service hsgw4
```
The following command clears PCC statistics for a PDSN service named *cdma4*:

```
clear dynamic-policy statistics pdsn-service cdma4
```

The following command clears S-GW statistics for an S-GW service named *sgw4*:

```
clear dynamic-policy statistics sgw-service sgw4
```
clear egtpc

Clears enhanced GPRS Tunneling Protocol control plane (eGTP-C) statistics and counters found in show command outputs and bulk statistics associated with all eGTP-C-related services or those defined by the parameters in this command.

**Product**
- MME
- P-GW
- S-GW
- SAEGW

**Privilege**
Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name# 
```

**Syntax Description**

```plaintext
clear egtpc statistics | egtp-service name | interface { s2a | s2b | s5s8 } | interface-type { interface-mme | interface-pgw-ingress | interface { s2a | s2b | s5s8 } | interface-sgsn | interface-sgw-egress | interface-sgw-ingress } | mme-address ip_address | pgw-address ip_address | sgsn-address ip_address | sgw-address ip_address ]

egtp-service name | interface { s2a | s2b | s5s8 } ]
```

Clears all statistics and counters associated with an existing eGTP service name specified as an alphanumeric string of 1 through 63 characters.

**interface**: Clears the eGTP-C sub-interface statistics only for the specified eGTP-C service. Possible interfaces are:

- **s2a**: Interface type Sa
- **s2b**: Interface type Sb
- **s5s8**: Interface type S5/S8

**Important**
The keywords **s2a** and **s2b** are only visible if WiFi Integration functionality is enabled. WiFi Integration requires that a valid license key be installed. Contact your local Sales or Support representative for information on how to obtain a license.
interface-type { interface-mme | interface-pgw-ingress [ interface { s2a | s2b | s5s8 } ] | interface-sgsn | interface-sgw-egress | interface-sgw-ingress }

interface-mme: Clears statistics and counters derived from all MME interface types associated with this system.

interface-pgw-ingress: Clears statistics and counters derived from all P-GW ingress interface types associated with this system.

interface: Clears the eGTP-C interface statistics of a particular sub-interface of P-GW ingress. Possible interfaces are:

- s2a: Interface type Sa
- s2b: Interface type Sb
- s5s8: Interface type S5/S8

The keywords s2a and s2b are only visible if WiFi Integration functionality is enabled. WiFi Integration requires that a valid license key be installed. Contact your local Sales or Support representative for information on how to obtain a license.

interface-sgw-egress: Clears statistics and counters derived from all S-GW egress interface types associated with this system.

interface-sgsn: Clears statistics and counters derived from all SGSN S4 interface types associated with this system.

interface-sgw-ingress: Clears statistics and counters derived from all S-GW ingress interface types associated with this system.

mme-address ip_address
Clears all statistics and counters derived from an existing MME IP address specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

pgw-address ip_address
Clears all statistics and counters derived from an existing P-GW IP address specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

sgw-address ip_address
Clears all statistics and counters derived from an existing S-GW IP address specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

sgsn-address ip_address
Clears all statistics and counters derived from an existing SGSN S4 IP address specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

Usage Guidelines
Use this command to clear running statistics and counters found in show command and bulk statistics outputs for all eGTP-C-related services or for specific interfaces, services, or IP addresses as specified by parameters in this command.
The following command clears eGTP-C statistics and counter associated with all P-GW ingress interfaces configured on this system:

```
clear egtpc statistics interface-type interface-pgw-ingress
```

The following command clears eGTP-C statistics and counter associated with all MME interfaces configured on this system:

```
clear egtpc statistics interface-type interface-mme
```
clear event-notif statistics

Clears the statistical information collected over a configured Event Notification (SNMP) interface based on specific criteria.

**Product**
All

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]\host_name#
```

**Syntax Description**
clear event-notif statistics

**Usage Guidelines**
Use this command to clear the statistical information collected over configured Event Notification interface based on specific criteria.

**Examples**
The following command clears the counter information for all Event Notification collection servers configured in a context:

clear event-notif server all
clear event-record

Clears event record statistics for a P-GW node.

**Product**
- P-GW

**Privilege**
- Inspector

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
clear event-record statistics pgw [grep grep_options | more]
```

- **grep grep_options | more**
  
Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

  For details on using the `grep` and `more` commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to clear event record statistics for a P-GW node.

**Examples**

The following command clears all P-GW event level statistics:

```
clear event-record statistics pgw
```
clear firewall

This command is obsolete.
**clear fng-service statistics**

Deletes all previously gathered statistics for a specific Femto Network Gateway (FNG) service or all FNG services configured within a context.

**Product**

FNG

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```  

**Syntax Description**

`clear fng-service statistics { name service_name }`

- `name service_name`
  
  Specifies the name of a specific FNG service configured in the context for which to clear statistics as an alphanumeric string of 1 through 63 characters that is case sensitive.

**Usage Guidelines**

Statistics for a single FNG service can be cleared using the `name` keyword. Statistics for all FNG services in the context can be deleted by entering the command with no keywords.

If this command is executed from within the local context with no keywords, statistics will be cleared for every FNG service configured on the system regardless of context. In addition, if the `name` keyword is used when executing from within the local context, statistics for all FNG services configured with the specified name will be cleared regardless of context.

**Examples**

The following command clears statistics for an FNG service named fng1:

```
clear fng-service statistics name fng1
```
clear gmb statistics

Deletes the collected statistics for the Gmb reference point. Gmb handles broadcast multicast service center (BM-SC) related signaling, which includes the user specific and bearer service messages for Multimedia Broadcast/Multicast Service (MBMS) service.

Product

GGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

clear gmb statistics [ apn name | bmsc-profile profile_name ]

apn name

Deletes only the Gmb information for the specified Access Point Name (APN) specified as an alphanumeric string of 1 through 62 characters.

bmsc-profile profile_name

Deletes only the Gmb information for the specified BM-SC profile specified as an alphanumeric string of 1 through 79 characters.

Usage Guidelines

Use this command to delete usage statistics for the Gmb reference point.

Examples

The following command deletes all Gmb statistics:

clear gmb statistics
clear gmm-sm statistics

Deletes the collected statistics for the GPRS Mobility Management and Session Management (GMM/SM) configurations for various SGSN services.

**Product**  
SGSN

**Privilege**  
Security Administrator, Administrator, Operator, Inspector

**Command Modes**  
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

clear gmm-sm statistics | gmm-only | gprs-service service_name | iups-service service_name | plmn-id mcc mcc mcc | recovered-values | sgsn-service service_name | sm-only |

**gmm-only**

Deletes only GPRS mobility management (GMM) information for the specified filter. Filter options include:

- **gprs-service service_name**
- **iups-service service_name**
- **plmn-id**
- **recovered values**
- **sgsn-service service_name**

**gprs-service srvc_name**

Deletes the statistics for a 2.5G GPRS service specified as an alphanumeric string of 1 through 63 characters that uniquely identifies a preconfigured GPRS service. The delete request can be narrowed by adding either the **nsei** or **routing-area** keywords.

**iups-service srvc_name**

Deletes the statistics for a IuPS service specified as an alphanumeric string of 1 through 63 characters that uniquely identifies a preconfigured IuPS service. The delete request can be narrowed by adding either the **rnc** or **routing-area** keywords.
**clear gmm-sm statistics**

**plmn-id mcc mnc mncmnc [ access-type { gprs | umts } ]**

Deletes the statistics for services within a specified PLMN.

**mcc** Specifies the mobile country code (MCC) as part of the identification of the RNC or RA. `mcc_id` must be an integer from 100 to 999.

**mnc** Specifies the mobile network code (MNC) as part of the identification of the RNC or RA. `mnc_id` must be a 2- or 3-digit integer from 00 to 999.

**access-type** keyword fine-tunes the delete procedure and only deletes GMM/SM statistics for the IuPS (access-type UMTS) and/or the GPRS (access-type GPRS) services belonging to the PLMN.

**recovered-values**

Deletes only the recovered values for the backed-up key KPI counters. The delete request can be narrowed by adding one of three filters:

- **gprs-service service_name**
- **iups-service service_name**
- **sgsn-service service_name**

**sgsn-service srvc_name**

Deletes the statistics for a 3G SGSN service specified as an alphanumeric string of 1 to 63 characters that uniquely identifies the SGSN service. The delete request can be narrowed by adding either the **rnc** or **routing-area** keywords.

**sm-only**

Deletes only session management (SM) information for the specified keyword parameters.

**mcc**

**mcc** Specifies the mobile country code (MCC) as part of the identification of the RNC or RA. `mcc_id` must be an integer from 100 to 999.

**mnc**

**mnc** Specifies the mobile network code (MNC) as part of the identification of the RNC or RA. `mnc_id` must be a 2- or 3-digit integer from 00 to 999.

**lac lac_id**

Specifies the location area code (LAC) as part of the identification of the RNC or RA. `lac_id` must be an integer from 1 to 65535.

**nseinse_id**

Deletes the GMM/SM session statistics for the identified network service entity (NSEI). `nse_id` must be an integer from 0 to 65535 that uniquely identifies a configured NSEI.
**rnc rnc_id**
Fine-tunes the deletion of GMM/SM session statistics just for the specified radio network controller (RNC). *rnc_id* must be an integer from 0 to 4095.

**rac rac_id**
Specifies the routing area code (RAC) as part of the identification of the RNC or RA. *rac_id* must be an integer from 1 to 255.

**routing-area mcc mcc_id mnc mnc_id lac lac_id rac rac_id**
Enter the **routing-area** keyword to fine-tune the clearing of the GMM/SM statistics for a specified routing area (RA) identified by the MCC, MNC, LAC and RAC.

**Usage Guidelines**
Use this command to delete usage statistics for the GMM/SM session configurations for SGSN services, including BSC attaches, activations, and throughput.

**Examples**
The following command deletes GMM/SM statistics for a specific routing area defined for the SGSN's GPRS service:

```
clear gmm-sm statistics gprs-service gprs1 routing-area mcc 123 mcc 131 lac 24 rac 11
```

The following command displays all possible information for GMM/SM statistics:

```
show gmm-sm statistics verbose
```

**Important**
Output descriptions for **show** commands are available in the *Statistics and Counters Reference*. 
clear gprsns statistics

Deletes collected statistics for the 2.5G SGSN's General Packet Radio Service (GPRS) Network Service (NS) layer (link level).

**Product**
SGSN

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
clear gprsns statistics { msg-stats nse nse_id | sns-msg-stats } | { grep grep_options | more }
```

`msg-stats`
Deletes collected transmit (tx) and receive (rx) message statistics for the NS layer.

`consolidated nse nse_id`

`nse_id`: Enter an integer from 0 to 65535.

`nse nse_id`
Deletes statistics for an NSE specified as an integer from 0 to 65535.

`sns-msg-stats`
Deletes subnetwork service (SNS) sublayer message statistics.

`grep grep_options | more`

You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**
This command is used to display Frame Relay statistics configured for the NSE/NSVC with the commands documented in the *Network Service Entity - Peer NSEI Configuration Mode* chapter.
Collected statistics are cleared (deleted) with the `clear gprsns statistics` described in the *Exec Mode Commands (A-C)* chapter.

**Examples**

The following command displays the collected message statistics for NSEI 1422:
```
show gprsns statistics msg-stats nse 1422
```

**Important**

Output descriptions for `show` commands are available in the *Statistics and Counters Reference.*
clear gprsssf statistics

Deletes all Customized Applications for Mobile networks Enhanced Logic (CAMEL) service gprsSSF (GPRS Service Switching Function) statistics collected since the last reset or clear command.

Product
SGSN

Privilege
Security Administrator, Administrator, Operator

Command Modes
Exec
The following prompt is displayed in the Exec mode:
[local]host_name#

Syntax Description
clear gprsssf statistics [ camel-service srvc_name | gprs | 2g-sgsn-app | 3g-sgsn-app | | gsmscf-address { address | all } | sms | | | | grep | more } ]

camel-service srvc_name
Clears only CAMEL service statistics for the configured CAMEL service specified as an alphanumeric string of 1 through 63 characters.

gprs | 2g-sgsn-app | 3g-sgsn-app |
Clears only CAMEL service statistics for either a 2.5G or 3G SGSN.

gsmscf-address { address | all }
Filters the command to only clear CAMEL service statistics for specified GSM service control function (gsmSCF) addresses. address is a standard ISDN E.164 address of 1 to 15 digits.

sms
Filters the command to only clear CAMEL service statistics for SMS protocol information.

grep grep_options | more
For details on the usage of grep and more, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter.

Usage Guidelines
This command instructs the SGSN to delete collected CAMEL service statistics for either specified CAMEL services, or for SMS or GPRS applications in all contexts.
Examples

The following command will delete gprsSSF statistics collected for the CAMEL service residing at SCP identified by the gsmSCF address:

clear gprssf statistics gmscf-address 412211411151
clear gtpc statistics

Deletes all previously gathered GTPC (GTPv0, GTPv1-C, GTPv1-U) statistics within the given context based on the specified criteria.

**Product**
GGSN

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
clear gtpc statistics [ [ custom1 | gtpcmgr-instance gtpcmgr_instance_number | smgr-instance sessmgr_instance_number | apn apn_name | ggsn-service ggsn_service_name | mseg-service msegservice_name | gsgn-address gsgn_ipv4_address ] ]

- **custom1**
  Clears the statistics of GTP-C messages for preservation mode and free of charge service.
  This keyword is a customer-specific function used for Preservation-Mode and Free-of-Charge Service that is enabled under customer-specific license. For more information on this support, contact your Cisco account representative.

- **gtpcmgr-instance gtpcmgr_instance_number**
  Clears GTP-C statistics for a GTPC Manager instance specified as an integer from 1 through 4294967295.

- **smgr-instance sessmgr_instance_number**
  Clears GTP-C statistics for a Session Manager instance specified as an integer from 1 through 4294967295.

- **apn apn_name**
  Clears GTP-C statistics for an existing APN specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

- **ggsn-service ggsn_service_name**
  Clears GTP-C statistics for an existing GGSN service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.
**mseg-service mseg_service_name**

Important: This keyword is not supported in this release.

**sgsn-address sgsn_ipv4_address**

Clears GTP-C statistics for an existing SGSN specified by IP address in IPv4 dotted-decimal notation.

**Usage Guidelines**

GTPC statistics can be cleared for a single APN, GGSN service, or SGSN. All GTPC statistics in the context can be deleted by entering the command with no keywords.

This command can be executed from any context configured on the system.

If this command is executed from within the local context with no keywords, all GTPC statistics will be cleared regardless of context.

GTPP statistics are not affected by this command.

**Examples**

The following command clears all GTPC statistics context:

`clear gtpc statistics`
clear gtpp statistics

Deletes all previously gathered GTPP statistics within the given context for either single or all Charging Gateway Functions (CGFs).

**Product**
- ePDG
- GGSN
- P-GW
- SAEGW
- SGSN

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
clear gtpp statistics [ cgf-address ipv4/ipv6_address ]
```

- `cgf-address ipv4/ipv6_address`
  Deletes statistics for a CGF identified by its IP address entered in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

**Usage Guidelines**
Statistics for a single CGF can be cleared using the `cgf-address` keyword. Statistics for all CGFs in the context can be deleted by entering the command with no keywords.

This command can be executed from any context configured on the system.

If this command is executed from within the local context with no keywords, statistics will be cleared for every CGF configured on the system regardless of context. In addition, if the `cgf-address` keyword is used when executing from within the local context, statistics for all CGFs configured with the specified name will be cleared regardless of context.

**Examples**
The following command deletes all GTPP statistics for a CGF server with an IP address of 192.168.1.42:
```
clear gtpp statistics cgf-address 192.168.1.42
```
clear gtp storage-server local file statistics

Clears AAA proxy GTPP group level statistics for CDRs stored on the local hard disk.

**Product**
- GGSN
- SGSN

**Privilege**
- Security Administrator, Administrator, Operator

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
clear gtp storage-server local file statistics [ group name name ]
```

**Usage Guidelines**
If executed from the local context, this command clears statistics for all GTPP groups configured on the system. If executed from the context within which the storage servers (hard disk) is configured, statistics are deleted for only that context.
clear gtpp storage-server statistics

Clears statistics for configured GTPP storage servers (GSS).

**Product**

GGSN

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

clear gtpp storage-server statistics

**Usage Guidelines**

If executed from the local context, this command clears statistics for all GTPP storage servers configured on the system. If executed from the context within which the servers are configured, statistics are deleted for only those servers.
clear gtpu statistics

Clears enhanced GPRS Tunneling Protocol user plane statistics and counters found in show command outputs and bulk statistics associated with all GTP-U-related services or those defined by the parameters in this command.

**Product**
- P-GW
- S-GW
- MME
- SAEGW

**Privilege**
Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
clear gtpu statistics [gtpu-service gtpu_service_name] [mseg-service mseg_service_name] [peer-address {ipv4/ipv6_address | all}]
```

- **gtpu-service gtpu_service_name**
  Clears GTP-U statistics for an existing GTP-U service specified as an alphanumeric string of 1 through 63 characters.

- **mseg-service mseg_service_name**

- **peer-address**
  This keyword is not supported in this release.

**Usage Guidelines**
Use this command to clear running statistics and counters found in show command and bulk statistics outputs for all GTP-U-related services or for specific services or IP addresses as specified by parameters in this command.
clear gtpu statistics

**Examples**

The following command clears GTP-U statistics and counter associated with a GTP-U service name `gtpu-12` configured on this system:

```
clear gtpu statistics gtpu-service gtpu-12
```
clear hd-storage-policy

Clears statistic information for HD storage policies configured on the system.

Product

HSGW
P-GW
S-GW
SAEGW

Privilege

Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

clear hd-storage-policy statistics { all | name name }

statistics { all | name name }

all: Clears ACR statistical information for all HD storage policies configured on the system.

name name: Clears ACR statistical information for an existing HD storage policy specified as an alphanumeric string of 0 through 63 characters.

Usage Guidelines

Use this command to clear statistics for HD storage policies configured on the system.

Examples

The following command clears statistics for an HD storage policy named pgwsgw:

clear hd-storage-policy statistics name pgwsgw
clear henbgw-access-service statistics

Clears HENBGW ACCESS service statistics.

**Product**
HeNB-GW

**Privilege**
Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name>
```

**Syntax Description**
```
clear henbgw-access-service statistics [henbgw-access-service henbgw_acc_svc_name | miscellaneous | peer-id peer_id_value | s1ap | sctp] | [ | { grep grep_options | more } ]
```

*henbgw-access-service henbgw_acc_svc_name*
Clear statistics per specified HENBGW ACCESS service.
*henbgw_acc_svc_name* is a string of size 1 to 63.

*miscellaneous*
Clears Miscellaneous statistics.

peer-id
Clears information about HENB associations for the specified peer.
*peer_id_value* is an integer value ranging from 0 to 4294967295.

s1ap
Clears S1AP statistics.

sctp
Clears SCTP statistics.

grep grep_options | more
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to clear HENBGW ACCESS service statistics

**Examples**

The following command clears S1AP statistics:

```
clear henbgw-access-service statistics s1ap
```
clear henbgw-network-service statistics

Clears HENBGW NETWORK service statistics.

**Product**
HeNB-GW

**Privilege**
Operator

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:

```
[local] host_name>
```

**Syntax Description**
```
clear henbgw-network-service statistics [ henbgw-network-service henbgw_net_svc_name | peer-id peer_id_value | s1ap | scvp ] [ | { grep grep_options | more } ]
```

- `henbgw-network-service henbgw_net_svc_name`
  Clear statistics per specified HENBGW NETWORK service.
  `henbgw_net_svc_name` is a string of size 1 to 63.

- `peer-id`
  Clears information about MME associations for the specified peer.
  `peer_id_value` is an integer value ranging from 0 to 4294967295.

- `s1ap`
  Clears S1AP statistics.

- `scvp`
  Clears SCTP statistics.

```
| { grep grep_options | more } }
```

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.
**Usage Guidelines**
Use this command to clear HENBGW NETWORK service statistics

**Examples**
The following command clears S1AP statistics:
```
clear henbgw-network-service statistics s1ap
```
clear hnbgw sessions

Clears the active/dormant session information about registered Nabs) on Home-NodeB Gateway (HNB-GW) service instances configured and running on this system based on different filter criteria.

**Product**
HNB-GW

**Privilege**
Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
clear hnbgw sessions { all | cell-id cell_id | hnb-address hnb_ip_address | hnb-local-id hnb_id | hnbgw-service hnbgw_svc_name | hnbid hnb_glbl_id | mcc mcc mnc mnc [-noconfirm] | [ lac lac | rac rac ] }
```

- **all**
  Clears the summarized or full information for all registered HNB sessions on an HNB-GW service instance running on system. Clearing the statistics can be filtered based on given filtering.

- **cell-id cell_id**
  Clears HNB session statistics for a registered cell ID on an HNB-GW service instance. `cell_id` is the identification number of the Femto cell where the user/subscriber is geographically located expressed as an integer from 0 through 268435455.

- **hnb-address hnb_ip_address**
  Clears the session statistics for HNB session(s) based on a registered HNB IP address entered in IPv4 dotted-decimal notation.

- **hnb-local-id hnb_id**
  Clears the session statistics of HNB session(s) for a registered local id of HNB specified as as an integer from 1 through 255.

- **hnbgw-service hnbgw_svc_name**
  Clears the session statistics for registered HNB session(s) on an existing HNB-GW service name specified as an alphanumeric string of 1 through 63 characters.
**hnbid hnb_glbl_id**
Clears the statistics for HNB session(s) based on the registered HNB global id specified as an integer from 1 through 255

**mcc mcc**
Clears statistics for HNB session(s) based on the registered Mobile Country Code (MCC) identification number of the UE. mcc must be an integer from 101 through 999.

**mnc mnc**
Clears the statistics for HNB session(s) based on the registered Mobile Network Code (MNC) identification number of the UE. mnc must be a 2- or 3-digit integer from 00 through 999.

**lac lac**
Clears the statistics for HNB session(s) based on the registered Location Area Code (LAC) identification number of the UE. lac must be an integer from 1 through 65535.

**rac rac**
Clears the statistics for HNB session(s) based on the registered Radio Access Code (RAC) identification number of the UE. rac must be an integer from 1 through 255.

**rnc rnc**
Clears the statistics for HNB session(s) based on the registered Radio Network Code (RAC) identification number of the HNB. rnc must be an integer from 1 through 65535.

**-noconfirm**
Executes the command without any additional prompt and confirmation from the user.

---

**Important**
The Operator privilege does not have access to this keyword.

---

**Usage Guidelines**
Use this command to clear the session statistics of all or specific registered HNB session(s) or in selected part of user session for HNB-GW services configured and running on this system.

**Examples**
The following command clears the session statistics for all registered HNBs on the HNB-GW service named hnbgw1:
```
clear hnbgw sessions hnbgw-service hnbgw1
```
clear hnbgw statistics

Clears the HNB-GW service and HNB related statistics from an HNB-GW node.

**Product**
HNB-GW

**Privilege**
Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
clear hnbgw statistics [ gtpu-only ] [ hnb-access-mode { closed | hybrid | open } ] [ hnbap-only ] [ hnbgw-service hnbgw_svc_name ] [ gtpu-only ] [ hnb-access-mode { closed | hybrid | open } ] [ hnbap-only ] [ ipne-only ] [ ranap-only ] [ rtp-only ] [ rua-only ] [ sabp-only ] [ sctp-only ] ] [ hnbid hnb_identifier ] [ hnbap-only ] [ ranap-only ] [ rtp-only ] [ rua-only ] ] [ hnbid ] [ ipne-only ] [ ranap-only ] [ rtp-only ] [ rua -only ] [ sabp-only ] [ sctp-only ]
```

gtpu-only

Clears the statistics for GTP-U traffic only for the selected HNB/HNB-GW service.

**hnb-access-mode { closed | hybrid | open }**

Clears the session statistics of an existing HNB-GW service based on access mode filters.

- **closed**: clears the statistics of only those UEs which are connected through Closed HNBs to the HNB-GW services on a chassis. This command applies to all Closed HNB sessions on a chassis. If any other criteria specified it will filter the statistics based on given criteria.

- **hybrid**: clears the statistics of only those UEs which are connected through Hybrid HNBs to the HNB-GW services on a chassis. This command applies to all Hybrid HNB sessions on a chassis. If any other criteria specified it will filter the statistics based on given criteria.

- **open**: clears the statistics of only those UEs which are connected through Open HNBs to the HNB-GW services on a chassis. This command applies to all Open HNB sessions on a chassis. If any other criteria specified it will filter the statistics based on given criteria.

**hnbap-only**

Clears the statistics for Home NodeB Application Part (HNBAP) traffic only for the selected HNB/HNB-GW service.
**hnbgw-service hnbgw_svc_name**
Clears the session statistics for an existing HNB-GW service name specified as an alphanumeric string of 1 through 63 characters.

**hnbid hnb_identifier**
Clears the session statistics for an existing Home-NodeB identifier specified as an alphanumeric string of 1 through 255 characters.

**ipne-only**
Clears IPNE statistics for selected HNBGW Service.

**ranap-only**
Clears the session statistics for Radio Access Network Application Protocol (RANAP) traffic only for the selected HNB/HNB-GW service.

**rtp-only**
Clears the session statistics for Real Time Protocol (RTP) traffic only for the selected HNB/HNB-GW service.

**rua-only**
Clears the session statistics for RANAP User Adaptation (RUA) traffic only for the selected HNB/HNB-GW service.

**sabp-only**
Clears the session statistics for Signaling Connection Control Part (SCCP) traffic only for the selected HNB-GW service.

**sctp-only**
Filters the session statistics to display only Stream Control Transmission Protocol (SCTP) traffic for the selected HNB-GW service.

**Usage Guidelines**
Use this command to clear the session statistics for an overall session or in a selected part of a user session for HNB-GW services and/or HNBs configured and running on this system.

**Examples**
The following command clear the session statistics for the HNBAP portion of session details for the HNB-GW service named hnbgw1:

```
clear hnbgw statistics hnbgw-service hnbgw1 hnbap-only
```

The following command clears the session statistics for the RANAP portion of session details for the HNB identified as 102:

```
clear hnbgw statistics hnbid 102 ranap-only
```
clear hsgw-service

Clears HRPD Serving Gateway (HSGW) statistics and counters found in show command outputs and bulk statistics associated with all HSGW services or a specific service defined by the parameter in this command.

**Product**

HSGW

**Privilege**

Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name>
```

**Syntax Description**

```
clear hsgw-service statistics | dns-stats | name service_name | dns-stats | | | { grep grep_options | more }
```

- **dns-stats**
  
  Clears DNS-related statistics.

- **name name**
  
  Clears statistics and counters for an existing HSGW service name specified as an alphanumeric string of 1 through 63 characters.

- **grep grep_options | more**
  
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of **grep** and **more**, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to clear statistics for HSGW services configured on the system.

**Examples**

The following command clears statistics for an HSGW service named **hsgw3**:

```
clear hsgw-service statistics name hsgw3
```
clear hss-peer-service

Clears statistic information for Home Subscriber Service (HSS) peer services configured on the system.

Product
MME

Privilege
Operator

Command Modes
Exec

The following prompt is displayed in the Exec mode:
[local]host_name#

Syntax Description
clear hss-peer-service statistics [ service name ]

statistics [ service name ]
statistics: Clears HSS peer service statistical information for all HSS peer services configured on the system.

service name: Clears HSS peer service statistic information for an existing HSS peer service specified as an alphanumeric string of 1 through 64 characters.

Usage Guidelines
Use this command to clear statistics for HSS peer services configured on the system.

Examples
The following command clears statistics for an HSS peer service named hss4:
clear hss-peer-service statistics service name hss4
clear ims-authorization

Clears statistics for a specified or all IP Multimedia System (IMS) Authorization Service(s).

**Product**
- GGSN
- SCM

**Privilege**
- Security Administrator, Administrator, Operator

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
clear ims-authorization \{ policy-control statistics | ims-auth-service service_name \} | service statistics \{ name service_name \} | | \{ grep grep_options | more \}
```

- **ims-auth-service service_name**
  Clears statistics for the specified IMSA service.
  *
  `service_name` must be an alphanumeric string of 1 through 64 characters.

- **grep grep_options | more**
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
  For details on the usage of **grep** and **more**, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to clear IMSA Service statistics.

**Examples**
The following command clears IMSA policy-control statistics for an IMSA service named `test_service`: 
```
clear ims-authorization policy-control statistics ims-auth-service test_service
```
clear ims-sh-service statistics

Clears all IP Multimedia System (IMS) Sh interface (Diameter) statistics for a specific or all services using the Sh interface.

**Product**
PDIF

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
clear ims-sh-service statistics [ service service_name ]
```

**Service service_name**
Clears statistics for the specified existing IMS service.

*service_name* must be an alphanumeric string of 1 through 64 characters.

**Usage Guidelines**
Use this command to clear interface Sh interface statistics for a specified or all IMS services.

**Examples**
The following command clears all Sh interface statistics:
```
clear ims-sh-service statistics
```
clear ip access-group statistics

Clears all interface access control list (ACL) statistics and the context level ACL statistics that have been configured in the current context. Be aware that updating an access list also causes all ip access-groups utilizing the list to be cleared.

Product
- ASN-GW
- GGSN
- PDSN

Privilege
Security Administrator, Administrator

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description
clear ip access-group statistics

Usage Guidelines
Use this command to clear all interface ACL statistics and the context level ACL statistics that have been configured in the current context.

Examples
The following command clears the ACL statistics:

clear ip access-group statistics
clear ip arp

Clears the address resolution protocol (ARP) cache for a given IP address.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
clear ip arp ip_address

- **ip_address**
  Specifies the IP address for which to clear the ARP cache in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

**Usage Guidelines**
Clear the ARP cache when network changes have occurred for the case where the cached data may cause undue overhead in routing packets.

**Examples**
The following command clears the ARP cache for the IP address 10.2.3.4:

```
clear ip arp 10.2.3.4
```
clear ip bgp peer

Resets Border Gateway Protocol (BGP) connections for all peers or for specified peers in the current context.

**Product**

HA

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
clear ip bgp peer { ip_address | all | as as_num } [ in | out | soft | vpnv4 | vpn6 | vrf vrf_name [ in | out | soft ] ]
```

- **ip_address**
  Specifies the IP address of the neighbor for which BGP connections should be reset in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

- **all**
  Resets BGP connections for all peers.

- **as as_num**
  Resets BGP connections for all peers in the specified autonomous system (AS). `as_num` must be an integer from 1 through 65535.

- **in**
  Softly reconfigures inbound updates.

- **out**
  Softly reconfigures outbound updates.

- **soft**
  Softly reconfigures inbound and outbound updates.
vpnv4
Clears BGP sessions within the VPNv4 address family.

vpnv6
Clears BGP sessions within the VPNv6 address family.

vrf vrf_name
Clears BGP sessions within the specified VRF. vrf_name is an alphanumeric string of 1 through 63 characters.

**Usage Guidelines**
Use this command to BGP information for the current context.

**Examples**
The following command resets BGP connections for all neighbors:
clear ip bgp peer all
clear ip localhosts

Removes the host specified from the current context's local host list for IP address mappings.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

clear ip localhosts [host_name]

host_name

Specifies the name of the host to be removed as an alphanumeric string of 1 through 127 characters. When omitted, all local host name mappings will be removed.

Usage Guidelines

Clears a host name when it is no longer valid for the current context to access. The host name specified will be unrecognized by the current context once the command is performed.

Examples

clear ip localhosts

clear ip localhosts 10.2.3.4

clear ip localhosts remoteABC
clear ip ospf process

Clears Open Shortest Path First (OSPF) database information for the current context and re-establishes neighbor adjacency.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
clear ip ospf process

**Usage Guidelines**
Use this command to clear the OSPF database information for the current context and re-establishes neighbor adjacency.

**Examples**
The following command clears the OSPF database information for the current context and re-establishes neighbor adjacency:

clear ip ospf process
clear ipne statistics

Clears IP Network Enabler (IPNE) statistics for a specified or all IPNE services.

**Product**

MINE

**Privilege**

Administrator, Security Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
clear ipne statistics [ service service_name ]
```

- `service service_name`
  
  Specifies the name of an existing IPNE service for which statistics will be cleared as an alphanumeric string of 1 through 64 characters.

**Usage Guidelines**

Clears IPNE statistics for a specified or all IPNE services.

**Examples**

The following example clears all IPNE statistics:

```
clear ipne statistics
```
clear ipsg statistics

Clears IP Services Gateway (IPSG) statistics for a specified or all IPSG services.

**Product**
eWAG
IPSG

**Privilege**
Administrator, Security Administrator

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
clear ipsg statistics [ service service_name ]

`service service_name`

Specifies the name of an IPSG service for which statistics will be cleared.
`service_name` must be an alphanumeric string of 1 through 64 characters.

**Usage Guidelines**
Clears IPSG service statistics for a specified or all IPSG services.

**Examples**
The following command clears statistics for all IPSG services:
clear ipsg statistics
clear ipv6 neighbors

Clears an IPv6 address from the neighbor cache.

**Product**
PDIF

**Privilege**
Administrator, Security Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
clear ipv6 neighbors ip_address
```

*ip_address*
Specifies the IP address in IPv6 colon-separated-hexadecimal notation.

**Usage Guidelines**
Clears a specific address from the neighbor cache.

**Examples**
Use the following example to clear `3ffe:ffff:101::230:6eff:fe04:d9aa/48`:
```
```
clear ipv6 ospf process

Restarts Open Shortest Path First Version 3 (OSPFv3) with available configuration.

**Product**
- GGSN
- HA
- PDSN

**Privilege**
- Administrator, Security Administrator

**Command Modes**
- Exec
  
  The following prompt is displayed in the Exec mode:

  ```
  [local]host_name#
  ```

**Syntax Description**
clear ipv6 ospf process

**Usage Guidelines**
Force a restart of OSPFv3 process using the available configuration.

**Examples**
clear ipv6 ospf process
**clear l2tp**

Clears all or specific Layer 2 Tunnelling Protocol (L2TP) statistics or clears and disconnects all or specified sessions or tunnels.

**Product**
- PDSN
- GGSN
- LNS

**Privilege**
- Security Administrator, Administrator, Operator

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
clear l2tp { statistics | lac-service service_name | lns-service service_name | pdsnclosedrp-service service_name | peer-address ip_address } | tunnels { all | clear-sa | callid call_id | lac-service service_name | clear-sa | lns-service service_name | pdsnclosedrp-service service_name | peer-address ip_address | clear-sa }
```

- **statistics** | **lac-service service_name** | **lns-service service_name** | **peer-address ip_address**
  With no optional keywords specified, this command clears all L2TP statistics for the current context.

- **lac-service service_name**: Clears all L2TP statistics for the specified LAC service in the current context.

- **lns-service service_name**: Clears all L2TP statistics for the specified LNS service in the current context.

- **pdsnclosedrp-service service_name**: Clears all L2TP statistics for the specified PDSN closed R-P service in the current context.

- **peer-address ip_address**: Clears all L2TP statistics for the destination (peer LNS) at the specified IP address. The IP address is entered using IPv4 dotted-decimal notation.

- **tunnels**
  - **all**: Clears all tunnels in the current context.
  - **lac-service service_name**: Clears all tunnels in the current context that belong to the specified LAC service and closes the tunnels.
  - **lns-service service_name**: Clears all tunnels in the current context that belong to the specified LNS service and closes the tunnels.
**pdsnClosedRP-service** service_name: Clears all tunnels in the current context that belong to the specified PDSN Closed R-P service and closes the tunnels.

**peer-address** ip_address: Clears all tunnels in the current context whose destination (peer LNS) is the system at the specified IP address. The IP address is specified using IPv4 dotted-decimal notation.

**callid** call_id: Uses the unique identifier that specifies a particular tunnel in the system to clear that tunnel and disconnect it. The output of the command `show l2tp tunnels` contains a field labeled 'Callid Hint' which lists the call id information to use with this command. This is an 8-byte hexadecimal number.

**clear-sa**: If any security associations have been established they are cleared.

**Usage Guidelines**

Clear L2TP all or specific L2TP statistics or clear sessions in a tunnel and disconnect the tunnel.

**Examples**

To clear all L2TP statistics for the current context, use the following command:
`clear l2tp statistics`

To clear all L2TP statistics for the LAC service named `lac1`, use the following command:
`clear l2tp statistics lac-service lac1`

Use the following command to clear L2TP statistics for the LNS peer at the IP address `10.10.10.100`:
`clear l2tp statistics peer-address 10.10.10.100`

The following command clears and closes all tunnels in the current context:
`clear l2tp tunnels all`

The following command clears and closes all tunnels for the LAC service named `lac2`:
`clear l2tp tunnels lac-service lac2`

The following command clears and closes all tunnels the peer at the IP address `10.10.10.110`:
`clear l2tp tunnels peer-address 10.10.10.110`
clear lawful-intercept

Refer to the Lawful Intercept Configuration Guide for a description of this command.
clear llc statistics

Deletes collected traffic statistics for the GPRS logical link-control (LLC) layer.

Product SGSN

Privilege Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description clear llc statistics [gprs-service srvc_name] [ | { grep grep_options | more } ]

gprs-service srvc_name
Clears the collected statistics for an existing GPRS service specified as an alphanumeric string of 1 through 63 characters.

grep grep_options | more
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For more information on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Reference.

Usage Guidelines This command deletes statistics collected for the traffic that has gone through the LLC layer for either all GPRS services or for a specified GPRS service.

Examples The following command deletes all LLC statistics for GPRS service gprs1:
clear llc statistics gprs-service gprs1
clear lma-service statistics

Clears Local Mobility Anchor (LMA) statistics and counters found in show command outputs and bulk statistics associated with all LMA services or a specific service defined by the parameter in this command.

Product
- P-GW
- SAEGW

Privilege
Operator

Command Modes
Exec
The following prompt is displayed in the Exec mode:
[local]\host_name#

Syntax Description
`clear lma-service statistics [name service_name]`

name service_name
Clears statistics and counters for an existing LMA service name specified as an alphanumeric string of 1 through 63 characters.

Usage Guidelines
Use this command to clear statistics and counters in show command outputs and bulk statistics for all LMA services or for a specific LMA service.

Examples
The following command clears statistics and counters for an LMA service named lma3:
`clear lma-service statistics name lma3`
clear local-policy

Clears local Quality of Service (QoS) policy service statistics and counters found in show command outputs and bulk statistics associated with all local QoS policy services or a specific service defined by the parameter in this command.

**Product**

P-GW
SAEGW

**Privilege**

Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
clear local-policy statistics [ service service_name ]
```

- **service service_name**
  
  Clears statistics and counters for an existing local policy service name specified as an alphanumeric string of 1 through 64 characters.

**Usage Guidelines**

Use this command to clear statistics and counters in show command outputs and bulk statistics for all local QoS policy services or a specific service.

**Examples**

The following command clears statistics and counters for a local QoS policy service named lp3:

```
clear local-policy statistics service lp3
```
**clear local-user**

Clears information pertaining to local-user administrative accounts.

**Product**
All

**Privilege**
Security Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
clear local-user { database | -noconfirm | statistics | username name lockout }
```

- **clear local-user database**
  Clears the local-user database by deleting all information for all local-user accounts.

  **Caution**
  Use this command only in the event of security concerns or to address concerns of the local-user account database integrity.

- **-noconfirm**
  Executes the command without any additional prompt and confirmation from the user.

- **clear local-user statistics**
  Clears statistics pertaining to local-user accounts.

- **clear local-user username name lockout**
  Removes lockouts associated with the local-user account expressed as an alphanumeric string of 3 through 16 characters that is case sensitive.

**Usage Guidelines**
This command can be used to remove local-user account lockouts, reset local-user-related statistics to 0, or to delete the local-user database.
Examples

The following command removes the lockout placed on a local-user account named *SecureAdmin*:

clear local-user username SecureAdmin lockout
clear location-service

Clears collected statistics and information pertaining to Location Services.

**Product**

MME

SGSN

**Privilege**

Security Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
clear location-services statistics [ service location_svc_name ]
```

- **statistics**
  
  Clears all location service statistics.

- **service location_svc_name**
  
  Clears statistics only for the specified location service.

**Usage Guidelines**

Use this command to clear location service statistics.

**Examples**

The following command clears the Location service statistics only for the location service named `location_service1`:

```
clear location-service statistics service location_service1
```
clear mag-service statistics

Clears Mobile Access Gateway (MAG) statistics and counters found in show command outputs and bulk statistics associated with all MAG services or a specific service defined by the parameter in this command.

Product

HSGW
S-GW
SAEGW

Privilege

Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

clear mag-service statistics [ name service_name ]

name service_name

Clears statistics and counters for an existing MAG service name specified as an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to clear statistics and counters in show command outputs and bulk statistics for all MAG services or for a specific MAG service.

Examples

The following command clears statistics and counters for a MAG service named mag1

clear mag-service statistics name mag1
clear map statistics

Clears Mobile Application Part (MAP) statistics (SS7) for a specified service or all services.

**Product**
- GGSN
- SGSN

**Privilege**
- Security Administrator, Administrator, Operator

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
clear map statistics [ name service_name ] [ recovered-values ]
```

- `name service_name`
  Clears statistics and counters for an existing MAP service name specified as an alphanumeric string of 1 through 63 characters.

- `recovered-values`
  Clears only recovered values for key MAP KPI counters that were backed-up.

**Usage Guidelines**
Delete MAP statistics for a single or all GGSN/SGSN services.

**Examples**
The following command deletes all MAP statistics.
```
clear map statistics
```
clear maximum-temperatures

Clears information pertaining to component maximum temperatures. (ASR 5x00 only)

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
clear maximum-temperatures

**Usage Guidelines**
Reset the timestamp to the current time and clear previous maximum temperatures for all temperature monitored components. This may be useful when preparing to study system performance, monitor usage, or troubleshoot the administrative interfaces.

**Examples**
The following command resets the maximum temperature statistics for all monitored chassis components.

clear maximum-temperatures
clear mipfa statistics

Clears the statistics for the mobile IP foreign agent (MIPFA). The statistics for a specific foreign agent service may be cleared by an explicit command.

**Product**
- PDSN
- GGSN
- ASN-GW

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
clear mipfa statistics [ fa-service name | peer-address ip_address ]
```

- **fa-service name | peer-address ip_address**
  - **fa-service name**: Clears the statistics for an existing FA service specified as an alphanumeric string of 1 through 63 characters. "Total sessions" counters for all peers associated with the service are also reset.
  - **peer-address ip_address**: Clears the statistics for the peer IP address specified in IPv4 dotted-decimal notation. "Total sessions" counter for the specified peer is also reset.

**Usage Guidelines**
Clear all statistics for the MIP foreign agent or for a specific service. This may be useful in monitoring performance and troubleshooting as the statistics may be cleared at a well known time and then collected and transferred for review.

**Examples**
The following clears all statistics for the mobile IP foreign agent.
```
clear mipfa statistics
```

The following commands clear the statistics for the example service only.
```
clear mipfa statistics fa-service sampleService
clear mipfa statistics peer-address 10.2.3.4
```
clear mipha statistics

Clears the statistics for the mobile IP home agent (MIPHA). The statistics for a home agent service may be cleared by explicit command.

**Product**
PDSN
HA

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
clear mipha statistics [ ha-service name | peer-address ip_address ]
```

- **ha-service name | peer-address ip_address**
  - **ha-service name**: Clears the statistics for an existing HA service name specified as an alphanumeric string of 1 through 63 characters. "Total sessions" counters for all peers associated with the service are also reset.
  - **peer-address ip_address**: Clears the statistics for an IP address specified using IPv4 dotted-decimal notation. "Total sessions" counter for the specified peer is also reset.

**Usage Guidelines**
Clear all statistics for the MIP home agent or for a specific service. This may be useful in monitoring performance and troubleshooting as the statistics may be cleared at a well known time and then collected and transferred for review.

**Examples**
The following clears all statistics for the mobile IP foreign agent.
```
clear mipha statistics
```
The following command clears the statistics for the example service only.
```
clear mipha statistics ha-service sampleService
clear mipha statistics peer-address 10.2.3.4
```
clear mipmn statistics

Clears the statistics for mobile IP mobile node (MIPMN).

**Product**

- PDSN
- HA

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

clear mipmn statistics

**Usage Guidelines**

Clear all statistics for MIP mobile node. This may be useful in monitoring performance and troubleshooting as the statistics may be cleared at a well known time and then collected and transferred for review.

**Examples**

The following clears all statistics for MIP mobile node:

clear mipmn statistics
clear mipv6ha statistics

Clears the statistics for mobile IP IPv6 home agent (MIPv6HA).

**Product**
- PDSN
- HA

**Privilege**
- Security Administrator, Administrator, Operator

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
clear mipv6ha statistics

**Usage Guidelines**
Clear all statistics for a MIP IPv6 home agent. This may be useful in monitoring performance and troubleshooting as the statistics may be cleared at a well known time and then collected and transferred for review.

**Examples**
The following clears all statistics for MIPv6 home agent:
```
clear mipv6ha statistics
```
clear mme-service db record

Clears the MME database records all instances of session manager running for an MME service filtered with IMSI or GUTI as criteria.

**Product**
MME

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
clear mme-service db record \{ all | guti plmn plmn_id group-id mme_grp_id code mme_code m-tmsi mtmsi_value | imsi imsi_identifier | instance instance_id \}
```

**all**
Clears all detached database records.

**guti plmn plmn_id group-id mme_grp_id code mme_code m-tmsi mtmsi_value**
This set of keywords specifies the filter criteria as a Globally Unique Temporary Identifier (GUTI) to clear the database records for MME service.

The GUTI is constructed from the GUMMEI and the M-TMSI where GUMMEI is constructed from PLMN (MMC and MNC) `plmn_id` and MME Identifier is constructed from an MME Group ID (MMEGI) `mme_grp_id` and an MME Code (MMEC) `mme_code`.

Within the MME, the mobile is identified by the M-TMSI `mtmsi_value`.

**imsi imsi_identifier**
Specifies the filter criteria as International Mobile Subscriber Identity (IMSI) to clear the database records of a session instance. `imsi_identifier` is a 15-character IMSI field that identifies the subscriber's home country and carrier.

**instance instance_id**
Clears all detached database records in an existing session manager instance specified as an integer from 1 through 4294967295.
Usage Guidelines

Use this command to clear/remove database records for all or a particular instance of session manager for MME services on this system.

Examples

The following command clears the summary database records of a session instance for subscriber having IMSI as 123455432112345 in the MME service:

clear mme-service db record imsi 123455432112345
clear mme-service db statistics

Clears the MME database statistics for MME sessions for all or specific session instances on this system.

Product

MME

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

clear mme-service db statistics [ instance smgr_instance ]

instance smgr_instance

Specifies that MME database statistics for a specific instance of session manager running for MME service are to be remove. The instance ID expressed is an integer from 0 through 4294967295. If an instance is not specified, database statistics of all instances will be removed.

Usage Guidelines

Use this command to clear/remove database statistics for all or a particular instance of session manager for MME services on this system.

Examples

The following command removes/clears the database statistics of all instances of the MME service on a system:

clear mme-service db statistics
clear mme-service statistics

Clears MME service statistics based on various criteria.

Product MME

Privilege Security Administrator, Administrator

Command Modes Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

`clear mme-service statistics [emm-only | esm-only | handover | mme-service mme_svc_name | emm-only | esm-only | handover | offload | s1ap | sctp | | offload | peer-id peer_identifier | emm-only | esm-only | handover | offload | s1ap | sctp | | recovered-values | s1ap | sctp | tai all | taidb db_name | | | {grep grep_options | more } ]`

### emm-only

Clears EPS mobility management (EMM) related statistics for all MME services, or clears these statistics for a specific MME service name or a specific eNodeB association peer identifier.

### esm-only

Clears EPS session management (ESM) related statistics for all MME services, or clears these statistics for a specific MME service name or a specific eNodeB association peer identifier.

### handover

Clears handover related statistics (such as Intra-MME, EUTRAN<>EUTRAN via S10, EUTRAN<>UTRAN via GnGp, EUTRAN<>GERAN via GnGp, and EUTRAN<>UTRAN via S3) for all MME services, or clears these statistics for a specific MME service name or a specific eNodeB association peer identifier.

### mme-service mme_svc_name

Clears all statistics for the specified MME service name.

### offload

Clears all load rebalancing (UE offload) statistics for all MME services, or clears these statistics for a specific MME service name or a specific eNodeB association peer identifier.
peer-id peer_identifier
Clears all statistics for the specified eNodeB association peer identifier.

recovered-values
Clears all recovered statistics if the Backup and Recovery of Key KPI Statistics feature has been enabled. For details, refer to the statistics-backup command in the Global Configuration mode and the feature chapter in the MME Administration Guide.

s1ap
Clears all S1-AP statistics for all MME services, or clears these statistics for a specific MME service name or a specific eNodeB association peer identifier.

sctp
Clears all SCTP statistics for all MME services, or clears these statistics for a specific MME service name or a specific eNodeB association peer identifier.

tai all
Clears statistics stored for all TAI s in all TAI management databases.

taidb db_name
Clears statistics stored for all TAI s in the specified TAI management database.

grep grep_options | more
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter.

Usage Guidelines
This command is used to clear the statistical information of an MME service based on various filter criteria.

Examples
The following command clears the service statistics of all MME service on a system:
clear mme-service statistics
clear multicast-sessions

Disconnects broadcast-multicast sessions based on specified criteria.

Product

PDSN
SGSN

Privilege

Security Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

clear multicast-sessions [ -noconfirm ] [ keywords ] [ verbose ]

-noconfirm
Executes the command without any additional prompt and confirmation from the user.

all
Disconnects all multicast sessions.

callid call_id
Clears the call specified by call_id. The call ID is as an 8-byte hexadecimal number.

card-num slot_num
Specifies the slot number of the packet processing card by which the multicast session is processed as a number from 1 through 7 or 10 through 16 (for the ASR 5000) or from 1 through 3 or 6 through 10 (for the ASR 5500).

flowid id
Clears calls for a specific Broadcast/Multicast Service (BCMCS) flow id, specified as a hexadecimal number.

flowid-type | flow | program |
Clears multicast sessions according to the type of flow.
flow: Clears all multicast sessions for the flow ID type "flow".
**clear multicast-sessions**

**program**: Clears all multicast sessions for the flow ID type "program".

**mcast-address ipv4_address**
Clears multicast sessions for a specific multicast address. Must be followed by the IP address of an interface in IPv4 dotted-decimal notation.

**pcf ipv4_address**
Clears multicast sessions connected via the packet control function defined by an IP address in IPv4 dotted-decimal notation.

**pdsn_service name**
Cleans multicast sessions connected to an existing packet data service name.

**sgsn-service svc_name**
Displays information for multicast sessions connected to an existing SGSN service name.

**verbose**
Displays as much information as possible. If this option is not specified, the output is the standard level which is the concise mode.

**Usage Guidelines**
Clear multicast sessions to aid in troubleshooting the system when no additional subscribers may connect or when a specific service or remote address may be having connection problems. This command may also be useful when preparing for maintenance activities such that connects may be cleared to perform any necessary procedures.

The keywords are filters that modify or filter the criteria for deciding which sessions to clear and are described below. Multiple keywords can be entered on a command line.

When multiple keywords are specified, the multicast sessions deleted must meet the specifications of all of the keywords.

**Examples**
The following command clears the broadcast-multicast sessions having multicast address 10.2.3.4:

**clear multicast-sessions mcast-address 10.2.3.4**

The following command clears the broadcast-multicast session(s) having call id 00004e22:

**clear multicast-sessions callid 00004e22**
clear nat-ip

Clears the NAT IP addresses forcibly from NAT pools.

**Product**
NAT

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
clear nat-ip { ip_address | pool pool_name } context context_name [ -noconfirm ]
```

- **ip_address**
  Specifies the NAT IP address to be released from subscribers, in IPv4 dotted-decimal notation.

- **pool pool_name**
  Specifies the NAT pool name, that is an existing IP pool or IP pool group, specified as an alphanumeric string of 1 through 31 characters.

- **context context_name**
  Clears statistics for the VPN context name where the NAT pool belongs to, specified as an alphanumeric string of 1 through 79 characters.

- **-noconfirm**
  Executes the command without any additional prompt and confirmation from the user.

**Usage Guidelines**
Use this command to clear the NAT IP addresses from Session Manager to VPN for NAT pools, by forcibly releasing the IP addresses from the subscriber calls.

**Examples**
The following command clears the NAT IP statistics for the configured IP address 1.1.1.1 in the test123 VPN context:

```
clear nat-ip 1.1.1.1 context test123
```
The following command clears the NAT IP statistics for the pool1 NAT pool in the test123 VPN context without user confirmation:

clear nat-ip pool pool1 context test123 -noconfirm
clear orbem statistics

Clears the interface statistics for the object request broker element manager (ORBEM) interface.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

**Syntax Description**
clear orbem statistics

**Usage Guidelines**
Clear the statistics to reset them to zero for the ORBEM interface. This may be useful when preparing to study system performance, monitor usage, or troubleshoot the administrative interfaces.

**Examples**
The following command resets the statistics for the ORB element manager.

clear orbem statistics
clear pcc-policy service statistics

Clears statistical information of all or a specific policy control and charging (PCC) service configured in a context.

**Product**

IPCF

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
clear pcc-policy statistics [ name pcc_plcy_svc_name ]
```

*name pcc_plcy_svc_name*

Clears information only for an existing PCC-Policy service in the current context, expressed as an alphanumeric string of 1 through 79 characters.

**Usage Guidelines**

Use this command to clear the statistical information of all or an specific PCC-Policy services configured in a context.

Clearing of statistics can further be filtered for specific PCC-Policy service name as well.

**Examples**

The following command clears the statistical information for the PCC-Policy service named *pcc_policy1* in summarized output:

```
clear pcc-policy service statistics name pcc_policy1
```
clear pcc-policy session

Clears the active/dormant session information about PCC-Policy service instances configured and running on this system based on different filter criteria.

**Product**

IPCF

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
clear pcc-policy sessions [all] [apn | call-id call_id | imsi imsi_id | ip-address pce_pcef_ip_address | service service_pce_pclf_svc_name | [local-purge ]
```

**all**

Clears the session information of all registered IP-CAN session(s) on a PCC-Policy service instance running on the system. The display can be filtered based on given filtering criteria.

**apn apn_name**

Clears the session information for PCC-Policy service sessions connected via an existing APN,

**imsi imsi_id**

Clears the session information of IP-CAN session(s) based on the IMSI identifier of a subscriber on a PCC-Policy service instance. *imsi_id* is the International Mobile Subscriber Identity (IMSI) and must be a 15-character field which identifies the subscriber’s home country and carrier.

**ip-address pce_pcef_ip_address**

Clears the session statistics of IP-CAN session(s) based on the registered PCEF (Policy and Charging Enforcement Function) node IP address expressed in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

**call-id call_id**

Clears the session statistics of IP-CAN session(s) based on the existing registered call id of an IP-CAN session subscriber specified in eight-byte hexadecimal format.
pcc-policy-service pcc_plcy_svc_name
Clears the session statistics of registered IP-CAN session(s) based on an existing PCC-Policy service name, expressed as an alphanumeric string of 1 through 63 characters.

local-purge
Clears the session information for PCC-Policy service sessions locally only.

Usage Guidelines
Use this command to clear the session statistics of all or specific registered IP-CAN session(s) or in selected part of user session for PCC-Policy services configured and running on this system.

Examples
The following command clears the session statistics for all registered PCC-Policy service instances on a system/context locally only:
clear pcc-policy sessions all local-purge
clear pcc-sp-endpoint statistics

Clears the statistical information of all or specific PCC-Sp-Endpoint instance configured in a context.

Product

IPCF

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

clear pcc-sp-endpoint statistics [ name sp_endpt_name ]

name sp_endpt_name

Clears information only for an existing PCC-Sp-Endpoint instance specified as an alphanumeric string of 1 through 79 characters.

Usage Guidelines

Use this command to clear the statistical information of all or an specific PCC-Sp-Endpoint interface configured in a context.

Clearing of statistics can further be filtered for specific PCC-Sp-Endpoint instance name as well.

Examples

The following command clears the statistical information for the PCC-Sp-Endpoint instance named sp1 in summarized output:

clear pcc-sp-endpoint statistics name sp1
clear pdg-service statistics

Deletes all previously gathered statistics for a specific Packet Data Gateway (PDG) service or all PDG services configured within a context.

**Product**

PDG/TTG

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

clear pdg-service statistics [ name service_name ]

- **name service_name**
  
  Clears the statistics for the PDG service name configured in the context, expressed as an alphanumeric string of 1 through 63 characters that is case sensitive.

**Usage Guidelines**

Usage Statistics for a single PDG service can be cleared using the name keyword. Statistics for all PDG services in the context can be deleted by entering the command with no keywords.

If this command is executed from within the local context with no keywords, statistics will be cleared for every PDG service configured on the system regardless of context. In addition, if the name keyword is used when executing from within the local context, statistics for all PDG services configured with the specified name will be cleared regardless of context.

**Examples**

The following command clears statistics for a PDG service named pdg1:

clear pdg-service statistics pdg1
clear pgw-service

Clears PDN Gateway (P-GW) statistics and counters found in `show` command outputs and bulk statistics associated with all P-GW services or a specific service defined by the parameter in this command.

**Product**
- P-GW
- SAEGW

**Privilege**
- Operator

**Command Modes**
- Exec
  
  The following prompt is displayed in the Exec mode:
  
  `[local]host_name#`

**Syntax Description**

```
clear pgw-service statistics \| name service_name \| \| \{ grep grep_options \| more \}
```

- **name service_name**
  
  Clears statistics and counters for an existing P-GW service name, expressed as an alphanumeric string of 1 through 63 characters.

- **grep grep_options \| more**
  
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of `grep` and `more`, refer to the `Regulating a Command's Output` section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to clear statistics and counters in show command outputs and bulk statistics for all P-GW services or for a specific P-GW service.

**Examples**

The following command clears statistics and counters for an P-GW service named `pgw5`:

```
clear pgw-service statistics name pgw5
```
clear port

Clears port related statistics.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

clear port { datalink counters { all | slot/port } | npu counters { all | slot/port | untagged | vlan tag_id } }

datalink counters
Clears data link port statistics.

npu counters
Clears statistics for the network processing unit(s).

all
Clears counters for all datalink or NPU ports.

slot/port
Clears the statistics for the specified slot and port number.

untagged
Clears NPU statistics for all ports that do not have a VLAN tag.

vlan tag_id
Clears NPU statistics for the port that has a previously configured VLAN tag ID.

Usage Guidelines

Manually clear the statistics for a specified port. This is useful when preparing to troubleshoot or monitor the system.
Examples

The following command clears the data link related statistics for port 1 in slot 17.
```
clear port datalink counters 17/1
```

The following command clears the network processing unit related statistics for port 1 in slot 17.
```
clear port npu counters 17/1
```

The following command clears the network processing unit related statistics for port 10 in slot 5.
```
clear port npu counters 5/10
```
clear ppp statistics

Clears point-to-point protocol (PPP) related statistics. All PPP statistics may be cleared or just those for a specific packet data service may be cleared.

**Product**
- PDSN
- GGSN

**Privilege**
- Security Administrator
- Administrator
- Operator

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local]\host_name#
```

**Syntax Description**

```
clear ppp statistics [ ggsn-service ggsn_name | ins-service ins_name | pcf-address [ pcf_ip_addr | all ] | pdsn-service pdsn_name | pdsnclosedrp-service pdsnclosedrp_name ]
```

- **ggsn-service ggsn_name**
  Clears statistics only for the time the session is connected to the named GGSN service.

- **ins-service ins_name**
  Clears statistics only for the time the session is connected to the named LNS service.

- **pcf-address [ pcf_ip_addr | all ]**
  Clears statistics only for the time the session is connected to the specified PCF (Packet Control Function) or for all PCFs. `pcf_ip_addr` must be entered using IPv4 dotted-decimal notation.

- **pdsn-service pdsn_name**
  Clears statistics only for the named PDSN service.

- **pdsnclosedrp-service pdsnclosedrp_name**
  Clears statistics only for the time the session is connected to the named PDSN Closed RP service.

**Usage Guidelines**

Allows you to manually reset PPP statistics when it is desired to have counts begin again from a specific point in time.
Examples

The following clears the statistics for all PPP counters and services.

`clear ppp statistics`

The following clears only the point-to-point protocol statistics for the service named `sampleService`.

`clear ppp statistics pdsn-service sampleService`
clear prepaid 3gpp2 statistics

Clears all of the statistics counters for 3GPP2 Pre-paid accounting. Statistics may be cleared for all services or for an individual service.

**Product**
- PDSN
- GGSN

**Privilege**
- Security Administrator, Administrator, Operator

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name>
```

**Syntax Description**

```plaintext
clear prepaid 3gpp2 statistics { all | { ggsn-service | ha-service | lns-service | pdn-service | pdsnClosedrp-service } { all | name service_name } }
```

- **all**
  
  Clears prepaid statistics for all services.

- **ggsn-service**
  
  Clears statistics for GGSN service(s).

- **ha-service**
  
  Clears statistics for HA service(s).

- **lns-service**
  
  Clears statistics for LNS service(s).

- **pdsn-service**
  
  Clears statistics for PDSN service(s).

- **pdsnClosedrp-service**
  
  Clears statistics for PDSN Closed-RP service(s).
clear prepaid 3gpp2 statistics

{ all | name service_name }

all: Clears statistics for all services of the specified type.
name service_name: Clears statistics for the named service of the specified service type.

Usage Guidelines
Use this command to clear Pre-paid statistics for a particular named service or for all services.

Examples
To clear statistics for a PDSN service name PDSN1, enter the following command:
clear prepaid 3gpp2 statistics pdsn-service name PDSN1
clear prepaid wimax

Clears all of the statistical counters for WiMAX prepaid accounting. Statistics may be cleared for all services or for an individual service.

**Product**

ASN-GW

**Privilege**

Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
clear prepaid wimax statistics { all | asngw-service { all | name service_name } | ha-service { all | name service_name } }
```

- `all` Clears prepaid statistics for all services.
- `asngw-service` Clears prepaid statistics for ASN-GW service(s).
- `ha-service` Clears prepaid accounting statistics for HA service(s).

  `{ all | name service_name }

  all: Clears statistics for all services of the specified type.
  name service_name: Clears statistics for the named service of the specified service type.

**Usage Guidelines**

Use this command to clear prepaid WiMAX accounting statistics for named service or for all services.

**Examples**

The following command clears prepaid WiMAX accounting statistics for an ASN-GW service name `asn1`:

```
clear prepaid wimax statistics asngw-service name asn1
```
clear ps-network statistics

Clears the HNB-Packet Switched (PS) network service associated with an HNB-GW service instance.

**Product**
HNB-GW

**Privilege**
Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
clear ps-network statistics [ name cs_svc_name | gtpu-only | ranap-only | rtp-only | sccp-only ]
```

`name cs_svc_name`
Clears the session statistics based on an existing HNB-PS network service name, expressed as an alphanumeric string of from 1 through 63 characters.

`gtpu-only`
Clears the session statistics for GTP-U traffic only for the specified HNB-PS Network service.

`ranap-only`
Clears the session statistics for Radio Access Network Application Protocol (RANAP) traffic only for the specified HNB-PS Network service.

`sccp-only`
Clears the session statistics for Signaling Connection Control Part (SCCP) traffic only for the specified HNB-PS Network service.

**Usage Guidelines**
Use this command to clear the session statistics for overall session or in selected part of user session for HNB-CS Network services configured and running on a system.

**Examples**
The following command clears the session statistics for RANAP part of session for the HNB-PS Network service `hnb_PS_1`:

```
clear ps-network statistics name hnb_PS_1 ranap-only
```
clear qos npu stats

Clears information pertaining to NPU QoS priority queue bandwidth allocation and sharing.

**Product**
GGSN

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name> 
```

**Syntax Description**
```
clear qos npu stats inter-subscriber traffic slot slot_num
```

*inter-subscriber traffic slot slot_num*

Clears inter-subscriber traffic statistics for the ASR 5000 application or line card or the ASR 5500 DPC or MIO card installed in the specified slot.

*slot_num* indicates the number of the chassis slot in which the card is installed and can be configured to an integer value from 1 through 48 (for the ASR 5000) or 1 through 10 (for the ASR 5500).

**Usage Guidelines**
Allows you to manually reset statistics pertaining to NPU QoS priority queue bandwidth allocation.

**Examples**
The following command clears statistics for a card installed in chassis slot 3:
```
clear qos npu stats inter-subscriber traffic slot 3
```
clear radius accounting archive

Clears archived RADIUS accounting messages associated with an AAA group, or all the archived RADIUS accounting messages in the context in which the command is executed depending on the option chosen. The scope of the command is limited to the context in which it is executed (including the local context).

This command is only available in StarOS 8.3 and later. For more information, please contact your local service representative.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
clear radius accounting archive { all | radius group group_name } [-noconfirm ]
```

- **all**
  Clears all archived RADIUS accounting messages in the context.

- **radius group group_name**
  Clears all archived RADIUS accounting messages for the specified RADIUS group.

  - `group_name` must be the name of a RADIUS server group, and must be an alphanumeric string of 0 through 64 characters.

- **-noconfirm**
  Executes the command without any additional prompt and confirmation from the user.

**Usage Guidelines**
Use this command to clear the archived RADIUS accounting messages associated with an AAA group, or all the archived RADIUS accounting messages in the context in which the command is executed.
Examples

Use the following command to clear all archived RADIUS accounting messages for the group named *test12*.

clear radius accounting archive radius group test12
clear radius counters

Clears the statistics for all RADIUS servers or a server group.

**Product**
- ASN-GW
- GGSN
- PDSN
- P-GW
- SAEGW

**Privilege**
- Security Administrator, Administrator, Operator

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
clear radius counters { all | radius group group_name | server ip_address | port number } }
```

- **all | radius group group_name | server ip_address | port number |**
  - all: Clears statistics for all servers.
  - *radius group group_name*: Clears all configured authentication/accounting servers in the specified RADIUS group. *group_name* must be the name of server group configured in a specific context for authentication/accounting, expressed as an alphanumeric string of 1 through 63 characters.
  - server *ip_address [port number]|*: Clears statistics only for the server specified using IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation. Optionally, you can specify the port which is to have its RADIUS statistics cleared as an integer from 0 through 65535.

**Usage Guidelines**
Clears all the configured RADIUS servers' statistics to reset them to zero prior to logging or monitoring the system for troubleshooting, performance measurements, etc.

Note that this CLI command will clear all the statistics associated with the configured RADIUS accounting and authentication servers except these two counters –

- Access Request current consecutive failures in a mgr
- Accounting-Request Current Consecutive Failures in a mgr
**Examples**

The following command clears the statistics for all RADIUS servers.

```plaintext
clear radius counters all
```

The following command resets the statistics only for the server 10.2.3.4.

```plaintext
clear radius counters server 10.2.3.4
```

The following command resets the statistics only for the server group named `star1`.

```plaintext
clear radius counters radius group star1
```
clear rlf-context-statistics

Clears the statistics for all active Rate Limiting Function (RLF) contexts.

**Product**

GGSN

P-GW

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
``` 

**Syntax Description**

```
clear rlf-context-statistics { diamproxy | endpoint endpoint_name | peer-realm realm_name | peer-host host_name | sessmgr | gtpc-context-name context_name grep_options | ingress } } | { grep | more }
``` 

**endpoint endpoint_name**

Clears the context information only for the endpoint specified as a string of size ranging from 1 through 63 characters.

**realm realm_name**

Clears the context information only for the realm specified as a string of size ranging from 1 through 127 characters.

**peer-host host_name**

Clears the context information only for the host specified as a string of size ranging from 1 through 63 characters.

**grep grep_options | more**

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the `grep` and `more` commands, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to clear the statistics for all active RLF contexts.
clear rlf-context-statistics

Examples

The following command clears the statistics for all active RLF contexts:

clear rlf-context-statistics diamproxy
clear rohc statistics

Clears statistics and counters collected since the last reload or clear command was issued for RObust Header Compression (ROHC) [RFC 3095].

Product
- PDSN
- ASN-GW
- HSGW

Privilege
- Administrator, Config-administrator, Operator, Inspector

Command Modes
- Exec

The following prompt is displayed in the Exec mode:

[local]\host_name#

Syntax Description
`clear rohc statistics [pdsn-service pdsnsvc_name] | asngw-service asngwsvc_name`

`pdsn-service pdsnsvc_name`
Clears ROHC statistics and counters for the specified PDSN service.

`asngw-service asngwsvc_name`
Clears ROHC statistics and counters for the specified ASN-GW service.

Usage Guidelines
Use this command to clear ROHC statistics for all services or for a specific PDSN or ASNGW service.

Examples
The following command clears ROHC statistics and counters for the PDSN service named `pdsn1`:
`clear rohc statistics pdsn-service pdsn1`
clear rp service-option

Clears the radio-packet (R-P) interface service option statistics.

**Product**
PDSN

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name>
```

**Syntax Description**
```
clear rp service-option statistics [ number option_num | pdsn-service pdsn_name ]
```

- **number option_num | pdsn-service pdsn_name**
  - Default: clears the statistics for all service options and all packet data services.
  - **number option_num**: Specifies the R-P service option number for which the statistics are to be cleared as an integer from 0 through 1000.
  - **pdsn-service pdsn_name**: Specifies the PDSN service name for which statistics will be cleared.

**Usage Guidelines**
Clear the R-P service option statistics prior to monitoring the system for benchmarking or for detecting areas of further research.

**Examples**
The following resets the service option statistics for service option 23 and packet data service `sampleService`, respectively.

```bash
clear rp service-option statistics number 23
clear rp service-option statistics pdsn-service sampleService
```
clear rp statistics

Clears the radio-packet (R-P) interface statistics. The statistics for a specific packet data server or peer node may be cleared if specified.

**Product**
PDSN

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
clear rp statistics [ pdsn-service name | peer-address [ peer_address | all ] ]
```

- `pdsn-service name | peer-address [ peer_address | all ]`
  - Default: clears all R-P associated statistics.
  - `pdsn-service name`: Specifies the packet data service name that is to have its statistics reset.
  - `peer-address [ ip_address | all ]`: Specifies that statistics for the specified peer, or all peers, are to be cleared. The `ip_address` must be specified using IPv4 dotted-decimal notation.

**Usage Guidelines**

Clear the statistics to prepare for monitoring the system.

**Examples**

The following command resets all the associated statistics for the R-P interfaces.
```
clear rp statistics
```

The following command clears the statistics for the packet data service `sampleService`.
```
clear rp statistics pdsn-service sampleService
```

The following command resets the statistics associated with peer node with IP address 10.2.3.4.
```
clear rp statistics peer-address 10.2.3.4
```
clear rsvp statistics

Clears the Resource Reservation Protocol (RSVP) statistics.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name>
```

**Syntax Description**
clear rsvp statistics

**Usage Guidelines**
Clear RSVP statistics.

**Examples**
The following command resets all RSVP statistics.

clear rsvp statistics
clear saegw-service

Clears System Architecture Evolution Gateway (SAEGW) statistics and counters found in `show` command outputs and bulk statistics associated with all SAEGW services or a specific service defined by the parameter in this command.

**Product**

SAEGW

**Privilege**

Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
clear saegw-service statistics { all | name service_name } [ | { grep grep_options | more } ]
```

- **all**
  
  Clears all SAEGW node-level statistics.

- **name service_name**
  
  Clears statistics and counters for an existing SAEGW service name, expressed as an alphanumeric string of 1 through 63 characters.

- **grep grep_options | more**
  
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to clear statistics and counters in show command outputs and bulk statistics for all SAEGW services or for a specific SAEGW service.

**Examples**

The following command clears statistics and counters for an SAEGW service named `saegw5`:

```
clear saegw-service statistics name saegw5
```
clear samog-service statistics

Clear statistics associated with S2a Mobility Over GTP (SaMOG) services.

Product
SAMOG

Privilege
Inspector

Syntax Description

`clear samog-service statistics samog_service_name`

`clear samog-service statistics samog_service_name`
Clears SaMOG service-related statistical information. Service name should be between 1 and 63.

Usage Guidelines
Use this command to clear statistics and counters in show command outputs and bulk statistics for all SaMOG services or for a specific SaMOG service.

Examples

The following command clears SaMOG Statistics 21:

`clear samog-service statistics 21`
clear sbc statistics

Clears SBe service statistics based on various criteria.

**Product**
MME

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
clear sbc statistics { all | peer-id peer_id | sbc-service-name sbc_svc_name } | { | grep grep_options | more }
```

- **all**
  Clears statistics for all SBe services.

- **peer-id peer_id**
  Clears statistics for a Cell Broadcast Center (CBC) peer association specified as an integer value from 0 through 4294967295.
  Use the *show sbc-service cbc-associations all* command to display the available CBC association peer IDs.

- **sbc-service-name sbc_svc_name**
  Clears all statistics for an existing SBe service specified as an alphanumeric string of 1 through 63 characters.

- **grep grep_options | more**
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
  For details on the usage of *grep* and *more*, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to clear the statistical information of an SBe service based on various filter criteria.
clear sbc statistics

**Examples**

The following command clears all statistics for the SBe service named *sbc1*

clear sbc statistics sbc-service-name sbc1
clear sccp statistics

Cleans SS7 Signaling Connection Control Part (SCCP) statistics collected for services that use the SCCP protocol.

**Product**
SGSN

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
clear sccp statistics [iups-service iups_srvc_name | map-service map_srvc_name | sccp-network ntwk_index | dpc dpc | ssn ssn | global-title-translation {address-map instance add_map_inst | association instance assoc_inst} | sessmgr instance sessmgr_inst | {grep grep_options | more }]
```

- **iups-service iups_srvc_name**
  Deletes collected SCCP protocol statistics for an existing Iu-PS service in the current context specified as an alphanumeric string of 1 through 63 characters.

- **map-service map_srvc_name**
  Deletes collected SCCP protocol statistics for an existing MAP service specified as an alphanumeric string of 1 through 63 characters.

- **sccp-network ntwk_index**
  Deletes collected SCCP protocol statistics for the SCCP network configuration with the a network index specified as an integer from 1 through 12.

The following filters can be added to limit the clearing of SCCP network statistics:

- **dpc dpc**: Specifies a differentiated pointcode address to limit the deletion of collected SCCP network statistics to those for the identified destination.

- **ssn ssn**: Specifies a subsystem number as an integer from 1 to 255 to limit the deletion of collected SCCP network statistics.

- **global-title-translation address-map instance add_map_inst**: Specifies an identified GTT address-map as an integer from 1 to 4096 to limit the deletion of collected SCCP network statistics.
• **global-title-translation association instance** `assoc_inst`: Specifies an identified GTT association as an integer from 1 to 16 to limit the deletion of collected SCCP network statistics.

• **sessmgr instance** `sessmgr_inst`: Specifies an identified session manager instance as an integer from 1 to 384 to limit the deletion of collected SCCP network statistics.

**Usage Guidelines**

Use this command to delete all collected SCCP statistics or to delete SCCP statistics for a specified service, SCCP network, or session manager.

**Examples**

The following command deletes all collected SCCP statistics:

```
clear sccp statistics
```

The following command clears all collected SCCP statistics for the IuPS service named `iups-serv1`:

```
clear sccp statistics iups-service iups-serv1
```
clear session disconnect-reasons

Clears the session disconnect reason statistics for all sessions on the system.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
clear session disconnect-reasons [ buckets ]
```

This keyword option clears session disconnect reason statistics only from the three indexed buckets that may be associated with all session managers. The buckets are created when the Exec mode `session disconnect-reasons bucket-interval` command is enabled.

**Usage Guidelines**
Sets the counters for session disconnect reasons to zero (0) in preparation for a monitoring or troubleshooting session.

**Examples**
clear session disconnect-reasons
clear session-event-record statistics

Clears statistics collected during session event module transfers.

**Product**
- S-GW
- SAEGW

**Privilege**
- Operator

**Command Modes**
- Exec
  
  The following prompt is displayed in the Exec mode:

  
  `[local]host_name#`

**Syntax Description**
- `clear session-event-record statistics`

**Usage Guidelines**
- Use this command to delete all collected session event record statistics.
clear session setuptime

Clears the session setup time statistics for Packet Control Functions (PCFs) or SGSNs. If no keyword is specified the summary statistics displayed by the `show session setuptime` command are cleared.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
clear session setuptime [ pcf [ pcf_addr | all ] | sgsn-address [ sgsn_addr | all ] ]
```

* `pcf [ pcf_addr | all ]`
  - **pcf_addr**: Clears the setup time counters for the PCF at the IP address specified in IPv4 dotted-decimal notation.
  - **all**: Clears the setup time counters for all PCFs.

* `sgsn-address [ sgsn_addr | all ]`
  - **sgsn_addr**: Clears the setup time counters for the SGSN at the IP address specified in IPv4 dotted-decimal notation.
  - **all**: Clears the setup time counters for all SGSNs.

**Usage Guidelines**
Sets the counters for session disconnect reasons to zero (0) in preparation for a monitoring or troubleshooting session.

**Examples**
To clear the statistics for the PCF at IP address 192.168.100.10, enter the following command:
```
clear session setuptime pcf 192.168.100.10
```
clear session subsystem

Clears all session subsystem statistics for the current context.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

`clear session subsystem`

**Usage Guidelines**

Clears the statistics in preparation for a troubleshooting or monitoring session so that the counters are at a well known values.

**Examples**

`clear session subsystem`
clear sgsn-fast-path statistics

Clears information related to SGSN fast-path.

Note
This command is not supported by SGSN from software release 16.2 onwards as the NPU FastPath feature is not supported by SGSN from the 16.2 release.

Product
SGSN

Privilege
Inspector

Command Modes
Exec
The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description
show sgsn-fast-path statistics [ all | smgr-instance smgr_inst ] | | { grep grep_options | more } |

all
Deletes collected fast-path statistics for all session managers.

smgr-instance smgr_inst
Clears collected fast-path statistics for a session manager instance specified as an integer from 1 to 65535.

grep grep_options | more
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Usage Guidelines
Use this command to clear all statistics for SGSN fast-path configurations.

Examples
The following command deletes all collected fast-path statistics for all SGSN session managers:

clear sgsn-fast-path statistics
clear sgsn-map-app

Deletes collected statistics for the SGSN Mobile Application Part (MAP).

Product          SGSN

Privilege        Inspector

Command Modes   Exec

The following prompt is displayed in the Exec mode:
[local]host_name#

Syntax Description

```
clear sgsn-map-app statistics [ | { grep grep_options | more } ]
```

clear sgsn-map-app statistics
Clears all collected statistics for the SGSN MAP application.

```
grep grep_options | more
```
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Please refer to the Regulating the Command Output section in this reference for details on the usage of grep and more.

Usage Guidelines   Use this command to delete collected statistics for the SGSN MAP application.

Examples

The following command clears all collected SGSN MAP statistics:

```
clear sgsn-map-app statistics
```
clear sgsn rlf-context-statistics

Clears the Paging throttle RLF context statistics.

**Product**
SGSN

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
clear sgsn rlf-context-stats sessmgr { all | instance <instance_value> } | peer-nsei-id <NSE_identifier> | peer-rnc-id <RNC_identifier> | { grep grep_options | more }
```

**sessmgr**
Clears the RLF statistics specific to Session Managers.

**all**
Clears the RLF context statistics for all the Session Managers.

**instance**
Clears the RLF context statistics for the specified Session Manager.

**instance_value**
The Session Manager instance specified as an integer from 1 to 384.

**peer-nsei-id**
 Specifies the Peer NSEI ID for which RLF context statistics need to be cleared.

**NSE_identifier**
The Peer NSEI identifier specified as an integer from 0 to 65535.

**peer-rnc-id**
Specifies the Peer RNC ID for which RLF context statistics need to be cleared.
RNC_identifier
The Peer RNC identifier specified as an integer from 0 to 65535.

grep grep_options | more
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
Please refer to the Regulating the Command Output section in this reference for details on the usage of grep and more.

Usage Guidelines
This command can be configured to clear the Paging throttle RLF context statistics for:

• All the Session Managers.
• The specified Session Manager.
• The specified Peer NSEI.
• The specified Peer RNC.

The keyword sessmgr is a mandatory keyword. Specifying the peer-nsei-id or peer-rnc-id is optional. When the peer-nsei-id or peer-rnc-id is not specified the global statistics are cleared. If the Session Manager instance is specified, the RLF context statistics for that Session Manager are cleared. If the keyword all is configured the RLF statistics for all the Session Managers are cleared.

Examples
The following command clears the Paging throttle RLF context statistics for all the Session Managers:
clear sgsn rlf-context-statistics sessmgr all
clear sgs-service

Clears SGs interface statistics associated with a Visitor Location Register (VLR).

**Product**
MME

**Privilege**
Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

clear sgs-service { statistics [ name name ] | vlr-status [ service-name name ] [ vlr-name name ] }

- **statistics [ name name ]**
  Clears statistics for all SGs services or a specific SGs service.
  - **name name**: Clears the statistics for an existing SGs service specified as an alphanumeric string of 1 through 63 characters.

- **vlr-status [ service-name name ] [ vlr-name name ]**
  Clears statistics for all VLRS, a VLR related to a SGs service, or a specific VLR.
  - **service-name name**: Clears the SGs statistics for an existing VLR specified as an alphanumeric string of 1 through 63 characters.

**Usage Guidelines**
Use this command to clear statistics for all SGs services, Visitor Location Registers (VLRS), or a specific SGs service or VLR name.

**Examples**
The following command clears statistics for an SGs service named sgs2:

```
clear sgs-service statistics name sgs2
```
clear sgtpc statistics

Clears all SGSN GTP-C (SGTPC) interface statistics for the current context.

**Product**
MME
SGSN

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
clear sgtpc statistics | gsn-address ipv4_address | sgtp-service sgtp_srvc_name |

gsn-address ipv4_address
Clears GTPC packet statistics for the interface specified as an IP address in IPv4 dotted-decimal notation.

sgtp-service sgtp_srvc_name
Clears GTPC packet statistics for an existing SGTP service specified as an alphanumeric string of 1 through 63 characters.

**Usage Guidelines**
Use this command to clear the statistics in preparation for a troubleshooting or monitoring session.

**Important**
Statistics are vital for troubleshooting. We recommend that you check with your Cisco support personnel prior to clearing these statistics.

**Examples**
clear sgtpc statistics sgtp-service SGSN1sgtp12
clear sgtpu statistics

Clears all SGSN GTP-U (SGTPU) statistics for the current context.

**Product**
SGSN

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```plaintext
clear sgtpu statistics | ggsn-address ipv4_address | gprs-service gprs_svc_name nsei nse_id | iups-bind-address ipv4_address | iups-service iups_svc_name | recovered-values | rnc-address ipv4_address | sgtp-service sgtp_svc_name
```

- **ggsn-address ipv4_address**
  Clears GTPU packet statistics for a specific GGSN specified as an IP address in IPv4 dotted-decimal notation.

- **gprs-service gprs_svc_name nsei nse_id**
  **gprs-service gprs_svc_name**: Clears GTPU packet statistics for the interface for a specific GPRS service specified as an alphanumeric string of 1 through 63 characters.
  **nsei nse_id**: Specifies a network service entity (NSEI) as an integer from 0 through 65535.

- **iups-bind-address ipv4_address**
  Clears GTPU packet statistics for the bind address of an IuPS interface specified as an IP address in IPv4 dotted-decimal notation.

- **iups-service iups_svc_name**
  Clears GTPU packet statistics for an active IuPS service interface specified as an alphanumeric string of 1 through 63 characters.

- **recovered-values**
  Clears only recovered values for key SGTP KPI counters that were backed-up.
  To narrow the results, this keyword can be combined with either the **iups-service** or the **sgtp-service** keywords.
**rnc-address ipv4_address**
Clears GTPU packet statistics for an RNC specified as an IP address in IPv4 dotted-decimal notation.

**sgtp-service sgtp_srvc_name**
Clears GTPU packet statistics for an active SGTP service interface specified as an alphanumeric string of 1 through 63 characters.

**Usage Guidelines**
Use this command to clear the statistics in preparation for a troubleshooting or monitoring session.

<table>
<thead>
<tr>
<th>Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statistics are vital for troubleshooting. We recommend that you check with your Cisco support personnel prior to clearing these statistics.</td>
</tr>
</tbody>
</table>

**Examples**
Use this command to clear collected SGTPU statistics for a specific NSEI of a configured GPRS service:
```
clear sgtpu statistics gprs-service SGSN1Gprs1 nsei 2445
```
clear sgw-service statistics

Clears Serving Gateway (S-GW) statistics and counters found in show command outputs and bulk statistics associated with all S-GW services or a specific service defined by the parameter in this command.

Product
- S-GW
- SAEGW

Privilege
- Operator

Command Modes
- Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

`clear sgw-service statistics { all | name service_name }`

- **all**
  Clears statistics and counters for all S-GW services configured on the system.

- **name service_name**
  Clears statistics and counters for an existing S-GW service name specified as an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to clear S-GW service statistics and counters in show command outputs and bulk statistics for all S-GW services or for a specific S-GW service.

Examples

The following command clears statistics and counters for an S-GW service named sgw3:

`clear sgw-service statistics name sgw3`
clear sls-service statistics

Clears SLs service statistics based on various criteria.

**Product**
MME

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
clear sls-service statistics | name svc_name | [ sls | sctp ] | [ esmlc-id esmlc-id ] | [ | { grep grep_options | more } ]
```

- **name svc_name**
  Clears all statistics for an existing SLs service specified as an alphanumeric string of 1 through 63 characters

- **sls**
  Clears only SLs interface related statistics.

- **sctp**
  Clears only SCTP related statistics.

- **esmlc-id esmlc-id**
  Clears all statistics for an existing E-SMLC peer specified as an integer value from 0 through 255.

- **grep grep_options | more**
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
  
  For details on the usage of **grep** and **more**, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**
This command is used to clear the statistical information of an SLs service based on various filter criteria.
Examples

The following command clears only the SCTP statistics for the SLs service named *sls1*:

```
clear sls-service statistics name sls1 sctp
```
clear sms statistics

Deletes collected traffic statistics for the Short Message Service (SMS).

Product
SGSN

Privilege
Administrator, Security Administrator, Operator

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local] host_name$ 

Syntax Description

```
clear sms statistics | name map_srvc | [ recovered-values ] | [ | { grep grep_options | more } ]
```

**name map_srvc**

Specifies a MAP Service as an alphanumeric string of 1 to 63 characters.

**| recovered-values |**

Clears only recovered values for key SMS KPI counters that were backed-up.

**grep grep_options | more**

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

Usage Guidelines

Use this command to delete collected traffic statistics for SMS. It is possible to clear the statistics of a specific MAP service associated with the SMS by including the **name** filter.

Examples

Use the following command to clear SMS statistics for MAP service MAP-LONDON1:

```
clear sms statistics name MAP-LONDON1
```
clear sndcp statistics

Deletes all collected statistics for the packet traffic going through the Subnetwork Dependent Convergence Protocol (SNDCP) layer.

Product  
SGSN

Privilege  
Security Administrator, Administrator, Operator

Command Modes  
Exec

The following prompt is displayed in the Exec mode:

[local] host_name #

Syntax Description  
clear sndcp statistics [ gprs-service srvc_name ] [ | grep grep_options | more ]

gprs-service srvc_name
Specifies a GPRS service as an alphanumeric string of 1 through 63 characters.

grep grep_options | more
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the grep and more commands, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter in the Command Line Interface Reference.

Usage Guidelines  
Use this command to delete all collected SNDCP traffic statistics. Include the gprs-service keyword to filter the clearing action to only deleted statistics for one GPRS service.

Examples  
Use the following command to clear all collected SNDCP layer traffic statistics:

clear sndcp statistics

Use the following command to delete SNDCP layer traffic statistics for the test1 GPRS service:

clear sndcp statistics gprs-service test1
clear snmp trap

Clears all SNMP event trap notifications from the buffer.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name# 
```

**Syntax Description**

```
clear snmp trap { history | statistics }
```

- **history**
  
  Clears all SNMP historical trap information from the system buffer.

- **statistics**
  
  Clears all SNMP event trap information from the system buffer.

**Usage Guidelines**

Use this command to empty the buffer of all SNMP trap notifications.

**Examples**

The following command clears the all historical SNMP traps from the system buffer:

```
clear snmp trap history 
```
clear srp

Clears system Service Redundancy Protocol (SRP) statistics.

**Product**
All products that support Interchassis Session Recovery (ICSR)

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
clear srp { audit-statistics | call-loss statistics | checkpoint statistics | statistics }
```

- **audit-statistics**
  Clears SRP audit statistics.

- **call-loss statistics**
  Clears SRP call loss history.

- **checkpoint statistics**
  Clears SRP checkpoint interface statistics.

- **statistics**
  Clears SRP statistics.

**Usage Guidelines**
Clears the SRP statistics to prepare the system for SRP monitoring.

**Examples**
The following command resets all the associated statistics for SRP checkpoints.
```
clear srp checkpoint statistics
```
The following command resets all the associated statistics for SRP.
```
clear srp statistics
```
clear ss7-routing-domain

Deletes specified statistics for an SS7 routing domain.

**Product**

SGSN

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
clear ss7-routing-domain  domain_index  { asp | mtp2 | mtp3 | qsaal | ssf }
```

*domain_index*

Specifies the index number of the SS7 routing domain as an integer from 1 through 12.

*asp*

Clears statistics and status information for the SS7 Application Service Part (ASP) in the specified SS7 routing domain.

*m3ua*

Clears statistics and status information for the SS7 MTP3 User Adaptation Layer (M3UA) in the specified SS7 routing domain.

*mtp2*

Clears statistics and status information for the SS7 Message Transfer Part-2 (MTP2) in the specified SS7 routing domain.

*mtp3*

Clears statistics and status information for the SS7 Message Transfer Part-3 (MTP3) in the specified SS7 routing domain.

*qsaal*

Clears statistics and status information for the Service Specific Connection-Oriented Protocol (SSCOP) sub-layer of the Quasi Signaling Application Adaptation Layer (QSAAL) in the specified SS7 routing domain.
sscf
Clears statistics and status information for the Service Specific Coordination Function (SSCF [q.2140]) in the specified SS7 routing domain.

Usage Guidelines
Deletes statistics for the specified SS7 routing domain.

Examples
The following command clears SS7 ASP routing statistics for domain index 4:
```
clear ss7-routing-domain 4 asp
```
clear subscribers

Disconnects subscribers based on specified criteria.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
clear subscribers [ keywords ] [ verbose ] [ -noconfirm ]
```

The keywords are filters that modify or filter the criteria for deciding which subscriber sessions to clear and are described below. Multiple keywords can be entered on a command line.

When multiple keywords are specified, the subscriber sessions deleted must meet the specifications of all of the keywords.

For example; if you enter the following command:
```
clear subscribers ip-pool pool1 card-num 1
```

Only subscriber sessions that were assigned an IP address from the IP pool named `pool1` and are also being processed by the processing card in slot 1 are cleared. All other subscriber sessions that do not meet these criteria remain and are not cleared.

---

**Important**
Calls already marked as disconnecting will not be designated for clearing. For example, if 100 calls are temporarily in the disconnecting state, the `show subscribers all` command output displays all 100 calls. However, the `clear subscribers all` command output will indicate that there are no calls available for clearing, since they are already in the disconnecting state.

**-noconfirm**

Executes the command without any additional prompt and confirmation from the user.

**Important**
The Operator privilege does not have access to this keyword.
active
Only disconnects subscribers who currently have active sessions.

active-charging-service ecs_service_name
Clears information for subscribers using the Active charging Service.
ecs_service_name must be the name of the Active Charging Service, expressed as an alphanumeric string of 1 through 15 characters.

all
Disconnects all subscribers.

Important  The Operator privilege does not have access to this keyword.

apn apn_name
Clears all PDP contexts accessing a specific access point name (APN).
apn_name is the name of the APN expressed as an alphanumeric string of 1 through 63 characters that is case sensitive.

asn-peer-address ip_address
Clears information for subscribers on an ASN-GW trusted peer.
ip_address is the address of the ASN-GW peer server entered using IPv4 dotted-decimal notation.

asngw-service service_name
Clears counters for subscribers accessing the ASN-GW service.
service_name must be an existing service expressed as an alphanumeric string of 1 through 63 characters.

asnpc-service service_name
Clears counters for subscribers accessing the ASNPC service.
service_name must be an existing service expressed as an alphanumeric string of 1 through 63 characters.

bandwidth-policy bandwidth_policy_name
Clears information for subscribers using the specified bandwidth policy.
bandwidth_policy_name must be the name for an existing bandwidth policy, expressed as an alphanumeric string of 1 through 63 characters.

bearer-establishment { direct-tunnel | normal | pending }
Clears all subscribers from the specified bearer establishment type.
direct-tunnel: Select subscribers having direct tunnel established with the RNC.
normal: Select subscribers having bearer established with SGSN.
pending: Select subscribers for whom bearer is not fully established.

bng-only
Clears information related to BNG calls only.

bng-service service_name
Clears all subscribers from the specified BNG service.

service_name must be an existing service expressed as an alphanumeric string of 1 through 63 characters.

callid id
Clears the call specified by call_id. The call ID must be specified as a 4-byte hexadecimal number.

card-num card_num
The slot number of the processing card by which the subscriber session is processed. card_num is a slot number from 1 through 7 or 10 through 16 (for the ASR 5000) or from 1 through 4 or 7 through 10 (for the ASR 5500).

cbb-policy cbb_policy_name
Clears information for subscribers using the specified CBB policy.

cbb_policy_name must be the name for an existing CBB policy expressed as an alphanumeric string of 1 through 63 characters.

ccoa-only
This option clears the subscribers that registered a MIP co-located COA directly with the HA.
This option is only valid when MIPHA session license is enabled.

cgw-only
Clears information related to CGW calls only.

configured-idle-timeout [ < | > | greater-than | less-than ] value
Disconnects subscribers whose idle timeout matches the specified criteria. A value of 0 (zero) indicates that the subscribers idle timeout is disabled.

<: Filters output so that only information less than the specified value is cleared.
>: Filters output so that only information greater than the specified value is cleared.

greater-than: Filters output so that only information greater than the specified value is cleared.

less-than: Filters output so that only information less than the specified value is cleared.

value: If no other filtering options are specified only output matching value is cleared. If value is not specified all data is cleared. value must be an integer from 0 through 4294967295.

connected-time [ < | > | greater-than | less-than ] value
Disconnects subscribers who have been connected for the specified length of time.
<: Filters output so that only information less than the specified value is cleared.
>: Filters output so that only information greater than the specified value is cleared.
greater-than: Filters output so that only information greater than the specified value is cleared.
less-than: Filters output so that only information less than the specified value is cleared.
value: If no other filtering options are specified only output matching value is cleared. If value is not specified all data is cleared. value must be an integer from 0 through 4294967295.

css-delivery-sequence name

| Important | This is a restricted keyword. In StarOS 9.0 and later, this keyword is obsoleted. |

| Important | This is a restricted keyword. In StarOS 9.0 and later, this keyword is obsoleted. |

del-cause { none | reactiv-req }

When subscribers are deleted, the GGSN/P-GW/SAEGW may include "Cause-IE" in the resulting Delete Bearer/Delete PDP Context Requests generated for default bearer.

none: Omit GTP "Cause-IE" in DBR/DPC generated for default bearer.

reactiv-req: The DBR/DPC will include "Cause-IE" with GTP cause code "Reactivation Requested".

The behavior for "Cause-IE" will be effective only if the clear subscribers command results in the sending of a Delete Bearer Request for default bearer, or Delete PDP Context is sent to delete the PDN connection or its last PDP context.

The behavior for "Cause-IE" specified in this CLI shall override the cause-code set by existing features.

| Important | This option is only valid when Cause IE Enhancement for Delete Bearer Request license is enabled. Contact your Cisco account representative for more information. |

dhcp-server address

Clears all PDP contexts that currently possess an IP address assigned from a specific DHCP server. dhcp_address is the IP address of the DHCP server expressed in IPv4 dotted-decimal notation.

dormant

Only disconnects subscriber sessions that are dormant (not transmitting or receiving data).

ebi number

Clears subscribers based on an EPS bearer identity (EBI). number must be a valid EBI and an integer value from 5 to 15.
enodeb-address ip_address
Clears subscribers based on the eNodeB to which they are attached. ip_address must be a valid IP address of an existing eNodeB entered using IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

epdg-address ip_address
Clears subscribers based on the ePDG to which they are attached. ip_address must be a valid IP address of an existing ePDG entered using IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

The following filter keywords are valid with this command:
epdg-address, epdg-service

epdg-service service_name
Clears subscribers of a configured ePDG service. service_name must be a valid string of size 1 to 63.

The following filter keywords are valid with this command:
epdg-address, epdg-service

fa ip_address
Disconnects all subscribers connected to the foreign agent specified by the IP address in IPv4 dotted-decimal notation.

fa-service fa_name
Disconnects all subscribers connected to an existing foreign agent name.

firewall { not-required | required }
Clears all subscriber information for the specified subscribers:
not-required: Subscribers for whom firewall processing is not-required.
required: Subscribers for whom firewall processing is required.

firewall-policy fw_policy_name
This keyword is obsolete.

fw-and-nat policy fwnat_policy_name
Clears information for subscribers using the specified Firewall-and-NAT policy.
fwnat_policy_name must be the name of an existing Firewall-and-NAT policy expressed as an alphanumeric string of 1 through 63 characters.

fng-service service_name
Clears subscriber sessions connected to the FNG service. service_name must be an existing service expressed as an alphanumeric string of 1 through 63 characters.

ggsn-service name
Clears all PDP contexts accessing an existing GGSN service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.
**gprs-service name**
Clears all PDP contexts associated with the 2G SGSN. This keyword can be used with filtering keywords that are part of the **clear subscriber** command set.

Using this keyword can trigger a network-initiated service request (paging) procedure.

*name* identifies a specific GPRS service configuration expressed as an alphanumeric string of 1 through 63 characters.

**gsm-traffic-class** { **background** | **conversational** | **interactive** { **priority** } | **streaming** }
Subscribers whose traffic matches the specified 3GPP traffic class.

- **background**: 3GPP QoS background class.
- **conversational**: 3GPP QoS conversational class.
- **interactive**: 3GPP QoS interactive class. Must be followed by a traffic priority. priority can be configured to any integer value from 1 to 3.
- **streaming**: 3GPP QoS streaming class.

**gtpu-bind-address ip_address**
Disconnects all subscribers connected to the GTP-U service bind address.

*ip_address* must be specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

**gtpu-service service_name**
Disconnects all subscribers and erase subscriber information based on the GTP-U service name.

*service_name* must be an existing GTP-U service expressed as an alphanumeric string of 1 through 63 characters.

**gtp-version**
Displays the specific GTP version number. Must be followed by one of the supported GTP versions (0 or 1).

The following filter keywords are valid with this command:

- active-charging-service, apn, asngw-service, asnpc-service, asn-peer-address, bearer-establishment, callid, card-num, coa-only, configured-idle-timeout, connected-time, dhcp-server, fa, fa-service, firewall, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, ha, ha-ipsec-service, ha-service, idle-time, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, lac, lac-service, lns, lns-service, long-duration-time-left, mip-udp-tunnel-only, mipv6ha-service, msid, misidn, network-requested, network-type, pcf, pdg-service, pdif-service, pdsn-service, pdsnclosedrp-service, plmn-type, rulebase, rx-data, session-time-left, sgsn-address, sgsn-service, tx-data, username, grep, more

**ha address**
Disconnects all subscribers connected to the home agent.

*ha_address* must be specified using IPv4 dotted-decimal notation.

**ha-ipsec-only**
Disconnects all MIP HA sessions with IPSec tunnels.
**ha-service name**
Disconnects all subscribers connected to the home agent specified by `ha_name` must have been previously defined.

**henbgw-access-service svc_name**
Disconnects all subscribers and erase subscriber information based on the HeNB-GW access service name.

**henbgw-only**
Disconnects subscribers emerging from a HeNB-GW service configured on this system.

**hnbgw-service svc_name**
Disconnects all subscribers and erase subscriber information based on the HNB-GW service name. `svc_name` must be an existing HNB-GW service expressed as an alphanumeric string of 1 through 63 characters.

**hsgw-only**
Disconnects subscribers emerging from a HRPD Serving Gateway (HSGW) service configured on this system.

**hsgw-service name**
Disconnects subscribers using this HRPD Serving Gateway (HSGW) service configured on this system. `name` must be an existing HSGW service expressed as an alphanumeric string of 1 through 63 characters.

**idle-time | < | > | greater-than | less-than | value**
Disconnects subscribers whose idle time matches the specified length of time.

`<`: Filters output so that only information less than the specified value is cleared.

`>`: Filters output so that only information greater than the specified value is cleared.

`greater-than`: Filters output so that only information greater than the specified value is cleared.

`less-than`: Filters output so that only information less than the specified value is cleared.

`value`: If no other filtering options are specified only output matching `value` is cleared. If `value` is not specified all data is cleared. `value` must be an integer from 0 through 4294967295.

**imei imei**
SGSN only.
Disconnects one or more subscribers based on the international mobile equipment identity (IMEI or IMEI-SV) of the subscriber's mobile equipment.

`imei` - enter 14 to 16 digits to match the first 14 digits of a retrieved IMEI/IMEISV for a single subscriber. To match a range of subscribers, the string may be shorter and include 'S' as a wildcard for a single digit or '*' as a wildcard for multiple digits.

**ims-auth-service imsa_service_name**
Disconnects subscribers using this IMS Authorization Service configured on this system.

`imsa_service_name` must be an existing IMS Authorization Service expressed as an alphanumeric string of 1 through 63 characters.
imsi id
Disconnects the subscriber with the specified id. The IMSI (International Mobile Subscriber Identity) ID is a 50-bit field which identifies the subscriber's home country and carrier. Wildcard characters $ and * are allowed. The * wildcard matches multiple characters and the $ wildcard matches a single character. If you do not want the wildcard characters interpreted as a wildcard enclose them in single quotes (' '). For example; '\$'.

interface-type \{ S2bGTP | S5S8GTP \}
Disconnects subscribers based on their interface type.
S2bGTP: Indicates that the GTP protocol is used on the S2b interface for the subscribers being disconnected.
S5S8GTP: Indicates that the GTP protocol is used on the S5/S8 interface for the subscribers being disconnected.

ip-address ip_address
Disconnects all subscribers connected to the specified ip_address. The address must be specified using IPv4 dotted-decimal notation.

Note: This keyword is not supported for use with the MME or SGSN.

ip-alloc-method \{ aaa-assigned | dhcp | relay-agent | proxy-client | dynamic-pool | l2tp-lns-assigned | mip-ha-assigned | ms-provided-static | not-ms-provided-static | static pool \}
Displays the specific IP Allocation Method. Must be followed by one of the IP Allocation Methods:
• aaa-assigned: Selects subscribers whose IP Addresses were assigned by AAA.
• dhcp: Selects subscribers whose IP Addresses were assigned by DHCP.
• dynamic-pool: Selects subscribers whose IP Addresses were assigned from a dynamic IP address pool.
• l2tp-lns-assigned: Selects subscribers whose IP Addresses were assigned by the Layer 2 Tunnelling Protocol Network Server.
• mip-ha-assigned: Selects subscribers whose IP Addresses were assigned by the Mobile IP Home Agent.
• ms-provided-static: Selects subscribers whose IP Addresses were provided by the Mobile Station.
• not-ms-provided-static: Selects subscribers whose IP Addresses were not provided by the Mobile Station.
• proxy-client: Selects subscribers whose IP Addresses were assigned by the DHCP Proxy Client
• relay-agent: Selects subscribers whose IP Addresses were assigned by the DHCP Relay Agent
• static-pool: Selects subscribers whose IP Addresses were assigned from a static IP address pool.

ip-pool name
Disconnects all subscribers assigned addresses from the IP address pool pool_name. pool_name must be the name of an existing IP pool or IP pool group.

ipv4
Clears all subscribers with IPv4 Firewall enabled/disabled.
**ipv6**
Clears all subscribers with IPv6 Firewall enabled/disabled.

**ipv6-address ipv6_address**
Clears all subscribers connected to the specified IPv6 ipv6_address must be specified in IPv6 colon-separated-hexadecimal notation.

**Note:** This keyword is not supported for use with the MME or SGSN.

**ipv6-prefix prefix**
Clears subscribers from a specific IPv6 address prefix.

**l3-tunnel-local-addr ip_address**
Disconnects all calls for this Layer 3 tunneling interface.

ip_address must be specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

**l3-tunnel-remote-addr ip_address**
Disconnects all calls for this Layer 3 tunneling peer.

ip_address must be specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

**lac ip_address**
Disconnects all calls to the peer LAC (L2TP access concentrator).

ip_address must be specified using IPv4 dotted-decimal notation.

**lac-service service_name**
Disconnects all calls for this LAC service.

service_name is an alphanumeric string of 1 through 63 characters.

**lma-service lma_name**
Disconnects subscribers using this LMA service configured on this system. lma_name must be an existing LMA service expressed as an alphanumeric string of 1 through 63 characters.

**lns ip_address**
Disconnects calls to the peer LNS (L2TP network server) specified by ip_address must be specified using IPv4 dotted-decimal notation.

**lns-service name**
Disconnects calls associated with the LNS service named name. name is an alphanumeric string of 1 through 63 characters.

**long-duration-time-left [ < ] | greater-than | less-than ] value**
Disconnects subscriber sessions whose time left for the maximum duration of their session matches the length of time specified.
<: Filters output so that only information less than the specified value is cleared.
>: Filters output so that only information greater than the specified value is cleared.
greater-than: Filters output so that only information greater than the specified value is cleared.
less-than: Filters output so that only information less than the specified value is cleared.
value: If no other filtering options are specified only output matching value is cleared. If value is not specified all data is cleared. value must be an integer from 0 through 4294967295.

mag-service name
Disconnects subscribers using this Mobile Access Gateway (MAG) service configured on this system. name must be an existing MAG service and be from 1 to 63 alphanumeric characters.

max-subscribers max_count [ uniform ]
The maximum number of subscribers to be cleared. max_count must be an integer from 0 through 2000000. uniform: Subscribers will be cleared uniformly.

mip-udp-tunnel-only
This option clears the subscribers that negotiated MIP-UDP tunneling with the HA. This option is only valid when MIP NAT Traversal license is enabled.

mipv6ha-service service_name
Disconnects subscribers using this MIPV6 Home Agent service configured on this system. service_name must be an existing MIPV6 HA service and be from 1 to 63 alphanumeric characters.

mme-address ipv4_addr
Disconnects subscribers using this peer Mobility Management Entity (MME). ipv4_addr must be an existing peer MME IP address entered using IPv4 dotted-decimal notation.

mme-only
Disconnects all MME subscriber sessions on the system.

mme-service name
Disconnects subscribers using this MME service configured on this system. name must be an existing MME service expressed as an alphanumeric string 1 through 63 characters.

mseg-only

Important This keyword is not supported in this release.
**mseg-service** **mseg_service_name**

- **Important**
  This keyword is not supported in this release.

**msid id**

Disconnects the mobile user identified by *ms_id. ms_id* must be from 7 to 16 digits specified as an IMSI, MIN, or RMI. Wildcard characters $ and * are allowed. The * wildcard matches multiple characters and the $ wildcard matches a single character. If you do not want the wildcard characters interpreted as a wildcard enclose them in single quotes (’). For example; ‘$’.

In case of **enforce imsi-min equivalence** is enabled on the chassis and MIN or IMSI numbers supplied, this filter will clear subscribers with a corresponding MSID (MIN or IMSI) whose lower 10 digits matches to lower 10 digits of the supplied MSID.

**clear subscribers msid 111110123456789** or

**clear subscribers msid 0123456789**

will clear any subscriber with a MSID that match the lower 10 digits of MSID supplied, i.e. 0123456789.

**msisdn msisdn**

Clears information for the mobile user identified by Mobile Subscriber ISDN Number (MSISDN). *msisdn* must be from 7 to 16 digits specified as an IMSI, MIN, or RMI.

**nat** { **not-required** | **required** [ nat-ip nat_ip_address | nat-realm nat_realm_name ] }

Clears all subscriber information for the specified subscribers:

- **not-required**: Subscribers for whom NAT processing is not required.
- **required**: Subscribers for whom NAT processing is required.

- **Important**
  The nat-ip keyword is only available in StarOS 8.3 and later.

- **nat-ip nat_ip_address**: Subscribers for whom NAT processing is enabled and are using the specified NAT IP address. *nat_ip_address* specifies the NAT IP address using IPv4 dotted-decimal notation.

- **nat-realm nat_realm_name**: Subscribers for whom NAT processing is enabled and are using the specified NAT realm. *nat_realm_name* specifies the NAT realm name expressed as an alphanumeric string of 1 through 63 characters.

**network-requested**

Disconnect subscriber sessions that were initiated by the GGSN network requested create PDP context procedure.

**network-type** { **gre** | **ipv4** | **ipv6** | **ipip** | **l2tp** | **mobile-ip** | **proxy-mobile-ip** } **

Disconnects subscriber sessions based on the network type. The following network types can be selected:

- **gre**: Generic Routing Encapsulation (GRE) per RFC 2784
- **ipv4**: Internet Protocol version 4 (IPv4)
**ipv6**: Internet Protocol version 6 (IPv6)

**ipip**: IP-in-IP encapsulation per RFC 2003

**l2tp**: Layer 2 Tunneling Protocol encryption per RFC 2661

**mobile-ip**: Mobile IP

**proxy-mobile-ip**: Proxy Mobile IP

```
non-volte-call [ auto-delete ] [ del-cause { none | reactiv-req } ] [ max-subscribers max_count ] [ uniform ] [ pace-out-interval interval_in_seconds ]
```

Disconnects PDN connections that do not have an active voice call.

This keyword is available for APN and chassis maintenance for P-GW, S-GW, SAEGW, GGSN, and ePDG.

**auto-delete**: Clears the PDN/call when the last VoLTE dedicated bearer goes down for P-GW, S-GW, SAEGW, GGSN, and ePDG.

Calls will not be cleared when one of the calls in a multiple PDN scenario is a VoLTE PDN. When the VoLTE PDN goes down, all of the other PDNs found for the same IMSI are brought down, which will bring down the call automatically.

**pace-out-interval interval_in_seconds**

The `clear subscribers non-VoLTE auto-delete` command was implemented in StarOS release 17.0. This command can generate a burst of Delete Bearer Requests (DBR) and Delete Session Requests (DSR) in customer setups. To prevent the flooding of peer nodes with session removal control procedures, it is important to distribute these messages in a periodic manner.

The **pace-out-interval** keyword allows operators to specify the time duration for removing the sessions so that control messages sent across to peer nodes are evenly distributed.

Sessions that are "paced-out" over a period of time move into a disconnecting state; however, data and control path activity continue as usual until the system sends out session deletion message(s). In the case of session recovery, "paced-out" sessions are recovered in the connected state and the **clear subscriber** command must be initiated again to clear the recovered sessions.

**pace-out-interval** is the time, in seconds, that session deletion messages are distributed.

interval_in_seconds must be an integer from 0 to 86400.

```
pcf [ < | > | less-than | greater-than ] ipv4_address | [ < | > | less-than | greater-than ] ipv4_address
```

Displays information for subscribers connected via the packet control function with a specific or range of IP address **ipv4_address**. The address must be specified using IPv4 dotted-decimal notation.

- `<`: Filters output so that only information less than the specified IPv4 address value is displayed.
- `>`: Filters output so that only information greater than the specified IPv4 address value is displayed.
- **less-than**: Filters output so that only information less than the specified IPv4 address value is displayed.
- **greater-than**: Filters output so that only information greater than the specified IPv4 address value is displayed.

Note: It is possible to define a limited range of IP addresses by using the less-than and greater-than options to define minimum and maximum values.
pcp { not-required | required }
Clears all subscriber information for the specified subscribers:
not-required: Subscribers for whom PCP processing is not required.
required: Subscribers for whom PCP processing is required.

pdsn-service name
Disconnect all subscribers connected to the packet data service pdsn_name. The packet data service must have been previously configured.

pdsnclosedrp-service service_name
Disconnect all subscribers connected to the Closed R-P service service_name. The Closed R-P service must have been previously configured.

pdg-service service_name
Disconnects subscriber sessions that are using the PDG service.

service_name must be an existing service expressed as an alphanumeric string of 1 through 63 characters.

pdif-service service_name
Clears counters for subscribers accessing the Packet Data Interworking Function (PDIF) service.

service_name must be an existing service expressed as an alphanumeric string of 1 through 63 characters.

pgw-address ip_address
Clears specific P-GW interface.

ip_address must be followed by IP address of interface, using IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.
The following filter keywords are valid with this command:
epdg-address, epdg-service,

pgw-only { all | del-cause { none | reactiv-req } | | max-subscribers max_count | | pace-out-interval interval_in_seconds | | imsi id ebi id | | mag-address ip_addr | | pgw-service name | | sgw-address ip_addr }
all: Disconnects all subscribers for all P-GW services on this system.

imsi id: Disconnects subscribers based on their International Mobile Subscriber Identification (IMSI). id must be the 3-digit MCC (Mobile Country Code), follow by the 2 or 3 digits of the MNC (Mobile Network Code) and the MSIN (Mobile Subscriber Identification Number).

id should not exceed 15 digits.
Example: 123-45-678910234 must be entered as 12345678910234

ebi id: The EBI (EPS Bearer Identity)
id must be a valid EBI and be an integer value from 5 to 15.

mag-service ip_addr: Disconnects all subscribers using this MAG address.

pgw-service name: Disconnects all subscribers using this P-GW service.

name must be an existing P-GW service expressed as an alphanumeric string of 1 through 63 characters.
sgw-address ip_addr: Disconnects all subscribers using this S-GW IP address.

ip_addr must be an existing IP address entered using IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation.

plmn-type { home | roaming | visiting }
For GGSN, disconnects subscribers whose subscriber type matches the specified type.

profile-id id
Clears information for subscribers using the granted profile-id for the flow.

id must be an integer from 0 to 4294967295.

profile-name name
Clears information for subscribers using the specified policy profile name.

name must be name of an existing profile expressed as an alphanumeric string of 1 through 63 characters.

qci number
Disconnects subscribers based on their QCI identity.

number must be an integer from 0 to 9.

rulebase rulebase_name
Clears information for subscribers using the specified rulebase.

rulebase_name must be name of an existing rulebase expressed as an alphanumeric string of 1 through 63 characters.

rx-data [ < | > | greater-than | less-than ] value
Disconnects subscribers who have received the specified number of bytes of data.

<: Filters output so that only information less than the specified value is cleared.

>: Filters output so that only information greater than the specified value is cleared.

greater-than: Filters output so that only information greater than the specified value is cleared.

less-than: Filters output so that only information less than the specified value is cleared.

value: If no other filtering options are specified only output matching value is cleared. If value is not specified all data is cleared. value must be an integer from 0 through 18446744073709551615.

s1u-state { active | idle | idle-active }
Disconnects subscribers based on their S1-User Plane Protocol State.

active: Selects subscribers having S1-U state set to active.

idle: Selects subscribers having S1-U state set to idle.

idle-active: Selects subscribers having S1-U state set to idle-active.
s5-proto \{ gtp \| pmip \}

Disconnects subscribers based on their S5 interface protocol type.

**gtp**: Indicates that the GTP protocol is used on the S5 interface for the subscribers being disconnected.

**pmip**: Indicates that the PMIP protocol is used on the S5 interface for the subscribers being disconnected.

**saegw-only** \{ all \| max-subscribers max_count \| pace-out-interval interval_in_seconds \| co-located \| imsi id ebi id \| pgw-anchored | saegw-service name \| sgw-address ip_addr \| sgw-anchored \}

**all**: Disconnects all subscribers for all SAEGW services on this system.

**co-located**: Disconnects only co-located subscribers which have both S-GW and P-GW functions.

**imsi id**: Disconnects subscribers based on their International Mobile Subscriber Identification (IMSI). *id* must be the 3-digit MCC (Mobile Country Code), follow by the 2 or 3 digits of the MNC (Mobile Network Code) and the MSIN (Mobile Subscriber Identification Number).

*id* should not exceed 15 digits.

Example: 123-45-678910234 must be entered as 12345678910234

**ebi id**: The EBI (EPS Bearer Identity)

*ebi* *id* must be a valid EBI and be an integer value from 5 to 15.

**pgw-anchored**: Disconnects only PGW-anchored subscribers.

**saegw-service name**: Disconnects all subscribers using this SAEGW service.

*name* must be an existing SAEGW service expressed as an alphanumeric string of 1 through 63 characters.

**sgw-address ip_addr**: Disconnects all subscribers using this S-GW IP address.

*ip_addr* must be an existing IP address entered using IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation.

**sgw-anchored**: Disconnects only SGW-anchored subscribers.

**saegw-service name**

Disconnects all subscribers using this SAEGW service. *name* must be an existing SAEGW service expressed as an alphanumeric string of 1 through 63 characters.

**session-time-left** \{ < \| > \| greater-than \| less-than \| value \}

The amount of time left for the subscriber session.

<: Filters output so that only information less than the specified value is cleared.

>: Filters output so that only information greater than the specified value is cleared.

**greater-than**: Filters output so that only information greater than the specified value is cleared.

**less-than**: Filters output so that only information less than the specified value is cleared.

**value**: If no other filtering options are specified only output matching *value* is cleared. If *value* is not specified all data is cleared. *value* must be an integer from 0 through 4294967295.

**sgsn-address ip_address**

Clears all PDP contexts currently being facilitated by a specific SGSN.

*ip_address* is the IP address of the SGSN entered using IPv4 dotted-decimal notation.
sgsn-service name
Clears all PDP contexts associated with SGSN. This keyword can be used with filtering keywords that are part of the clear subscriber command set.
Using this keyword can trigger a network-initiated service request (paging) procedure.
name identifies a specific SGSN-service configuration expressed as an alphanumeric string of 1 through 63 characters.

sgw-address ip_address
Disconnects subscribers using the Serving Gateway (S-GW) IP address.
ip_address must be specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

sgw-only all | max-subscribers max_count [ uniform ] | pace-out-interval interval_in_seconds [ verbose ]
Disconnects all S-GW subscriber sessions on the system.

sgw-service name
Disconnects subscribers using this Serving Gateway (S-GW) service configured on this system. name must be an existing S-GW service expressed as an alphanumeric string of 1 through 63 characters.

smgr-instance sessmgr_instance_number
Disconnects subscribers on the specified sessmgr instance.
sessmgr_instance_number must be an integer from 1 to 4294967295.

tpo { not-required | required }
Important The Traffic Performance Optimization (TPO) in-line service is not supported in this release.

tx-data [ < | > | greater-than | less-than ] value
Disconnects subscribers who have transmitted the specified number of bytes of data.
<: Filters output so that only information less than the specified value is cleared.
>: Filters output so that only information greater than the specified value is cleared.
greater-than: Filters output so that only information greater than the specified value is cleared.
less-than: Filters output so that only information less than the specified value is cleared.
value: If no other filtering options are specified only output matching value is cleared. If value is not specified all data is cleared. value must be an integer from 0 through 18446744073709551615.

username name
Disconnect the subscriber with the specified username
name is the username of the subscriber to be cleared. name must be a sequence of characters and/or wildcard characters ("$" and "+") from 1 to 127 characters. The * wildcard matches multiple characters and the $ wildcard
matches a single character. If you do not want the wildcard characters interpreted as wildcard enclose them in single quotes ('). For example; 'S'.

**verbose**
Indicates the output should provide as much information as possible. If this option is not specified then the output is the standard level which is the concise mode.

**wsg-service name**
Disconnects subscribers using this WSG service configured on this ASR 9000 VSM. name must be an existing WSG (SecGW) service expressed as an alphanumeric string of 1 through 63 characters.

**grep grep_options | more**
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**
Clear subscribers sessions to aid in troubleshooting the system when no additional subscribers may connect or when a specific service or remote address may be having connection problems. This command may also be used to clear connections when preparing for maintenance activities.

Related commands to clear subscription data - for SGSN use only

- For a 2G SGSN, the **admin-disconnect-behavior clear-subscription** command in the GPRS Service Configuration mode enables the SGSN to clear subscription data after the administrative disconnect - **clear subscribers all** has been issued.

- For a 3G SGSN, the **admin-disconnect-behavior clear-subscription** command in the SGSN Service Configuration mode enables the SGSN to clear subscription data after the administrative disconnect - **clear subscribers all** has been issued.

**Examples**
The following examples illustrate the basic command usage as well as the redirection of the command output. Not all options are exemplified as all options follow the same basic constructs.

The following are basic subscriber clearing examples.

`clear subscribers username ser1`
`clear subscribers ha sampleService`
`clear subscribers ip-pool pool2 verbose`

The following command disconnects users connected to the foreign agent with IP address 10.2.3.4.

`clear subscribers fa 10.2.3.4`
clear super-charger

Deletes the subscriber's backed-up subscription data with an SGSN supercharger subscription configuration (3GPP TS.23.116).

**Product**
SGSN

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
clear super-charger { imsi | all }

**imsi**
Specifies a subscriber's international mobile subscriber identity (IMSI) number. This 15-digit number includes the MCC (mobile country code), the MNC (mobile network code) and the MSIN (mobile station identification number).

**all**
Instructs the SGSN to delete subscription data for all super charger subscribers.

**Usage Guidelines**
Use this command to clear (delete) the subscription data records for one or all subscribers within a supercharger subscription configuration.

**Examples**
The following command deletes the backed up records for the subscriber identified by the IMSI 90121882144672.

clear super-charger imsi 90121882144672
clear supplementary-service statistics

Clears the statistics for Supplementary Service Information.

**Product**
SGSN

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:
[local]host_name#

**Syntax Description**
clear supplementary-service statistics

**Usage Guidelines**
Use this command to clear the Supplementary Service Information.

**Examples**
The following command clears the Supplementary Service Information:
clear supplementary-service statistics
clear task resources

Deletes the collected resource statistics for system tasks.

Product
All

Privilege
Security Administrator, Administrator, Operator

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

the

clear task resources { card card_num | facility facility { all | instance id max } | max }

\(\text{card card_num}\)

Default: all powered on cards.

Specifies a single card for which task information is to be cleared where \(\text{card_num}\) must be from 1 to 48 for the ASR 5000 and 1 through 20 for the ASR 5500.

\(\text{facility facility { all | instance id max } }\)

Default: all facilities.

Specifies the list of facilities for which task information will be cleared. A specific instance of the facility may be cleared as specified by ID or all instances may be cleared. The value of \(\text{id}\) must be an integer from 0 through 10000000. \(\text{facility}\) must be one of:

- \(\text{allmgr}\): A11 Interface Manager facility
- \(\text{aaamgr}\): AAA Manager Facility
- \(\text{aaaproxy}\): AAA Proxy manager Facility
- \(\text{acsctrl}\): Active Charging Service (ACS) Controller Facility [Release 11.0 and earlier versions only]
- \(\text{acsmgr}\): Active Charging Service (ACS) Manager Facility
- \(\text{afctrl}\): Fabric Manager [ASR 5500 only]
- \(\text{afmgr}\): Fabric Manager [ASR 5500 only]
- \(\text{alcapmgr}\): Access Link Control Application Part (ALCAP) Manager
• **asngwmgm**: ASN Gateway Manager
• **asnpcremgm**: ASN Paging/Location-Registry (ASN-PC) Manager
• **bfd**: Bidirectional Forwarding Detection
• **bpg**: Border Gateway Protocol (BGP) Facility
• **bngmgr**: Broadband Network Gateway (BNG) Manager
• **bulkstat**: Bulk Statistics Manager Facility
• **callhome**: Call Home Controller
• **cbmsmgr**: Cell Broadcasting Service (CBS) Manager
• **cdftctl**: Charging Data Function (CDF) Controller
• **cdfrmg**: CDF Manager
• **cdrmod**: Charging Detail Record (CDR) Module
• **cli**: Command Line Interface (CLI) Facility
• **connproxy**: Proxy for connections from same card/chassis
• **cspctrl**: Card Slot Port controller Facility
• **cssctrl**: Content Service Steering Controller
• **dcardctrl**: IPSec Daughter-card Controller Logging Facility
• **dcardmgm**: IPSec Daughter-card Manager Logging Facility
• **dgmbmgr**: Diameter Gmb Application Manager
• **dhmgr**: Distributed Host Manager
• **diamproxy**: Diameter Proxy
• **drvctrl**: Driver Controller Facility
• **egtpexmgm**: EGTP Egress Demux Manager
• **egtpinmgm**: EGTP Ingress Demux Manager
• **evlogd**: Event Log Daemon Facility
• **famgr**: Foreign Agent Manager Facility
• **gtcpemgm**: GTP-C Protocol Logging facility (GGSN product only)
• **gtpumgr**: GTP-U Demux Manager
• **h248prt**: H.248 Protocol Task [Release 11.0 and earlier versions only]
• **hamgr**: Home Agent Manager Facility
• **hatcpu**: High Availability Task CPU Facility
• **hatrmos**: High Availability Task Facility
• **hdcrtl**: Hard Disk Controller
• **henbgwdemux**: Home eNodeB Gateway demux manager
• **henbgwmgr**: Home eNodeB Gateway Manager
• **hnbmgr**: HNBGW HNB Manager
• **hwctrl**: Hardware Monitor Controller
• **hwmgr**: Hardware Monitor Manager
• **imsimgr**: SGSN IMSI Manager
• **ipseectrl**: IP Security Controller Facility
• **ipseemgr**: IP Security Manager Facility
• **ipsgmgr**: IP Services Gateway Facility
• **kvctl**: KV Controller
• **kvmg**: KV Manager
• **l2tpdemux**: L2TP Demultiplexor (LNS) Facility
• **l2tpmgr**: L2TP Manager Facility
• **lagmgr**: Link Aggregation Group (LAG) Manager
• **linkmgr**: SGSN/SS7 Link Manager
• **m3ap**: M3 Application Part Facility
• **m3ua**: M3UA Protocol Facility
• **magmgr**: Mobile Access Gateway (MAG) Manager
• **megadiammgr**: MegaDiameter Manager
• **mme-app**: Mobility Management Entity (MME) Application Facility
• **mme-embms**: MME evolved Multimedia Broadcast Multicast Service Facility
• **mme-misc**: MME miscellaneous logging facility
• **mmedemux**: MME Demux Manager logging facility
• **mmemgr**: MME Manager logging facility
• **mmgr**: SGSN/SS7 Master Manager
• **mpls_sig**: Multiprotocol Label Switching
• **mptest**: Migration Performance Test on Packet Accelerator Card
• **netwstrg**: Network Storage Manager [Release 11.0 and earlier versions only]
• **nputcrl**: Network Processor Unit Control Facility
• **npudrv**: Network Processor Unit Driver Facility [ASR 5500 only]
• **npumgr**: Network Processor Unit Manager Facility
• **npusim**: Network Processor Unit Simulator [ASR 5500 only]
• **nputst**: Network Processor Unit Tester
• **nsctrl**: Charging Service Controller [Release 11.0 and earlier versions only]
• **nsmgr**: Charging Service Process Manager [Release 11.0 and earlier versions only]

• **orbsns**: Object Request Broker Notification Server Facility

• **orbs**: Object Request Broker System Facility

• **ospf**: Open Shortest Path First Facility

• **ospfv3**: Open Shortest Path First (OSPFv3)

• **pdgmgr**: Packet Data Gateway (PDG) Manager

• **phsgwmgr**: PHS Gateway manager

• **phspcmgr**: PHS Paging Controller manager

• **rc**: Recovery Control Task Facility

• **rdt**: Redirect Task Facility

• **rip**: Routing Information Protocol Facility

• **rmctrl**: Resource Manager Controller Facility

• **rmmgr**: Resource Manager Facility

• **sct**: Shared Configuration Task Facility

• **sessctrl**: Session Controller Facility

• **sessmgr**: Session Manager Facility

• **sesstrc**: Session Trace Collection task

• **sft**: Switch Fabric Monitoring Task

• **sgtpcmgr**: SGSN GTP-C Manager

• **sipcdprt**: SIP Call Distributor Task [Release 11.0 and earlier versions only]

• **sitmain**: System Initialization Task Main Facility

• **sitparent**: Card based system initialization facility that applies to packet processing cards and system management cards (SMC - ASR 5000, MIO - ASR 5500) [Replaces the **sitpac**, **sitspc** and **sittac** facilities]

• **snmp**: SNMP Protocol Facility

• **srdb**: Static Rating Database

• **testctrl**: Test Controller

• **testmgr**: Test Manager

• **threshold**: Threshold Server Facility

• **vpcntl**: Virtual Private Network Controller Facility

• **vpnmgr**: VPN Manager Facility

• **zebos**: ZEBOS™ OSPF Message Facility

**all**: Clears information for all instances of the specified facility.

**instance id**: Clears information for the facility instance specified as an integer from 0 through 1000000.
**max**

Default: current usage levels are cleared.
Clears just the maximum usage levels for tasks as opposed to all current usage levels.

**Usage Guidelines**

Use this command to clear (delete) the collected resource statistics for system tasks.

**Examples**

The following command deletes the Switch Fabric Monitoring Task statistics for instance 100 running on card 2.
```
clear task resources card 2 facility sft instance 100 max
```
clear tcap statistics

Deletes the collected statistics for traffic that has passed through the SS7 TCAP (Transaction Capabilities Application Part) layer.

Product
SGSN

Privilege
Security Administrator, Administrator, Operator

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

`clear tcap statistics [ camel-service [ all | name camel_srvc ] | map-service [ all | name map_srvc ] ] | [ | { grep grep_options | more } ]`

`camel-service [ all | name camel_srvc ]`
Deletes TCAP statistics for either all CAMEL (Customized Applications for Mobile Network Enhanced Logic, GSM 09.78) services or only for the named CAMEL service.

`map-service [ all | name mapl_srvc ]`
Deletes TCAP statistics for either all MAP services or only for the named MAP service.

`grep grep_options | more`
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
For details on the usage of `grep` and `more`, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter.

Usage Guidelines

Use this command to clear (delete) the collected TCAP statistics for MAP or CAMEL services.

Examples

The following command deletes the collected statistics for a MAP service named `MAP-Tewk`.

`clear tcap statistics map-service name MAP-Tewk`
clear wsg-service statistics

Deletes statistics collected for a Wireless Security Gateway (WSG) service.

**Privilege**
Security Administrator, Administrator, Operator

**Product**
SecGW (WSG)

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:
[local]host_name#

**Syntax Description**
clear wsg-service statistics [ name srvc_name ]

name srvc_name
Specifies the name of a WSG service for which statistics will be deleted.

**Usage Guidelines**
Deletes statistics for all WSG services or for a specified WSG service.

**Example**
The following command deletes statistics for all WSG services:
clear wsg-service
cli

Specifies command line interface (CLI) session behavior.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]\host_name#

Syntax Description

| no | cli { history | stop-on-first-error | test-commands | encrypted | password password_string } |

no

Disables the specified keyword functionality.

history

Enables command line history for the current command line session. Default: Enabled

stop-on-first-error

When enabled and a configuration file is loaded, the system stops loading the configuration file on the first syntax error. Default: Disabled

test-commands | encrypted | password password_string

If you are logged in as a Security Administrator or Administrator enabling this command displays diagnostic commands and supplemental keywords to existing commands. The cli hidden command in Global Configuration mode must be enabled to grant access to this keyword. Default: Disabled

Caution

CLI test-commands are intended for diagnostic use only. Access to these commands is not required during normal system operation. These command are intended for use only by Cisco TAC personnel. Some of these commands can slow system performance, drop subscribers, and/or render the system inoperable.

encrypted | password password_string: Password must be entered to access the CLI test-commands. This password must have been previously configured by a Security Administrator via the Global Configuration
mode `tech-support test-commands password` command. The password is an alphanumeric string of 1 through 64 characters (plain text password) or 1 through 524 characters (encrypted password).

If the `password` keyword is not entered, the user is prompted (no-echo) to enter the password. If `tech-support test-commands password` has not been enabled, you will be unable to execute `cli test-commands`.

---

**Important**

An SNMP trap is generated whenever a user enables `cli test-commands` (starTestModeEntered). Refer to the `SNMP MIB Reference` for additional information.

---

**Usage Guidelines**

This command controls CLI settings pertaining to the maintenance of a per-session command history and syntax error monitoring during configuration file loading.

By default, the system maintains a list of commands executed during each CLI session. This list is referred to as a history.

In addition, the system can be configured to stop loading a configuration if a syntax error is detected. By default, the system identifies the error but continues to process the configuration file.

**Examples**

The following command disables the keeping of a CLI history for the current session:

```
no cli history
```
clock set

Sets the system time.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name$

Syntax Description

clock set date_time

date_time

Specifies the date and time to set the system clock in the format YYYY:MM:DD:HH:mm or YYYY:MM:DD:HH:mm:ss. Where:

- YYYY = 4-digit year
- MM = 2-digit month in the range 01 through 12
- DD = 2-digit day in the range 01 through 31
- HH = 2-digit hour in the range 00 through 23
- mm = 2-digit minute in the range 00 through 59
- ss = 2-digit second in the range 00 through 59

Usage Guidelines

Set the clock to adjust the system clock for such things as timing drift, day-light savings adjustment, etc. New settings are immediately applied to all CPUs in the system.

Important

This command should only be used if there is no NTP server enabled for any context. If NTP is running on the system, this command returns a failure.
Examples

The following commands set the system clock where one sets the exact second as well.

- `clock set 2011:08:05:02:30`
- `clock set 2011:08:05:02:31:30`
cmp enroll current-cert

Triggers a Certification Request (CR) after generating a public and private key pair, as well as an X.509 certificate to be included in the CR for a second certificate from the same Certificate Authority (CA). This is a Certificate Management Protocol v2 command.

Product

All products supporting IPSec CMPv2 features

Important

This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

Privilege

Security Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

cmp enroll current-cert old-cert-name modulus mod_type subject-name "subject_string" cert-name name ca-root ca_name ca-url url

current-cert old-cert-name
Specifies a valid security gateway certificate as an alphanumeric string of 1 through 129 characters.

modulus mod_type
Specifies the modulus of the generated certificate. mod_type is one of the following integers: 1024, 2048, 4096 or 512.

subject-name "subject_string"
Specifies the subject string of the certificate in double quotation marks. "subject_string" is an alphanumeric string of 1 through 256 characters.

cert-name name
Specifies the name of the newly obtained certificate which also serves as the filename to be stored on /flash disk. name is an alphanumeric string of 1 through 129 characters.
ca-root ca_name
Specifies the root certificate of the CA server. ca_name is an alphanumeric string of 1 through 129 characters.

c-url url
Specifies the URL to which the CA server listens. url is in the format: http://<host>[:<port>]/<directory>/<filename>.

Usage Guidelines
Use this command to trigger a certification request for a second certificate from the same CA.

Examples
The following command requests a second certificate from the same CA:
```
cmp enroll current-cert aqaw12345 modulus 1024 subject-name "test_certificate" cert-name cert01 ca-root ca001 ca-url http://excel:2033/certificates/aqaw12345
```
cmp fetch cert-name

This command is only applicable for the ASR 9000 running VPC-SI on a Virtualized Services Module (VSM). CMPv2 operations are performed only on one VSM in the chassis. The certificates along with the private key file and the root certificate are stored on the supervisor card. When invoked on other VSMs in the chassis, this command reads the certificate, private key and the root certificate from the supervisor card.

Product

All products supporting IPSec CMPv2 features

Important

This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

Privilege

Security Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

cmp fetch current-cert old-cert-name ca-root ca_name

current-cert old-cert-name
Specifies a valid security gateway certificate as an alphanumeric string of 1 through 129 characters.

caroot ca_name
Specifies the root certificate of the CA server. ca_name is an alphanumeric string of 1 through 129 characters.

Usage Guidelines

Use this command to read the certificate, private key and the root certificate from the supervisor card in an ASR 9000.

Examples

The following command fetches a certificate from a specified CA:

cmp fetch current-cert aqaw12345 ca-root ca001
**cmp initialize**

Triggers an Initial Certification Request (CR) after generating a public and private key pair, as well as an X.509 certificate to be included in the CR. This is a Certificate Management Protocol v2 command.

**Product**
All products supporting IPSec CMPv2 features

**Important**
This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

**Privilege**
Security Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
cmp initialize modulus mod_type cert-name name subject-name "subject_string" ca-psk key ca-root
ca_name ca-url url
```

- **modulus mod_type**
  Specifies the modulus of the generated certificate. *mod_type* is one of the following integers: 1024, 2048, 4096 or 512.

- **cert-name name**
  Specifies the name of the newly obtained certificate which also serves as the filename to be stored on /flash disk. *name* is an alphanumeric string of 1 through 129 characters.

- **subject-name "subject_string"**
  Specifies the subject string of the certificate in double quotation marks. "*subject_string*" is an alphanumeric string of 1 through 256 characters.

- **ca-psk key**
  Specifies the Pre-Shard Key provided by the CA server for CMPv2 operation. *key* is an alphanumeric string of 1 through 129 characters.
**Usage Guidelines**

Use this command to trigger an initial certification request from the CA.

**Examples**

The following command sends an Initial Certification Request to a specified CA:

```plaintext
cmp initialize modulus 1024 cert-name cert001 subject-name "test" ca-psk AB33569 ca-root cert1 ca-url http://excel:2033/certificates/aqaw12345
```
cmp poll

Triggers a pollReq for the specified certificate. This is a Certificate Management Protocol v2 command.

Product

All products supporting IPSec CMPv2 features

Important

This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

Privilege

Security Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

```
cmp poll current-cert old-cert-name
```

```
current-cert old-cert-name
```

Specifies a valid security gateway certificate as an alphanumeric string of 1 through 129 characters.

Usage Guidelines

Use this command to poll the current certificate.

Examples

The following command polls the current certificate:

```
cmp poll current-cert aqaw12345
```
cmp update

Triggers a Key Update Request after generating a public and private key pair, as well as an X.509 certificate to be included in the Key Update Request for a certificate that is about to expire. This is a Certificate Management Protocol v2 command.

**Product**
All products supporting IPSec CMPv2 features

**Important**
This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

**Privilege**
Security Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
cmp update current-cert old-cert-name modulus mod_type ca-root ca_name ca-url url
```

`modulus mod_type`
Specifies the modulus of the generated certificate. `mod_type` is one of the following integers: 1024, 2048, 4096 or 512.

`current-cert old-cert-name`
Specifies a valid security gateway certificate as an alphanumeric string of 1 through 129 characters.

`ca-root ca_name`
Specifies the root certificate of the CA server. `ca_name` is an alphanumeric string of 1 through 129 characters.

`ca-root ca_name`
Specifies the root certificate of the CA server. `ca_name` is an alphanumeric string of 1 through 129 characters.

`ca-url url`
Specifies the URL to which the CA server listens. `url` is in the format: http://<host>[:<port>][/<directory>]/<filename>. 
Usage Guidelines

Use this command to initiate a manual update of the current certificate.

Examples

The following command requests a second certificate from the same CA:

cmp update modulus 1024 current-cert aqaw12345 ca-root ca001 ca-url http://excel:2033/certificates/aqaw12345
commandguard

Enable / disable Commandguard feature to prevent operators from accidentally entering configuration modes by presenting yes/no confirmation prompts.

Product
SGSN

Privilege
Security Administrator, Administrator

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description
commandguard
[ default | no ] commandguard

[ default | no ]
Restores the default behavior for confirmation prompting and disables the Commandguard feature.

Usage Guidelines
When commandguard is enabled it affects the configure and autoconfirm CLI commands by causing them to prompt (Y/N) for confirmation. This feature protects operators from accidentally entering configuration mode via CLI or file replay.

Important
When autoconfirm is enabled, commandguard has no affect.

Examples
The following command enables the Commandguard feature:

commandguard

The following command restores system default confirmation prompts:

default commandguard

The following command instructs the SGSN to ignore Commandguard when enabled:

autoconfirm
configure

Moves to the Global Configuration mode to modify the running configuration. May also be used to pre-load a configuration file specified by its URL for modification in the Global Configuration mode.

**Product**

All

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

`configure` `[ url ]`

`configure` Moves from Exec mode to the Global Configuration mode for modifying the configuration.

`url`

Specifies the location of a configuration file to pre-load for modification. If no URL is specified, modifications are made to the running configuration.

`url` may refer to a local or a remote file. `url` must be entered using one of the following formats:

For the ASR 5000 (*not* supported with the `confd` keyword):

- `[ file: | /flash | /pcmcia | /hd-raid | /sftp ] [ /directory ] /file_name`
- `tftp:// { host[ :port# ] } [ /directory ] /file_name`
- `[ http: | ftp: | sftp: ]// [ username | :password | @ | ] { host } [ :port# | ] [ /directory ] /file_name`

For the ASR 5500:

- `[ file: | /flash | /usb1 | /hd-raid | sftp ] [ /directory ] /file_name`
- `tftp:// { host[ :port# ] } [ /directory ] /file_name`
- `[ http: | ftp: | sftp: ]// [ username | :password | @ | ] { host } [ :port# | ] [ /directory ] /file_name`
Important

Do not use the following characters when entering a string for the field names below: "/" (forward slash), ":" (colon) or "@" (at sign).

directory is the directory name.
filename is the actual file of interest.
username is the user to be authenticated.
password is the password to use for authentication.
host is the IP address or host name of the server.
port# is the logical port number that the communication protocol is to use.

Usage Guidelines

If no URL is specified, executing this command causes the CLI to enter the Global Configuration Mode and modify the running configuration.

If a URL is specified, executing this command loads the specified configuration file for modification in Global Configuration mode.

Examples

The following command sends you to the Global Configuration mode and allows you to modify the currently running configuration:

```
configure
```

The following command loads a configuration file via FTP from the specified pathname:

```
configure ftp://sampleNode/pub/glob.cfg
```

For the ASR 5000 the following command loads a configuration file from a PCMCIA card:

```
configure /pcmcia1/pub/glob.cfg verbose
```

For the ASR 5500 the following command loads a configuration file from a USB flash drive:

```
configure /usb1/pub/glob.cfg verbose
```
context

Sets the current context to the context specified.

Product
All

Privilege
Security Administrator, Administrator, Operator, Inspector

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description
context name

name
Specifies the context of interest as an alphanumeric string of 1 through 79 characters. Must be a previously defined context.

Usage Guidelines
Change the current context when it is desired to configure and/or manage a specific context.

Examples
The following sets the current context to the sampleContext context.
context sampleContext
**copy**

Copies files from one location to another. Allows files to be copied to/from locally, as well as from one remote location to another.

**Product**

All

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

`[local] host_name#`

**Syntax Description**

```bash
copy from_url to_url [passive] [ -noconfirm ]
```

**from_url**

Specifies the source of the copy. `url` may refer to a local or a remote file. `url` must be entered using the following format:

For the ASR 5000:

- `file://[/flash|/pcmcia1|/hd-raid]/directory/file_name`
- `tftp://host[:port#]/directory/file_name`
- `http://ftp://sftp://username:password@host[:port#]/directory/file_name`

For the ASR 5500:

- `file://[/flash|/usb1|/hd-raid]/directory/file_name`
- `tftp://host[:port#]/directory/file_name`
- `http://ftp://sftp://username:password@host[:port#]/directory/file_name`

For VPC:

- `file://[/hd-raid|/usb1|/usb2|/cdrom1]/directory/file_name`

**Important**

The USB ports and CD-ROM must be configured via the hypervisor to be accessible.
Use of the ASR 5000 SMC hard drive is not supported in this release.

Do not use the following characters when entering a string for the field names below: "/" (forward slash), ":" (colon) or "@" (at sign).

directory is the directory name.
filename is the actual file of interest.
username is the user to be authenticated.
password is the password to use for authentication.
host is the IP address or host name of the server.
port# is the logical port number that the communication protocol is to use.

to_url

Specifies the destination of the copy. url may refer to a local or a remote file. url must be entered using the following format:

For the ASR 5000:

- tftp://{host[ :port# ]} [ /directory ] /file_name
- [http: | ftp: | sftp: ]//{username [ :password ]@ } [ host ] [ :port# ] [ /directory ] /file_name

For the ASR 5500:

- tftp://{host[ :port# ]} [ /directory ] /file_name
- [ftp: | sftp: ]//{username [ :password ]@ } [ host ] [ :port# ] [ /directory ] /file_name

For VPC:

- [file: ]//{flash | /pcmcia1 | /hd-raid } [ /directory ] /file_name
- tftp://{host[ :port# ]} [ /directory ] /file_name
- [ftp: | sftp: ]//{username [ :password ]@ } [ host ] [ :port# ] [ /directory ] /file_name

The USB ports and CD-ROM must be configured via the hypervisor to be accessible.

- tftp://{host[ :port# ]} [ /directory ] /file_name
- [http: | ftp: | sftp: ]//{username [ :password ]@ } [ host ] [ :port# ] [ /directory ] /file_name
Important
Use of the SMC hard drive is not supported in this release.

directory is the directory name.
filename is the actual file of interest.
username is the user to be authenticated.
password is the password to use for authentication.
host is the IP address or host name of the server.
port# is the logical port number that the communication protocol is to use.

passive
Indicates the file copy is to use the passive mode FTP.

-noconfirm
Executes the command without any additional prompt and confirmation from the user.

Important
Use of the -noconfirm option allows the overwriting of an existing file if the destination file already exists.

Usage Guidelines
Copy configuration files, log files, etc., to provide backups of data through the network.

Examples
For the ASR 5000, the following copies files from the local /flash/pub directory to remote node remoteABC's /pcmcia2/pub directory with and without confirmation respectively.
copy http://remoteABC/pub/june.cfg /flash/pub/june.cfg
copy tftp://remoteABC/pub/june.cfg /pcmcia2/pub/june.cfg -noconfirm

For the ASR 5500, the following copies files from the local /flash/pub directory to remote node remoteABC's /flash/pub directory with and without confirmation respectively.
copy http://remoteABC/pub/june.cfg /flash/pub/june.cfg
copy tftp://remoteABC/pub/june.cfg /flash/pub/june.cfg -noconfirm

The following copies files from remote node remoteABC to remote node remote123.
copy ftp://remoteABC/pub/may.cfg ftp://remote123/pub/may.cfg
crash copy

Copies individual crash files (one-at-a-time) and optionally the core dump file from the stored crash records on the chassis to a user-specified location.

**Product**

All

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
crash copy number url to_url [ core ]
```

- **number number**
  Specifies the identification number of the crash record as an integer representing a valid record number from 1 through 120. To determine the numeric identity of a specific crash file, use the `show crash list` command in Exec mode.

- **url to_url**
  Specifies the destination of the copy. `url` may refer to a local or a remote file and must be entered using the following format:

  For the ST16:

  - `file: { /flash | /pcmcia1 | /pcmcia2 } [/directory ] /
  - `tftp:// { host [ :port# ] } [/directory ] /

  For the ASR 5000:

  - `file: { /flash | /pcmcia1 | /hd } [/directory ] /
  - `tftp:// { host [ :port# ] } [/directory ] /

  For the ASR 5500:
• [ file: ] {/flash | /usb1 | /hd } {/directory } /
• tftp://{ host[ :port# ] } {/directory } /
• [ ftp: | sftp: ]://{ username[ :password ] @ } { host } [ :port# ] {/directory } /

For VPC:

• [ file: ]{|/flash | /hd-raid | /usb1 | /usb2 | /cdrom1 }{|/directory }/{file_name}

**Important**
The USB ports and CD-ROM must be configured via the hypervisor to be accessible.

• tftp://{ host[ :port# ] }{/directory }/{file_name}
• [ http: | ftp: | sftp: ]://{ username[ :password ]@ } { host } [ :port# ]{/directory }/{file_name}

**Important**
Use of the SMC hard drive is not supported in this release.

directory: the name of the target directory.
username: the username to be authenticated to provide access to targeted server.
password: the username's password to be authenticated.
host: the IP address or host name of the targeted server.
port#: the number of the target server's logical port used for the selected communication protocol.

**Important**
Do not specify a target filename as this will prevent the file from writing to the target server. The system
generates and provides a timestamp-based filename that appears at the destination when the **copy**
command completes.

core
Copies the core dump to the targeted storage server. The core cannot be copied alone; it must be part of a
**crash copy** action included when copying a crash file.

**Usage Guidelines**
Copy crash files of core dump to another location for backup or analysis.

**Examples**
The following uses FTP to copy stored record number 5 and the core dump from the crash record list to a
targeted remote node directory called **crasharchive** through port 22 of the targeted server **remoteABC** with
access through user **homeboy** whose password is **secret.7.word**.
crash copy number 5 url ftp://homeboy:secret.7.word@remoteABC:22/crasharchive/ core
crypto blacklist file update

Updates the blacklist (access denied) file using the path specified when the blacklist was enabled.

**Product**

All products supporting IPSec crypto blacklisting

**Important**

This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

**Privilege**

Security Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```  

**Syntax Description**

`crypto blacklist file update`

**Usage Guidelines**

Update the blacklist file. For additional information on blacklisting, refer to the *System Administration Guide*.

**Examples**

The following command updates the blacklist file:

```
crypto blacklist file update
```
crypto rsa-keygen modulus

Generates an RSA key pair and Certificate Signing Request (CSR) using information to authenticate the site.

**Product**

All products that support IPSec

**Important**

This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

**Privilege**

Security Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

crypto rsa-keygen modulus {1024 | 2048 | 4096 | 512}

**Usage Guidelines**

Generate an RSA key pair and Certificate Signing Request (CSR) using information to authenticate the site. You can specify the modulus (key size of the generated certificate) as 512, 1024, 2048 or 4096 bits.

A CSR is a message sent to a Certification Authority (CA) to request a public key certificate for an entity, where the entity is the subject of the certificate. The software creating the CSR must first generate an RSA key pair; the key pair comprises a public and private key. The public key is bundled with the subject's name, and other information to form the CSR.

**Example**

The following command generates a CSR for a certificate with a modulus of 2048 bits:

```
crypto rsa-keygen modulus 2048
```
crypto whitelist file update

Updates the whitelist (access granted) file using the path specified when the whitelist was enabled.

Product

All products supporting IPSec crypto whitelisting

Important

This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

Privilege

Security Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

crypto whitelist file update

Usage Guidelines

Update the whitelist file. For additional information on whitelisting, refer to the System Administration Guide.

Examples

The following command updates the whitelist file:

crypto whitelist file update
crypto-group

Allows the manual switchover of redundant IPSec tunnels belonging to a specific crypto group.

Product

PDSN
GGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

crypto-group name group_name activate { primary | secondary }

name group_name

Specifies the name of an existing crypto group with which the tunnels to be switched are associated.

activate { primary | secondary }

Allows you to specify which tunnel to activate:

- primary: Switches traffic to the primary tunnel in the group.
- secondary: Switches traffic to the secondary tunnel in the group.

Usage Guidelines

This command is used in conjunction with the Redundant IPSec Tunnel Fail-over feature.

Use this command to manually switch traffic to a specific tunnel in a crypto group if the automatic switchover options have been disabled. Refer to the switchover command in the Crypto Group configuration mode for more information.

Examples

The following command manually switches user traffic to the secondary tunnel in the crypto group called group1:

crypto-group group1 activate secondary
The Exec Mode is the initial entry point into the command line interface system. Exec mode commands are useful in troubleshooting and basic system monitoring.

This chapter contains the commands in the Exec Mode from debug to system.

**Command Modes**

**Exec**

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

---

**Important**

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

- `debug bfd`, page 484
- `debug ip`, page 486
- `debug ip bgp`, page 488
- `debug ip ospf all`, page 490
- `debug ip ospf event`, page 491
- `debug ip ospf ism`, page 493
- `debug ip ospf lsa`, page 495
- `debug ip ospf nsm`, page 497
- `debug ip ospf packet`, page 499
- `debug ip ospf route`, page 501
- `debug ip ospf router`, page 503
- `debug ipv6 ospf all`, page 504
- `debug ipv6 ospf event`, page 505
- `debug ipv6 ospf ifsm`, page 507
• debug ipv6 ospf lsa, page 509
• debug ipv6 ospf nsm, page 511
• debug ipv6 ospf packet, page 512
• debug ipv6 ospf route, page 514
• default terminal, page 516
• delete, page 517
• delete support record, page 519
• dhcp force, page 520
• dhcp test, page 522
• diameter disable endpoint, page 524
• diameter enable endpoint, page 525
• diameter reset connection, page 526
• diameter reset route failure, page 527
• directory, page 529
• disable radius, page 531
• dns-client, page 533
• egtpc test echo, page 535
• enable radius, page 537
• exit, page 539
• filesystem, page 540
• filesystem synchronize, page 542
• gtpc test echo, page 544
• gtpp interim now, page 546
• gtpp interim now active-charging egcdr, page 549
• gtpp storage-server commit, page 551
• gtpp storage-server streaming start, page 552
• gtpp test, page 554
• gtpu test echo, page 556
• gtpv0 test echo, page 559
• hd raid, page 561
• host, page 566
• install plugin, page 567
• interface, page 568
- lawful-intercept, page 569
- lawful-intercept packet-cable, page 570
- lawful-intercept ssdf, page 571
- link-aggregation port switch to, page 572
- logging active, page 574
- logging filter, page 576
- logging trace, page 586
- logs checkpoint, page 588
- lsp-ping, page 589
- lsp-traceroute, page 591
- mkdir, page 592
- mme disconnect, page 594
- mme imsimgr, page 595
- mme offload, page 596
- mme paging cache clear, page 598
- mme relocate-ue imsi, page 599
- mme reset, page 601
- monitor interface, page 602
- monitor protocol, page 603
- monitor subscriber, page 607
- newcall policy, page 611
- password change, page 617
- patch plugin, page 619
- ping, page 621
- ping6, page 623
- port switch to, page 625
- ppp echo-test, page 626
- radius interim accounting now, page 628
- radius test, page 629
- reload, page 631
- rename, page 632
- reset active-charging, page 634
- reset alcap-service, page 635
• reset diameter, page 636
• reset ims-authorization, page 637
• reveal disabled commands, page 638
• rlogin, page 639
• rmdir, page 640
• rollback module, page 642
• rotate-hd-file, page 643
• save configuration, page 644
• save logs, page 647
• session trace, page 659
• session trace random, page 664
• session trace signaling, page 667
• setup, page 669
• sgs offload, page 670
• sgs vlr-failure, page 672
• sgs vlr-recover, page 674
• sgsn clear-congestion, page 676
• sgsn clear-detached-subscriptions, page 677
• sgsn imsimgr, page 678
• sgsn offload, page 680
• sgsn op, page 683
• sgsn retry-unavailable-ggsn, page 688
• sgsn trigger-congestion, page 689
• sgtpc test echo sgsn-address, page 690
• shutdown, page 691
• sleep, page 692
• srp initiate-audit, page 693
• srp initiate-switchover, page 694
• srp reset-auth-probe-fail, page 696
• srp reset-diameter-fail, page 697
• srp terminate-post-process, page 698
• srp validate-configuration, page 699
• srp validate-switchover, page 700
• ssh, page 701
• start crypto security-association, page 702
• statistics-collection, page 703
• system, page 705
**debug bfd**

Enables or disables the debug options for Bidirectional Forwarding Detection (BFD) debugging. If logging is enabled, results are sent to the logging system.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
| no | debug bfd { all | events ipc-error | ipc-events | nsm | packet | session }
```

- **no**
  Indicates the IP debugging is to be disabled for the IP interfaces/function specified.

- **bfd | interface name | route**
  Specifies which IP interfaces/function to debug.
  - **all**: enables debug for all BFD items.
  - **events**: enables debug for BFD events.
  - **ipc-error**: enables debug for BFD Inter-process communication (IPC) errors.
  - **ipc-events**: enables debug for BFD Inter-process communication (IPC) events.
  - **nsm**: enables debug for BFD Network Service Manager messages.
  - **packet**: enables debug for BFD packets.
  - **session**: enables debug for BFD sessions.

**Usage Guidelines**

The debug bfd command is valuable when troubleshooting network problems with BFD-enabled BGP routers. The debugging is stopped by using the **no** keyword.

⚠️ **Caution**

Issuing this command could negatively impact system performance depending on system configuration and/or loading.
Examples

The following commands enable/disable debugging for BFD.

debug bfd
no debug bfd
debug ip

Enables or disables the debug options for IP debugging. If logging is enabled, results are sent to the logging system.

Product
All

Privilege
Security Administrator, Administrator, Operator

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local] host_name>

Syntax Description
[ no ] debug ip { arp | interface | route }

no
Indicates the IP debugging is to be disabled for the IP interfaces/function specified.

arp | interface name | route
Specifies which IP interfaces/function to debug.
arp: indicates debug is to be enabled for the address resolution protocol.
interface: indicates debug is to be enabled for the IP interfaces.
rout: indicates debug is to be enabled for the route selection and updates.

Usage Guidelines
The debug IP command is valuable when troubleshooting network problems between nodes. The debugging is stopped by using the no keyword.

Caution
Issuing this command could negatively impact system performance depending on system configuration and/or loading.

Examples
The following commands enable/disable debugging for ARP.

ddebug ip arp
no debug ip arp
The following enables/disables debugging for IP interfaces.

- `debug ip interface`
- `no debug ip interface`

The following enables/disables debugging for routing.

- `debug ip route`
- `no debug ip route`
**debug ip bgp**

Enables or disables BGP (Border Gateway Protocol) debug flags. If logging is enabled, results are sent to the logging system.

**Product**

HA

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name# 
```

**Syntax Description**

```
[ no ] debug ip bgp { all | event | filters | fsm | keepalives | updates { inbound | outbound } }
```

- **no**
  
  Disables the specified BGP debug flags.

- **all**
  
  Enables all BGP debug flags.

- **event**
  
  Enables debugging of all BGP protocol events.

- **filters**
  
  Enables debugging of all BGP filters.

- **fsm**
  
  Enables debugging of BGP Finite State Machine

- **keepalives**
  
  Enables debugging of all BGP keepalives.

- **updates { inbound | outbound }**
  
  Enables debugging of BGP updates.
inbound: Debug all BGP inbound updates.
outbound: Debug all BGP outbound updates.

Usage Guidelines

Use this command to enable or disable BGP debug flags.

Examples

The following command disables all BGP debug flags enabled by any of the debug ip bgp commands:
no debug ip bgp all

The following command enables all BGP debug flags:
depend ip bgp all
debug ip ospf all

Enables or disables all OSPF (Open Shortest Path First) debug flags. If logging is enabled, results are sent to the logging system.

**Product**

PDSN  
HA  
GGSN

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec  
The following prompt is displayed in the Exec mode:  

```
[local]host_name#  
```

**Syntax Description**

[ no ] debug ip ospf all

**no**

Disable all OSPF debug flags.

**Usage Guidelines**

Use this command to enable or disable all OSPF debug flags.

**Examples**

The following command disables all OSPF debug flags enabled by any of the `debug ip ospf` commands:

```
no debug ip ospf all  
```

The following command enables all OSPF debug flags:

```
d debug ip ospf all  
```
debug ip ospf event

Enables or disables debugging of OSPF protocol events. If logging is enabled, results are sent to the logging system. If no keywords are specified, all events are enabled for debugging.

**Product**
- PDSN
- HA
- GGSN

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]\host_name#
```

**Syntax Description**

```
[ no ] debug ip ospf event [ abr | asbr | vl | lsa | os | router ]
```

- **no**
  Disables debugging the specified OSPF event. If no keywords are specified, all events are disabled.

- **abr**
  Enables debugging of Area Border Router (ABR) events.

- **asbr**
  Enables debugging of Autonomous System Boundary Router (ASBR) events.

- **vl**
  Enables debugging of Virtual Link (VL) events.

- **lsa**
  Enables debugging of link state advertisement (LSA) events.

- **os**
  Enables debugging of operating system (OS) events.
**router**

Enables debugging of router events.

**Usage Guidelines**

Use this command to output debug information for OSPF events.

**Examples**

To enable all event debug information, enter the following command;
```
debug ip ospf event
```
To disable all event debug information, enter the following command;
```
no debug ip ospf event
```
debug ip ospf ism

Enables or disables OSPF Interface State Machine (ISM) troubleshooting, based on ISM information type. If no keywords are specified all ISM information types are enabled. If logging is enabled, results are sent to the logging system.

Product
PDSN
HA
GGSN

Privilege
Security Administrator, Administrator, Operator

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

[ no ] debug ip ospf ism [ events | status | timers ]

no
Disables debugging the specified ISM information. If no keywords are specified, all information is disabled.

events
Enables debugging ISM event information.

status
Enables debugging ISM status information.

timers
Enables debugging ISM timer information.

Usage Guidelines
Use this command to output ISM debug information.

Examples
To enable all ISM debug information, enter the following command;

depend ip ospf ism
To disable all ISM debug information, enter the following command:
no debug ip ospf ism
debug ip ospf lsa

Enables or disables troubleshooting on OSPF Link State Advertisements (LSAs), based on the specific LSA option. If no keywords are specified, all options are enabled. If logging is enabled, results are sent to the logging system.

Product
- PDSN
- HA
- GGSN

Privilege
Security Administrator, Administrator, Operator

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description
- | no | debug ip ospf lsa | flooding | generate | install | refresh | maxage | refresh |

no
Disables the specified LSA debug information. If no keyword is specified, all LSA debug information is disabled.

flooding
Enables LSA flooding information.

generate
Enables LSA generation information.

install
Enables LSA install information.

maxage
Enables LSA maximum age information in seconds. The maximum age is 3600 seconds.
refresh
Enables LSA refresh information.

Usage Guidelines
Use this command to output debug information for LSAs.

Examples
To enable all LSA debug information, enter the following command;
\texttt{debug ip ospf lsa}
To disable all LSA debug information, enter the following command;
\texttt{no debug ip ospf lsa}
**debug ip ospf nsm**

Enables or disables troubleshooting OSPF Neighbor State Machines (NSMs), based on the specific NSM information type. If no keyword is specified, all NSM information types are enabled. If logging is enabled, results are sent to the logging system.

### Product
- PDSN
- HA
- GGSN

### Privilege
Security Administrator, Administrator, Operator

### Command Modes
Exec

The following prompt is displayed in the Exec mode:
```
[local]host_name#
```

### Syntax Description
```
[ no ] debug ip ospf nsm [ status | events | timers ]
```

- **no**
  Disables the debugging the specified NSM information type. If no keyword is specified, all information types are disabled.

- **events**
  Enables debugging NSM event information.

- **status**
  Enables debugging NSM status information.

- **timers**
  Enables debugging NSM timer information.

### Usage Guidelines
Use this command to output debug information for OSPF NSMs

### Examples
To enable all NSM debug information, enter the following command;
```
ddebug ip ospf nsm
```
To disable all NSM debug information, enter the following command:

```
no debug ip ospf nsm
```
**debug ip ospf packet**

Enables or disables troubleshooting of specific OSPF packet information. If logging is enabled, results are sent to the logging system.

**Product**
- PDSN
- HA
- GGSN

**Privilege**
- Security Administrator, Administrator, Operator

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
[ no ] debug ip ospf packet { all | dd | hello | ls-ack | ls-request | ls-update } [ send | recv ] [ detail ]
```

- **no**
  
  Disable debugging of the specified packet information.

- **all**
  
  Enables debugging all OSPF packet information.

- **dd**
  
  Enables debugging database descriptions.

- **hello**
  
  Enables debugging hello packets.

- **ls-ack**
  
  Enables debugging link state acknowledgements.

- **ls-request**
  
  Enables debugging link state requests.
ls-update
Enables debugging link state updates.

send
Enables debugging only on sent packets.

recv
Enables debugging only on received packets.

detail
Enables detailed information in the debug output.

Usage Guidelines
Use this command to output specific OSPF packet information.

Examples
To enable all packet debug information, enter the following command;
debug ip ospf packet all
To disable all route debug information, enter the following command;
no debug ip ospf packet all
**debug ip ospf route**

Sets the route calculation method to use in debugging OSPF routes. If no route calculation method is specified, all methods are enabled. If logging is enabled, results are sent to the logging system.

**Product**
- PDSN
- HA
- GGSN

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#  
```

**Syntax Description**

```
[ no ] debug ip ospf route [ ase | ia | install | spf ]
```

- **no**
  Disables debugging of route information. If no keyword is specified all information types are disabled.

- **ase**
  Enables debugging information on autonomous system external (ASE) route calculations.

- **ia**
  Enables debugging information on Inter-Area route calculations.

- **install**
  Enables debugging information on route installation.

- **spf**
  Enables debugging information on Shortest Path First (SPF) route calculations.

**Usage Guidelines**
Use this command to output debug information for OSPF routes.
debug ip ospf route

Examples

To enable all route debug information, enter the following command:

debug ip ospf route

To disable all route debug information, enter the following command:

no debug ip ospf route
debug ip ospf router

Sets the debug option for OSPF router information. If no keyword is specified, all router information is enabled. If logging is enabled, results are sent to the logging system.

Product

- PDSN
- HA
- GGSN

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

[ no ] debug ip ospf router [ interface | redistribute ]

no

Disables the specified router debug information. If no keyword is specified, all router information is disabled.

interface

Enables router interface information.

redistribute

Enables router redistribute information.

Usage Guidelines

Use this command to output debug information for the OSPF router.

Examples

To enable all router debug information, enter the following command;

d debug ip ospf router

To disable all router debug information, enter the following command;

no debug ip ospf router
**debug ipv6 ospf all**

Enables or disables all OSPFv3 (Open Shortest Path First Version 3) debug flags. If logging is enabled, results are sent to the logging system.

**Product**
- PDSN
- HA
- GGSN

**Privilege**
- Security Administrator, Administrator, Operator

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
[ no ] debug ipv6 ospf all
```

- **no**
  
  Disable all OSPFv3 debug flags.

**Usage Guidelines**

Use this command to enable or disable all OSPFv3 debug flags.

**Examples**

The following command disables all OSPFv3 debug flags enabled by any of the `debug ip ospf` commands:

```
no debug ipv6 ospf all
```

The following command enables all OSPFv3 debug flags:

```
debug ipv6 ospf all
```
debug ipv6 ospf event

Enables or disables debugging of OSPFv3 protocol events. If logging is enabled, results are sent to the logging system. If no keywords are specified, all events are enabled for debugging.

**Product**

- PDSN
- HA
- GGSN

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
[ no ] debug ipv6 ospf event [ abr | asbr | os | router ]
```

- **no**
  
  Disables debugging the specified OSPFv3 event. If no keywords are specified, all events are disabled.

- **abr**
  
  Enables debugging of Area Border Router (ABR) events.

- **asbr**
  
  Enables debugging of Autonomous System BOundary Router (ASBR) events.

- **os**
  
  Enables debugging of operating system (OS) events.

- **router**
  
  Enables debugging of router events.

**Usage Guidelines**

Use this command to output debug information for OSPFv3 events.
### Examples

To enable all event debug information, enter the following command:
```
debug ipv6 ospf event
```

To disable all event debug information, enter the following command:
```
no debug ipv6 ospf event
```
debug ipv6 ospf ifsm

Enables or disables OSPFv3 Interface State Machine (ISM) troubleshooting, based on ISM information type. If no keywords are specified all ISM information types are enabled. If logging is enabled, results are sent to the logging system.

Product
PDSN
HA
GGSN

Privilege
Security Administrator, Administrator, Operator

Command Modes
Exec

The following prompt is displayed in the Exec mode:
[local]host_name#

Syntax Description
[ no ] debug ipv6 ospf ism [ events | status | timers ]

no
Disables debugging the specified ISM information. If no keywords are specified, all information is disabled.

events
Enables debugging ISM event information.

status
Enables debugging ISM status information.

timers
Enables debugging ISM timer information.

Usage Guidelines
Use this command to output ISM debug information.

Examples
To enable all ISM debug information, enter the following command;
debug ipv6 ospf ism
To disable all ISM debug information, enter the following command:

```
no debug ipv6 ospf ism
```
debug ipv6 ospf lsa

Enables or disables troubleshooting on OSPFv3 Link State Advertisements (LSAs), based on the specific LSA option. If no keywords are specified, all options are enabled. If logging is enabled, results are sent to the logging system.

**Product**
PDSN
HA
GGSN

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
[ no ] debug ip ospf lsa [ flooding | generate | install | maxage | refresh ]
```

- **no**
  Disables the specified LSA debug information. If no keyword is specified, all LSA debug information is disabled.

- **flooding**
  Enables LSA flooding information.

- **generate**
  Enables LSA generation information.

- **install**
  Enables LSA install information.

- **maxage**
  Enables LSA maximum age information in seconds. The maximum age is 3600 seconds.
refresh

Enables LSA refresh information.

Usage Guidelines

Use this command to output debug information for LSAs.

Examples

To enable all LSA debug information, enter the following command;

```plaintext
debug ipv6 ospf lsa
```

To disable all LSA debug information, enter the following command;

```plaintext
no debug ipv6 ospf lsa
```
debug ipv6 ospf nsm

Enables or disables troubleshooting OSPFv3 Neighbor State Machines (NSMs), based on the specific NSM information type. If no keyword is specified, all NSM information types are enabled. If logging is enabled, results are sent to the logging system.

**Product**
- PDSN
- HA
- GGSN

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
[no] debug ipv6 ospf nsm [interface | redistribute]
```

- **no**
  Disables the debugging the specified NSM information type. If no keyword is specified, all information types are disabled.

- **interface**
  Enables debugging NSM on this interface.

- **redistribute**
  Enables debugging NSM redistribution information.

**Usage Guidelines**
Use this command to output debug information for OSPFv3 NSMs

**Examples**
To enable all NSM debug information, enter the following command;
```
deploy ipv6 ospf nsm
```
To disable all NSM debug information, enter the following command;
```
no debug ipv6 ospf nsm
```
**debug ipv6 ospf packet**

Enables or disables troubleshooting of specific OSPFv3 packet information. If logging is enabled, results are sent to the logging system.

**Product**
- PDSN
- HA
- GGSN

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
[ no ] debug ipv6 ospf packet { dd | hello | ls-ack | ls-request | ls-update } { recv | send } { [ detail ] }
```

- **no**
  Disable debugging of the specified packet information.

- **dd**
  Enables debugging database descriptions.

- **hello**
  Enables debugging hello packets.

- **ls-ack**
  Enables debugging link state acknowledgements.

- **ls-request**
  Enables debugging link state requests.

- **ls-update**
  Enables debugging link state updates.
recv
Enables debugging only on received packets.

send
Enables debugging only on sent packets.

detail
Enables detailed information in the debug output.

Usage Guidelines
Use this command to output specific OSPFv3 packet information.

Examples
To enable all packet debug information, enter the following command;
debug ipv6 ospf packet all
To disable all route debug information, enter the following command;
no debug ipv6 ospf packet all
**debug ipv6 ospf route**

Sets the route calculation method to use in debugging OSPFv3 routes. If no route calculation method is specified, all methods are enabled. If logging is enabled, results are sent to the logging system.

**Product**

PDSN  
HA  
GGSN

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```  

**Syntax Description**

```
[ no ] debug ipv6 ospf route [ ase | ia | install | spf ]
```

- **no**
  Disables debugging of route information. If no keyword is specified all information types are disabled.

- **ase**
  Enables debugging information on autonomous system external (ASE) route calculations.

- **ia**
  Enables debugging information on Inter-Area route calculations.

- **install**
  Enables debugging information on route installation.

- **spf**
  Enables debugging information on Shortest Path First (SPF) route calculations.

**Usage Guidelines**

Use this command to output debug information for OSPF routes.
Examples

To enable all route debug information, enter the following command:

```
debg ipv6 ospf route
```

To disable all route debug information, enter the following command:

```
no debg ipv6 ospf route
```
default terminal

Restores the system default value for the terminal options.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name>
```  

**Syntax Description**

```
default terminal { length | width }
```

- `length | width`
  - `length`: Resets the terminal length to the system default.
  - `width`: Resets the system default terminal width.

**Usage Guidelines**

Restore the default terminal settings when the current paging and display wraps inappropriately or pages too soon.

**Examples**

The following sets the default length then width in two commands.

```
default terminal length
default terminal width
```
delete

Removes the specified file(s) permanently from the local.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]\host_name#

Syntax Description

delete filepath [-noconfirm]

filepath

Specifies the location of the file to rename. The path must be formatted as follows:

For the ASR 5000:

[file: ]{/flash | /pcmcia | /hd-raid }[/directory ]/file_name

Important

Use of the ASR 5000 SMC hard drive is not supported in this release.

For the ASR 5500:

[file: ]{/flash | /usb1 | /hd-raid }[/directory ]/file_name

For VPC:

[file: ]{/flash | /hd-raid | /usb1 | /usb2 | /cdrom1 }[/directory ]/file_name

Important

The USB ports and CD-ROM must be configured via the hypervisor to be accessible.

Important

Do not use the following characters when entering a string for the field names below: "/" (forward slash), "." (colon) or "@" (at sign).

directory is the directory name

filename is the actual file of interest
-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Important Use of the -noconfirm option should be done with extra care to ensure the file is specified accurately as there is no method of recovering a file that has been deleted.

**Usage Guidelines**

Deleting files is a maintenance activity which may be part of periodic routine procedures to reduce system space utilization.

**Examples**

The following removes files from the local `/flash/pub` directory.

```
delete /flash/pub/june03.cfg
```
delete support record

Removes a Support Data Record (SDR) with a specified record-id or all SDRs in the specified range of record-ids.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:
```
[local] host_name#
```

**Syntax Description**
```
delete support record <record-id> [ to <record-id> ]
```

*record-id*
Specifies a single SDR as an integer from 0 to 65536.

Each SDR is identified by a time index called the record-id. For example, the most recent record is always record-id 0 (filename = sdr.0.gz). The next older record is record-id 1 (filename = sdr.1.gz), and so on.

*to record-id*
Specifies the endpoint record-id when deleting a range of SDRs.

**Usage Guidelines**
Use this command to delete one or more SDRs stored on the system. For additional information on the Support Data Collector feature, refer to the System Administration Guide.

**Examples**
The following command deletes the SDR with a record-id of 5 (filename = sdr.5.gz):
```
delete support record 5
```
dhcp force

Tests the lease-renewal for DHCP-assigned IP addresses for a particular subscriber.

**Product**

- GGSN
- ASN-GW
- P-GW
- SAEGW

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```plaintext
dhcp force lease-renewal { callid id | imsi imsi | nsapi nsapi | | msid msid }
```

**callid id**

Clears the call ID specified as a 4-byte hexadecimal number.

**imsi msid**

Disconnects the subscriber with the specified msid. The IMSI (International Mobile Subscriber Identity) ID is a 50-bit field which identifies the subscriber’s home country and carrier. Wildcard characters $ and * are allowed. The * wildcard matches multiple characters and the $ wildcard matches a single character. If you do not want the wildcard characters interpreted as a wildcard enclose them in single quotes (’). For example; ’$’.

**nsapi nsapi**

Specifies a Network Service Access Point Identifier (NSAPI) an integer from 5 to 15.

**msid id**

Disconnects the mobile user identified by ms_id. ms_id must be from 7 to 16 digits specified as an IMSI, MIN, or RMI. Wildcard characters $ and * are allowed. The * wildcard matches multiple characters and the $ wildcard matches a single character. If you do not want the wildcard characters interpreted as a wildcard enclose them in single quotes (’). For example; ’$’.
Usage Guidelines

Use this command tests a forced IP address lease renewal for a specific subscriber.

Examples

The following command tests DHCP lease renewal for a subscriber with an MSID of 1234567:

dhcp force lease-renewal msid 1234567
dhcp test

Tests DHCP (Dynamic Host Configuration Protocol) functions for a particular DHCP service.

**Product**
- GGSN
- ASN-GW
- P-GW
- SAEGW

**Privilege**
- Security Administrator, Administrator, Operator

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
dhcp test dhcp-service svc_name | all | server ip_address |
```

- **dhcp-service svc_name**
  Specifies the name of the DHCP service as an alphanumeric string of 1 through 63 characters that is case sensitive.

- **all**
  Tests DHCP functionality for all servers.

- **server ip_address**
  Tests DHCP functionality for the server specified by an IP address entered using IPv4 dotted-decimal notation.

**Usage Guidelines**
Once DHCP functionality is configured on the system, this command can be used to verify that it is configured properly and that it can successfully communicate with the DHCP server.

Executing this command causes the system to request and allocate an IP address and then release it.
If a specific DHCP server is not specified, then each server configured in the service is tested.
Examples

The following command tests the system's ability to get an IP address from all servers a DHCP service called "DHCP-Gi" is configured to communicate with:

dhcp test dhcp-service DHCP-Gi all
**diameter disable endpoint**

Disables a Diameter endpoint without removing the peer's configuration.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:
```
[local] host_name#
```

**Syntax Description**
```
diameter disable endpoint endpoint_name peer peer_id
```

*endpoint_name*
Specifies the endpoint in which the peer is configured as an alphanumeric string of 1 through 63 characters.

*peer peer_id*
Specifies the Diameter peer host name to be disabled as an alphanumeric string of 1 through 63 characters.

**Usage Guidelines**
Use this command to administratively disable a Diameter peer without removing the peer configuration. This command will tear down all connections on the specified peer (by sending a DPR if the configuration demands the same at peer level configuration). The peer will remain in disabled state until it is enabled again. Also see the `diameter enable endpoint` command.

**Examples**
This command disables the Diameter peer peer12:
```
diameter disable endpoint endpoint1 peer peer12
```
diameter enable endpoint

Enables a Diameter endpoint that is disabled.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
diameter enable endpoint endpoint_name peer peer_id
```

*endpoint_name*
Specifies the endpoint in which the peer is configured as an alphanumeric string of 1 through 63 characters.

*peer peer_id*
Specifies the Diameter peer host name to be enabled as an alphanumeric string of 1 through 63 characters.

**Usage Guidelines**
Use this command to administratively enable a Diameter peer. Also see the `diameter disable endpoint` command.

**Examples**
This command enables the Diameter peer `peer12`:
```
diameter enable endpoint endpoint1 peer peer12
```
**diameter reset connection**

Resets individual TCP/SCTP connections for a specified Diameter endpoint.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

[local]\host_name#

**Syntax Description**

`diameter reset connection { endpoint endpoint_name peer peer_id }`

- **endpoint endpoint_name**
  Resets connection to the endpoint specified as an alphanumeric string of 1 through 63 characters.

- **peer peer_id**
  Resets connection to the Diameter peer host name specified as an alphanumeric string of 1 through 63 characters.

**Usage Guidelines**

Use this command to reset the TCP/SCTP connections for the specified endpoint/peer. With this command, the connection will be closed temporarily after DPR/DPA. If there is any traffic to be sent to the particular peer, then the connection will be re-established.

This command overrides the endpoint configured in any other configuration mode.

This command is applicable only when the specified peer is enabled.

**Examples**

This command resets connection to the endpoint named *test123*:

`diameter reset connection endpoint test123`
diameter reset route failure

Resets the failed route status of a Diameter destination-host combination via peer to AVAILABLE status.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

diameter reset route failure [ endpoint endpoint_name ] [ host host_name ] [ peer peer_id ]

endpoint endpoint_name

Resets paths to the endpoint specified as an alphanumeric string of 1 through 63 characters.

host host_name

Resets the FAILED status of all Diameter destination-host combination routes via peer for every Diameter client within the chassis having a specific host name to AVAILABLE.

Specifies the Diameter host name as an alphanumeric string of 1 through 63 characters.

peer peer_id

Resets the FAILED status of all Diameter destination-host combination routes via a peer having specific peer-Id for every Diameter client within the chassis to AVAILABLE.

Specifies the Diameter peer host name as an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to reset the FAILED status of all Diameter destination-host combination routes via peer for every Diameter client within the chassis to AVAILABLE status.

This command also resets the failure counts used to determine the AVAILABLE/FAILED status of a destination-host combination.

When executed from local context, this command matches all contexts. If an optional keyword is not supplied, a wildcard is used for the value.
The status of every matching combination of destination-host via peer for every matching Diameter client within the chassis will be reset to AVAILABLE. The failure counts that are used to determine AVAILABLE/FAILED status will also be reset.

Also see the route-entry and route-failure commands in the Diameter Endpoint Configuration Mode Commands chapter.

Default value: N/A

**Examples**

The following command resets the FAILED status of all Diameter destination-host combination routes via peer for every Diameter client within the chassis for specified endpoint name to AVAILABLE.

```
diameter reset route failure endpoint endpoint123
```
directory

Lists the files in a specified location.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
directory *filepath* [ -size ] [ -reverse ] [ -time ]

*filepath*
Specifies the directory path to list the contained files using the following format:

For the ASR 5000:

```
[ file: ]{/flash | /pcmcia1 | /hd }/directory /file_name
```

---

**Important**
Use of the ASR 5000 SMC hard drive is not supported in this release.

For the ASR 5500:

```
[ file: ]{/flash | /usb1 | /hd }/directory /file_name
```

For VPC:

```
[ file: ]{/flash | /hd-raid | /usb1 | /usb2 | cdrom1 }/directory /file_name
```

---

**Important**
The USB ports and CD-ROM must be configured via the hypervisor to be accessible.

---

**Important**
Do not use the following characters when entering a string for the field names below: "/" (forward slash), ":" (colon) or "@" (at sign).

directory is the directory name

filename is the actual file of interest
Indicates the size of each file should be displayed in the output.

-reverse
Indicates the order of files listed should be in descending order (z-aZ-A9-0). Default is to sort in ascending order (0-9A-Za-z).

-time
Indicates the last modification timestamp of each file should be displayed in the output.

Usage Guidelines
Lists such things as log and crash files from multiple nodes within the network.
The optional arguments may be specified individually or in any combination.

Examples
The following command will list the files in the local /flash/pub directory sorted in reverse order.
directory /flash/pub -reverse
disable radius

Prevents the system from making requests of a selected RADIUS server.

**Product**

All

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
disable radius { [ charging ] [ accounting ] server ipv4/ipv6_address [ group group_name | port port_number + ] }
```

- **charging** | **accounting**

Specifies the type of RADIUS server to disable.

- **accounting**: Specifies accounting servers
- **charging** : Specifies charging servers
- **charging accounting**: Specifies charging accounting servers

**server ipv4/ipv6_address**

Specifies the RADIUS server by IP address entered using IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

**port port_number**

Specifies the port number of the RADIUS server being disabled an integer from 0 through 65535. Default: 1812 (authentication) 1813 (accounting)

**group group_name**

Specifies the RADIUS group to which the server belongs as an alphanumeric string of 1 through 63 characters. Use this option in the event that the RADIUS server belongs to multiple groups and you only want to disable the server within the specific group. Default: default
**Usage Guidelines**

Use this command to gracefully stop the system from making requests of a specific RADIUS server.

**Examples**

The following command disables a RADIUS accounting server with an IP address of 10.2.3.4, the default accounting server port number, and that resides in the Group5 server group:

`disable radius accounting server 10.2.3.4 group Group5`
**dns-client**

Performs DNS (Domain Name System) query on the basis of specified DNS client name, DNS query domain name, and type of query criteria.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
dns-client dns_client_name [ query-type { A | AAAA | NAPTR | SRV } ] query-name query_domain_name
```

**dns-client dns_client_name**

Specifies the name of the DNS client whose cache and/or statistics are to be queried. It must be an existing DNS client expressed as an alphanumeric string of 1 through 64 characters.

**query-type { A | AAAA | NAPTR | SRV }**

Specifies that the type of query to perform for the defined DNS client is to be displayed.

- **A**: Filters DNS results based on domain IPv4 address records (A records). This is the default query type.
- **AAAA**: Filters DNS results based on domain IPv6 address records (AAAA records).
- **NAPTR**: Filters DNS results based on Naming Authority Pointer records (NAPTR).
- **SRV**: Filters DNS results based on service host records (SRV records).

**query-name query_domain_name**

Filters the DNS results based on the query domain name expressed as an alphanumeric string of 1 through 255 characters.

*query_domain_name* is the domain name used to perform the DNS query and is different from the actual domain name which is resolved. For example, to resolve the SIP server for *service.com*, the query name is *_sip._udp.service.com* and the query type is **SRV**.
Usage Guidelines

Use this command to perform DNS query on the basis of DNS Client name and filters the query results based on query type and query name. This command also populates the result into DNS Cache. This command uses the current context to DNS request.

Examples

The following command displays statistics for a DNS client named test_dns with query type for IP address as A and query name as domain1.com:

dns-client test_dns query-type A query-name domain1.com
egtpc test echo

Tests the ability of a GGSN/P-GW service to exchange GTP-C echo request messages with specified peer(s).

**Product**
- GGSN
- P-GW
- SAEGW

**Privilege**
Operator, Config-Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
egtpc test echo gtp-version version src-address ip_address { all | peer-address ip_address }
```

- **gtp-version**
  Specifies version number for sending Echo request message.
  `version` must be an integer from 0 through 2.

- **src-address**
  Specifies the IP address of a Gn interface configured on the system.
  `ip_address` must be entered using IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation.

- **all**
  Sends GTP-C echo requests to first 100 peers that currently have sessions with the GGSN/P-GW service.

---

**Important**
- If peer is not a new peer for service bind to `src-address`, then echo request is sent with the last known highest version of the peer.
- The IP address of the system's Gn interface must be bound to a configured GGSN/P-GW service prior to executing this command.
If this keyword is selected, additional confirmation is required after the following message, "Warning: Due to possibility of huge number of connected peers, considering system performance impacts, issue echo request to only 100 peers".

Important

peer-address ip_address

Specifies that GTP-C echo requests will be sent to a specific peer.

ip_address must be entered using IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation.

Usage Guidelines

This command tests the GGSN's or P-GW's ability to exchange GPRS Tunneling Protocol control plane (GTP-C) packets with the specified peer. This command is useful for troubleshooting and/or monitoring. This command must be executed from within the context in which the GGSN/P-GW service is configured.

Important

In StarOS v14.0 and later, this command replaces the gtpv0 test echo and gtpc test echo commands.

Examples

The following command issues GTP-C echo packets from a GGSN service bound to address 192.168.157.43 to an SGSN with an address of 192.168.1.52:

egtpc test echo gtp-version 1 src-address 192.168.157.43 peer-address 192.168.1.52
enable radius

Enables the system to start making requests of a specific RADIUS server.

**Product**

All

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
enable radius { [ charging ] [ accounting ] server ipv4/ipv6_address | group group_name | port port_number + ] }
```

- `[ charging ] [ accounting ]`: Specifies the type of RADIUS server to enable.
  - `accounting`: Specifies accounting servers
  - `charging`: Specifies charging servers
  - `charging accounting`: Specifies charging accounting servers

- `server ipv4/ipv6_address`
  Specifies the RADIUS server by an IP address entered using IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

- `port port_number`
  Specifies the port number of the RADIUS server being enabled as an integer from 0 through 65535. Default: 1812 (authentication) 1813 (accounting)

- `group group_name`
  Specifies the RADIUS group to which the server belongs as an alphanumeric string of 1 through 63 characters. Use this option in the event that the RADIUS server belongs to multiple groups and you only want to disable the server within the specific group. Default: `default`
enable radius

Usage Guidelines

Use this command to allow the system to start making requests of a specific RADIUS server.

Examples

The following command enables a RADIUS accounting server with the IP address 10.2.3.4, the default accounting server port number, and in the Group5 server group:

```
enable radius accounting server 10.2.3.4 group Group5
```
**exit**

Terminates the current CLI session.

**Product**  
All

**Privilege**  
Any

**Syntax Description**  
`exit`

**Usage Guidelines**  
Use this command to terminate the current CLI session.
filesystem

Use this command to check, format or repair the filesystem on internal and external storage devices.

Product
All

Privilege
Security Administrator, Administrator

Command Modes
Exec

The following prompt is displayed in the Exec mode:
[local]host_name$ 

Syntax Description
For the ASR 5000:
filesystem { check | format | repair | synchronize } { /flash | /pcmcia1 | /hd-raid } [ card slot_num ]
For the ASR 5500:
filesystem { check | format | repair | synchronize } { /flash | /usb1 | /hd-raid } [ card slot_num ]
For VPC:
filesystem { check | format | repair | synchronize | update } { /flash | /hd-raid | /usb1 | /usb2 | cdrom1 }

The following devices are supported based on platform type:

- /flash – ASR 5x00, VPC
- /hd-raid – ASR 5x00, VPC
- /pcmcia1 – ASR 5000 only
- /usb1 – ASR 5500, VPC (if configured via hypervisor)
- /usb2 – VPC (if configured via hypervisor)
- /cdrom1 – VPC (if configured via hypervisor)

Important
For VPC, the USB ports and CD-ROM must be configured via the hypervisor to be accessible by the Control Function (CF) virtual machine.

check
Checks for filesystem corruption.
The following command formats the PCMCIA card located in slot 1 on the SMC (ASR 5000):
filesystem format /pcmcia1
filesystem synchronize

Use this command to synchronize the file systems of active and standby storage devices on management cards or VPC-DI Control Function (CF) virtual machines.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

For the ASR 5000:

```
filesystem synchronize [/flash | /pcmcia1 | all] [checkonly] [from card_num | to card_num] [-noconfirm]
```

For the ASR 5500:

```
filesystem synchronize [/flash | /usb1 | all] [checkonly] [from card_num | to card_num] [-noconfirm]
```

For VPC:

```
filesystem synchronize [/flash | /usb1 | /usb2 | cdrom1 | all] [checkonly] [from card_num | to card_num] [-noconfirm]
```

The following devices are supported based on platform type:

- `/flash` – ASR 5x00, VPC
- `/hd-raid` – ASR 5x00, VPC
- `/pcmcia1` – ASR 5000 only
- `/usb1` – ASR 5500, VPC (if configured via hypervisor)
- `/usb2` – VPC (if configured via hypervisor)
- `/cdrom1` – VPC (if configured via hypervisor)
- `all` – Selects all file systems

**checkonly**

Checks for file system corruption; does not modify file systems.
from card_num | to card_num |
Copies files from a source card to a destination card specified by slot numbers.

-noconfirm
Executes the command without displaying "are you sure" prompts.

Usage Guidelines
Synchronize the file systems between active and standby storage devices.

Examples
The following command all file systems on system management cards:
filesystem synchronize all

The following command sequence appears when filesystem synchronize /flash is run after save configuration /flash/filename -redundant is executed and a change has been made to the configuration:
filesystem synchronize /flash
2 to be updated on card 2
 /flash/oam.cfg
 /flash/service.cfg
0 to be updated (but are newer) on card 2
0 to be deleted on card 2
Are you sure? [Yes|No]:

You must confirm the synchronization before it will be initiated.
If "No files to update" appears, you are returned to the CLI prompt.
gtp test echo

Tests the ability of a GGSN service to exchange GTP-C echo request messages with the specified SGSN(s).

**Product**
- GGSN

**Privilege**
- Security Administrator, Administrator, Operator

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name>
```

**Syntax Description**

```
gtp test echo src-address gn_address { all | sgsn-address ip_address }
```

- `src-address gn_address`
  Specifies the IP address of a Gn interface configured on the system in IPv4 dotted-decimal notation.

  **Important**
  The IP address of the system's Gn interface must be bound to a configured GGSN service prior to executing this command.

- `all`
  Specifies that GTP-C echo requests will be sent to all SGSNs that currently have sessions with the GGSN service.

- `sgsn-address ip_address`
  Specifies that GTP-C echo requests will be sent to a SGSN specified by an IP address in IPv4 dotted-decimal notation.

**Usage Guidelines**

This command tests the GGSN's ability to exchange GPRS Tunneling Protocol control plane (GTP-C) packets with the specified SGSNs. This command is useful for troubleshooting and/or monitoring.

This command must be executed from within the context in which the GGSN service is configured.

Refer also to the `gtpu test` command.
In StarOS v14.0 and later, this command has been replaced by the `egtpc test echo` command.

**Examples**

The following command issues GTP-C echo packets from a GGSN service bound to address 192.168.157.32 to an SGSN with an address of 192.168.157.2:

```plaintext
gtpc test echo src-address 192.168.157.32 sgsn-address 192.168.157.2
```
gtpp interim now

Check points current GTPP accounting messages and identifies which types of interim CDRs are to be generated and sent to the external charging/storage servers (for example, a CFG or a GSS). The impact of this command is immediate.

Product

GGSN
SGSN
SGW

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

gtpp interim now [ active-charging egcdr | apn apn_name | callid call_id | cdr-types { gcdr | mcdr | scdr } | dhcp-server ip_address | gprs-service svc_name | ggsn-address ggsn_ip_addr | ggsn-service svc_name | imsi imsi | ip-address sub_address | username name | ip-address sub-address | username name | ip-address | username name | ip-pool pool_name | mcc mcc_number | mcc mcc_number | mnc mnc_number | msisdn msisdn_num | sgsn-address ip_address | sgsn-service svc_name | username name ] +

active-charging

This feature is specific to the GGSN and is documented separately.

apn apn_name

Initiates GTPP interim accounting for all PDP contexts accessing the APN specified as an alphanumeric string of 1 through 62 characters that is case sensitive.

callid call_id

Identifies a specific call id as an 8-digit hexadecimal number.

cdr-types { mcdr | scdr }

Specifies the CDR types to be generated by the SGSN:

gcdr - Instructs the GGSN to only generate G-CDRs.

mcdr - Instructs the SGSN to only generate M-CDRs
scdr - Instructs the SGSN to only generate S-CDRs. This keyword is specific to the SGSN.

dhcp-server ip_address
Identifies the DHCP server where the IP address (defined with the ip address keyword) was allocated by the IP address of the DHCP server entered using IPv4 dotted-decimal notation.

ggsn-address ggsn_ip_addr
Specifies the IP address of the interface to the GGSN using IPv4 dotted-decimal notation. This keyword is specific to the GGSN.

ggsn-service svc_name
Initiates GTPP interim accounting for all PDP contexts currently being facilitated by the GGSN service specified as an alphanumeric string of 1 through 63 characters that is case sensitive. This keyword is specific to the GGSN.

grps-service svc_name
Initiates GTPP interim accounting for all PDP contexts currently being facilitated by an existing GPRS service specified as an alphanumeric string of 1 through 63 characters that is case sensitive. This keyword is specific to the SGSN.

imsi imsi [ ip-address sub_address [ username name ] | nsapi nsapi [ ip-address sub-address [ username name ] | [ username name ] ] ]
Initiates GTPP interim accounting for a specific International Mobile Subscriber Identity (IMSI) number. The request could be further filtered using any of the following keywords:

• ip-address: Interim accounting will be performed for the IP address specified by sub_address. The command can be further filtered by specifying a specific username with that address.

• nsapi: Interim accounting will be performed for a Network Service Access Point Identifier (NSAPI) specified as an integer from 5 to 15. The command can be further filtered by specifying a specific ip address and/or a username with that address, or just a specific username.

ip-address sub_address [ username name ]
Initiates GTPP interim accounting for the IP address of the subscriber specified in IPv4 dotted-decimal notation. The command can be further filtered by specifying a username with that address. The name is the subscriber's name and can be a sequence of characters and/or wildcard characters ('*' and '$') from 1 to 127 characters. The * wildcard matches multiple characters and the $ wildcard matches a single character. If you do not want the wildcard characters interpreted as wildcard enclose them in single quotes (' '). For example; 'S'.

ip-pool pool_name
Initiates GTPP interim accounting for all PDP contexts that were allocated IP addresses from an existing pool specified as an alphanumeric string of 1 through 31 characters that is case sensitive. This keyword is applicable to the GGSN only.
**mcc mccc_number mnc mnc_number**

*mcc_number*: Specifies the mobile country code (MCC) portion of the PLMN identifier and can be configured to any 3-digit integer value between 100 and 999.

*mnc_number*: Specifies the mobile network code (MNC) portion of the PLMN identifier and can be configured to any 2- or 3-digit integer between 00 and 999.

**msisdn msisdn_num**

Configures the SGSN to include the Mobile Subscribers Integrated Services Digital Network identifier in generated CDRs (M-CDRs and/or the S-CDRs). This keyword is applicable for SGSN only.

*msisdn_number* must be followed by a valid MSISDN number, consisting of 1 to 15 digits.

**sgsn-address ip_address**

Initiates GTPP interim accounting for all PDP contexts currently being facilitated by the SGSN specified by an IP address in IPv4 dotted-decimal notation. This keyword is specific to the GGSN.

**sgsn-service svc_name**

Initiates GTPP interim accounting for all PDP contexts currently being facilitated by an existing SGSN service specified an alphanumeric string of 1 through 63 characters that is case sensitive. This keyword is specific to the SGSN.

**username name**

Initiates GTPP interim accounting for all PDP contexts for the subscriber name specified as an alphanumeric string of 1 through 127 characters that is case sensitive.

+ 

More than one of the above keywords can be entered within a single command.

**Usage Guidelines**

This command causes GTPP accounting CDRs to immediately be generated for all active sessions that are in the current context. If executed within the local context, CDRs will be generated for all active sessions regardless of context. This command generates only certain types of CDRs including GCDRs, SGWCDRs, and SCDRs.

The sending of the CDRs is paced so as not to overload the accounting server.

**Examples**

The following command causes CDRs to immediately be generated:

```
gtppp interim now
```
gtpp interim now active-charging egcdr

Check points current GTPP accounting messages for active charging immediately.

**Product**
- GGSN

**Privilege**
- Security Administrator, Administrator, Operator

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
gtpp interim now active-charging egcdr [ callid call_id | imsi imsi | msid msid | rulebase rbase_name | session-id sess_id | username name ]
```

**callid call_id**
- Initiates GTPP interim accounting for a session for the call ID specified as an 8-digit hexadecimal number.

**imsi imsi**
- Initiates GTPP interim accounting for a International Mobile Subscriber Identity (IMSI) number. specified as a sequence of hexadecimal digits and wildcard characters - $ matches a single character and * matches multiple characters

**msid msid**
- Initiates GTPP interim accounting for a Mobile Station Identifier (MSID) number specified as a sequence of up to 24 digits and wildcard characters - $ matches a single character and * matches multiple characters

**rulebase rbase_name**
- Initiates GTPP interim accounting for sessions that use the named active charging rulebase specified as an alphanumeric string of 1 through 24 characters.

**session-id sess_id**
- Initiates GTPP interim accounting for a current active charging session.

**Usage Guidelines**
- This command causes GTPP accounting eG-CDRs to immediately be generated for active charging sessions that meet the specified criteria.
The sending of the CDRs is paced so as not to overload the accounting server.

**username name**

Initiates GTPP interim accounting for all PDP contexts for the subscriber name specified as an alphanumeric string of 1 through 127 characters that is case sensitive.

**Examples**

The following command causes eG-CDRs to immediately be generated for active charging sessions using the rulebase named rulbase1:

```
gtpp interim now active-charging egcdr rulebase rulebase1
```
**gtpp storage-server commit**

Causes the GTPP storage server to archive all buffered packets.

**Product**
- GGSN
- P-GW
- SAEGW

**Privilege**
- Security Administrator, Administrator, Operator

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
gtpp storage-server commit now [ group name group_name ]
```

**group name group_name**
Commits Storage Server for an existing group name expressed as an alphanumeric string of 1 through 63 characters.

**Usage Guidelines**

This command sends a request to the GTPP Storage Server to archive all buffered packets. It also deletes all CDRs that have been acknowledged by the charging gateway function (CGF). The deleted CDRs are saved in a separate file.

Note that this command must be executed from within the context in which the GTPP Storage Server is configured.

Refer to the `gtpp storage-server` command in the *Context Configuration Mode Commands* chapter for more information.
gtpp storage-server streaming start

This command enables to start streaming of the copied CDR files from active chassis when the ICSR switchover occurs.

Important
This command is obsolete in release 16.0. In 16.0 and later releases, use the "gtpp push-to-active url" CLI command in global configuration mode to enable the automatic transfer of stranded CDRs to active chassis.

Product
GGSN
P-GW
S-GW
SGSN

Privilege
Security Administrator, Administrator, Operator

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

gtpp storage-server streaming start [ group name group_name ]

group name group_name
Specifies the name of a GTPP group configured in the current context as an alphanumeric string of 1 through 63 characters.

Note that, if the group name is not specified, then all the GTPP groups in the current context will be considered. If the group name is specified, then only the group provided in this CLI command will be considered.

Usage Guidelines

This command is used to resynchronize the CDRs left on local HDD with the active GTPP streaming feed to transfer the CDRs from active chassis to IT mediation device during ICSR switchover.

Note that this CLI command must be executed from within the context in which the GTPP Storage Server is configured.

In the event of ICSR switchover, to transfer the copied CDRs from active chassis to IT mediation device, follows these steps:
1. Manually copy files from old active chassis to new active chassis.
2. Issue this CLI command "gtpp storage-server streaming start" to start streaming of the copied files from active chassis.
3. If the streaming is in progress, then wait till the current file is fully streamed out. After the current file is fully streamed out, then rebuild the file list (to get the copied CDR files) and start streaming based on the timestamp.
4. If the streaming is not in progress then rebuild the file list (to get the copied CDR files) and start streaming.
**gtpp test**

Tests communication with configured Charging Gateway Function (CGF) servers or a GTPP Storage-Server.

**Product**

- ePDG
- GGSN
- P-GW
- SAEGW
- SGSN

**Privilege**

Operator, Config-Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#  
```

**Syntax Description**

```
gtpp test { accounting { all | cgf-server ipv4/ipv6_address | group name group_name } | storage-server { address ipv4/ipv6_address port udp-port | group name group_name } }
```

**all**

Tests all CGFs configured within the given context.

**cgf-server ipv4/ipv6_address**

Tests a CGF configured within the given context and specified by the IP address of the CGF entered using IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation.

**group name group_name**

Tests the storage server for an existing group name specified as an alphanumeric string of 1 through 63 characters.

**storage-server [ address ipv4/ipv6_address port udp-port ]**

Tests the connectivity and provides round trip time for the echo request sent to the GTPP Storage-Server configured in the requested context. The IP address of the GSS is entered using IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation and the UDP port is the one defined for the GTPP Storage Server.
Usage Guidelines

This command is used to verify the configuration of and test the system's ability to communicate with one or all configured GSS/CGFs for monitoring or troubleshooting purposes.

When executed, this command causes the system to send GTPP echo packets to the specified GSS/CGF(s). The command's response will display whether the GSS/CGF is active or unreachable.

Examples

The following command tests communication with a CGF server having an IP address of 192.168.1.5:

gtp test accounting cgf-server 192.168.1.5

The following command tests communication with a GSS configured in requested context:

gtp test storage-server

The following command verifies the communication with a GSS having an IP address of 192.156.12.10 and port 50000, without configuring it in a context:

gtp test storage-server address 192.156.12.10 port 50000
gtpu test echo

Tests the ability of a GGSN/P-GW/SAEGW/SGSN/S-GW service to exchange GTP-U echo request messages with specified peer(s).

**Product**
- GGSN
- P-GW
- SAEGW
- SGSN
- S-GW

**Privilege**
- Operator, Config-Administrator, Administrator

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

StarOS v12.x and earlier:

```
gtpu test echo src-address gn_address { all | sgsn-address ip_address } 
```

StarOS v14.0 and later:

```
gtpu test echo gtpu-service service_name { all | peer-address ip_address } [ gtpu-version { 0 | 1 } ] 
```

**Important**

The IP address of the system's Gn interface must be bound to a configured GGSN service prior to executing this command.

- `all`
  Sends GTP-U echo requests to all SGSNs that currently have sessions with the GGSN service.

- `sgsn-address ip_address`
  Sends GTP-U echo requests to an SGSN specified by its IP address in IPv4 dotted-decimal notation.
**gtpu-service** *service_name*

Specifies an existing GTP-U service.

*service_name* is an alphanumeric string of 1 through 63 characters.

**all**

Sends GTP-U echo requests to first 100 peers that currently have sessions with the GTP-U service.

---

**peer-address** *ip_address*

Specifies that GTP-U echo requests will be sent to a specific peer.

*ip_address* must be entered using IPv4 dotted-decimal notation or IPV6 colon-separated-hexadecimal notation.

**gtpu-version** {0 | 1}

Optional. Specifies the GTP-U version in which the test echo will be sent. 0 specifies GTP-U version 0, and 1 specifies GTP-U version 1.

- If the GTP-U version of the peer is unknown, the GGSN/P-GW/SAEGW/SGSN/S-GW will use the user-configured GTP-U version.
- If the GTPU version of peer node is already known, the test echo is sent in the known GTP-U version.
- If the GTP-U version is not configured, and the peer version is unknown, the test echo is sent in GTP-U version 0.

---

**Usage Guidelines**

This command tests the GGSN/P-GW/SAEGW/SGSN/S-GW’s ability to exchange GPRS Tunneling Protocol user plane (GTP-U) packets with the specified SGSNs/peer(s). This command is useful for troubleshooting and/or monitoring.

---

**Important**

This command returns statistics on the number of packets transmitted and received; however, statistics are displayed right after transmitting the "echo" packet, but before receiving the response. Therefore, received statistics are always off by one. For more information, the same command should be run twice.

For example:

```
[ingress]asr5000# gtpu test echo gtpu-service sgw_ingress_gtpu peer-address 192.45.1.6
gtpu-version 1
GTPU test echo
--------------
PEER: 192.45.1.6 Tx/Rx: 1/0 RTT(ms): 0 Recovery

[ingress]asr5000#
[ingress]asr5000# gtpu test echo gtpu-service sgw_ingress_gtpu peer-address 192.45.1.6
gtpu-version 1
GTPU test echo
--------------
PEER: 192.45.1.6 Tx/Rx: 2/1 RTT(ms): 4285432 (COMPLETE)
```
Refer also to the `gtpc test` command.

**Examples**

The following command issues GTP-U echo packets from a GGSN service bound to address 192.168.157.43 to an SGSN with an address of 192.168.1.52:

```
gtpu test echo src-address 192.168.157.43 sgsn-address 192.168.1.52
```

The following command issues GTP-U echo packets from a GTP-U service named `gtpu_1` to the first 100 connected peers:

```
gtpu test echo gtpu-service gtpu_1 all
```
gtpv0 test echo

Tests the ability of a GGSN service to exchange GTPv0 echo request messages with the specified SGSN(s).

Product GGSN

Privilege Security Administrator, Administrator, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

```
gtpv0 test echo src-address gn_address { all | sgsn-address ip_address }
```

`src-address gn_address`

Specifies the IP address of a Gn interface configured on the system using IPv4 dotted-decimal notation.

**Important**

The IP address of the system's Gn interface must be bound to a configured GGSN service prior to executing this command.

```
all
```

Sends GTPv0 echo requests to all SGSNs that currently have sessions with the GGSN service.

```
sgsn-address ip_address
```

Sends GTPv0 echo requests to an SGSN specified by its IP address in IPv4 dotted-decimal notation.

Usage Guidelines

This command tests the GGSN's ability to exchange GPRS Tunneling Protocol version 0 (GTPv0) packets with the specified SGSNs which can be useful troubleshooting and/or monitoring.

This command must be executed from within the context in which the GGSN service is configured.

Refer also to the `gtpc test` and `gtput test` commands.

**Important**

In StarOS v14.0 and later, this command has been replaced by the `egtpc test echo` command.
The following command issues GTPv0 echo packets from a GGSN service bound to address 192.168.1.33 to an SGSN with an address of 192.168.1.42:

gtpv0 test echo src-address 192.168.1.33 sgsn-address 192.168.1.42
hd raid

Performs RAID management operations on the platform's hard disk drives.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name# ...
```

**Syntax Description**
For the ASR 5000:

```
hd raid { check | create { local1 | remote1 } | insert { local1 | remote1 } | overwrite { local1 | remote1 } | directory pathname | limit number_files | mtime minutes } | remove { local1 | remote1 } | select { local1 | remote1 } } | -force | -noconfirm |
```

For the ASR 5500:

```
hd raid { check | create { hd13 | hd14 | hd15 | hd16 | hd17 | hd18 } | insert { hd13 | hd14 | hd15 | hd16 | hd17 | hd18 } | overwrite { hd13 | hd14 | hd15 | hd16 | hd17 | hd18 } | quarantine { directory pathname | limit number_file | mtime minutes } | remove { hd13 | hd14 | hd15 | hd16 | hd17 | hd18 } } | -force | -noconfirm |
```

For VPC:

```
hd raid { check | create | insert | overwrite | quarantine { directory pathname | limit number_files | mtime minutes } | remove } { local1 | local2 } | -force | -noconfirm |
```

**check**
Starts a background check on RAID disks unless the RAID is running in degraded mode.

**create { local1 | remote1 }**
On the ASR 5000, creates a new RAID that could run in degraded mode on the specified drive:
- **local1** specifies the RAID is to be established on the primary SMC.
- **remote1** specifies the RAID is to be established on the backup SMC.

**create hd_num**
On the ASR 5500, creates a new RAID that could run in degraded mode on the hard drive array of a specific FSC.
*hd_num* specifies the RAID is to be established. *hd_num* corresponds to the FSC in slot numbers as shown below:

- hd13 = disk in slot 13
- hd14 = disk in slot 14
- hd15 = disk in slot 15
- hd16 = disk in slot 16
- hd17 = disk in slot 17
- hd18 = disk in slot 18

**create { local1 | local2 }**

On VPC, creates a new virtual RAID as vHD Local1 or vHD Local2.

**insert { local1 | remote1 }**

On the ASR 5000, inserts the specified disk to the running RAID causing it to recover from degraded mode.

- **local1** specifies the primary SMC is to be inserted into the RAID.
- **remote1** specifies the backup SMC is to be inserted into the RAID.

**insert hd_num**

On the ASR 5000, inserts the specified FSC disk array into the running RAID causing it to recover from degraded mode.

*hd_num* specifies the RAID is to be established. *hd_num* corresponds to the FSC in slot numbers as shown below:

- hd13 = disk in slot 13
- hd14 = disk in slot 14
- hd15 = disk in slot 15
- hd16 = disk in slot 16
- hd17 = disk in slot 17
- hd18 = disk in slot 18

**insert { local1 | local2 }**

On VPC, inserts the specified vHD into the running RAID causing it to recover from degraded mode.

**overwrite { local1 | remote1 }**

On the ASR 5000, overwrites the specified disk and adds it to the current running RAID to construct a fully mirrored array.

- **local1** specifies the primary SMC is to be inserted into the RAID.
- **remote1** specifies the backup SMC is to be inserted into the RAID.
overwrite hd_num

On the ASR 5500, overwrites the specified FSC disk array and adds it to the current running RAID to reconstruct the RAID 5 array.

`hd_num` specifies the RAID to be established. `hd_num` corresponds to the FSC in slot numbers as shown below:

- hd13 = disk in slot 13
- hd14 = disk in slot 14
- hd15 = disk in slot 15
- hd16 = disk in slot 16
- hd17 = disk in slot 17
- hd18 = disk in slot 18

overwrite { local1 | local2 }

On VPC, overwrites the specified vHD and adds it to the current running RAID to construct a fully mirrored array.

quarantine { directory pathname | limit number_files | mtime minutes }

Recovers and quarantines dirty-degraded RAID files.

- **directory** specifies the directory to which files are to be moved. `pathname` is expressed as an alphanumeric string of 1 through 29 characters. Default = "lost+found"
- **limit** sets the maximum number of files to quarantine. `number_files` is an integer from 0 to 1000000; 0 is unlimited. Default = 3000 (10 files per second within 5 minutes).
- **mtime** specifies within how many minutes the file is modified to be considered suspects for quarantine. `minutes` is an integer from 0 through 1440; 0 means no files would be quarantined. Default = 5

remove { local1 | remote1 }

On the ASR 5000, removes the specified disk from the running RAID causing it to run in degraded mode or to fail.

- **local1** specifies the primary SMC is to be inserted into the RAID.
- **remote1** specifies the backup SMC is to be inserted into the RAID.

remove hd_num

On the ASR 5500, removes the specified FSC disk array from the running RAID causing it to run in degraded mode or to fail.

`hd_num` specifies the RAID to be established. `hd_num` corresponds to the FSC in slot numbers as shown below:

- hd13 = disk in slot 13
- hd14 = disk in slot 14
**remove { local1 | local2 }**

On the VPC, removes the specified vHD from the running RAID causing it to run in degraded mode or to fail.

**select { local1 | remote1 }**

On the ASR 5000, selects the specified disk to assemble a RAID when two unrelated RAID disks are present in the system. The resulting RAID runs in degraded mode.

- **local1** specifies the primary SMC is to be inserted into the RAID.
- **remote1** specifies the backup SMC is to be inserted into the RAID.

**-noconfirm**

Executes the command without displaying "Are you sure" prompt.

**-force**

Executes the command and overrides warnings.

**Usage Guidelines**

All commands need confirmation unless the **-noconfirm** is included in the command. If the result will bring down a running RAID, you have to force the command using **-force**.

RAID commands are needed to intervene in the following situations:

- The hard disk controller task can not determine the correct operation.
- Administrative action is required by policy.
- The administrator wants to wipe out an unused disk.

In an automated system, the policies created with this CLI address the possibility of a manually partitioned disk, a disk resulting from a different version of software, a partially constructed disk, or the case of two unrelated disks in the system.

To reduce administrator intervention, a set of policies can be configured to set the default action using the commands in the HD RAID configuration mode. These commands are described in the *HD Storage Policy Configuration Mode Commands* chapter of this guide.

**Caution**

Use of the **hd raid** commands and keywords has the potential for deleting the contents of hard disk drives without the possibility of recovery. You should only use these commands under guidance from the Cisco Technical Assistance Center (TAC).
Important

*For release 19.2 and higher on the ASR 5500, only those hd<slot> arrays having an FSC in the slot number with available disks can be specified.*

Examples

The following instructs the system to setup a RAID on the primary ASR 5000 SMC hard drive.

```
hd raid create local1 -force
```
**host**

Used to resolve the IP address or logical host name information via a DNS query.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
host { host_name | host_ip_address }
```

- **host_name | host_ip_address**
  
  Specifies the host for which IP information is to be displayed.

  - **host_name**: Specifies the logical host name for which the IP address is to be displayed (via DNS lookup).
    
    This is an alphanumeric string of 1 through 127 characters.

  - **host_ip_address**: Specifies the IP address for which the associated logical host name(s) are to be displayed (via reverse DNS lookup) using IPv4 dotted-decimal notation.

**Usage Guidelines**

Verify DNS information which affects connections and packet routing.

**Examples**

The following commands will resolve the host information for *remoteABC* and *10.2.3.4* respectively.

```
host remoteABC
host 10.2.3.4
```
install plugin

Unpacks the contents of a patch kit for a specific plugin module. This function is associated with the patch process for accommodating dynamic software upgrades.

Product          ADC

Privilege        Security Administrator, Administrator

Command Modes    Exec

The following prompt is displayed in the Exec mode:
[local]host_name#

Syntax Description
install plugin plugin_name patch_file_name

plugin_name
Specifies the name of a plugin that has been already copied onto the system as an alphanumeric string of 1 through 16 characters.

patch_file_name
Specifies the file name of the patch (.tgz extension) that was copied onto the system. Ensure that the full file path is copied.

Usage Guidelines
Unpacks the contents of a patch kit intended for a specific plugin module. After unpacking the patch you must configure the plugin using the plugin command in the Global Configuration mode.

For additional information, refer to the Plugin Configuration Mode Commands chapter.

Examples
To unpack the plugin module named p2p with the patch file name libp2p-1.2.0.tgz onto the system enter the following command:
install plugin p2p libp2p-1.2.0.tgz
interface

Configures the system to generate gratuitous ARP (G-ARP) requests in case of a failure during an inter-node online upgrade. If the chassis is not active, an error message displays.

Product
All

Privilege
Security Administrator, Administrator, Operator, or Inspector with li-administrator permissions

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description
interface name send gratuitous-arp ip-address

Usage Guidelines
This command generates a G-ARP for the IP address specified and sends it over the interface.

Examples
The following generate a G-ARP for IP address 192.168.100.10.
interface interface_1 send gratuitous-arp 192.168.100.10
lawful-intercept

Refer to the *Lawful Intercept Configuration Guide* for a description of this command.
lawful-intercept packet-cable

Refer to the Lawful Intercept Configuration Guide for a description of this command.
lawful-intercept ssdf

Refer to the *Lawful Intercept Guide* for a description of this command.
link-aggregation port switch to

When a link aggregation group (LAG) contains two sets of ports with each connecting to a different Ethernet switch, this command allows you to change the status of the active distributing ports. (ASR 5x00 only)

Default: none.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

link-aggregation port switch to slot#/ port#

slot#

Identifies the physical chassis slot where the line card or MIO card is installed.

port#

Identifies the physical port on the line card or MIO card to automatically switch to.

Usage Guidelines

This command is subject to the following restrictions:

- slot#/port# must support LAG.
- slot#/port# must be configured with LAG.
- slot#/port# must not be actively distributing.
- slot#/port# must have negotiated a partner while in standard mode.
- slot#/port#’s partner must have a priority equal to or greater than itself.
- slot#/port#’s partner bundle must have bandwidth in standard mode equal to or greater than itself.
- Switching to slot#/port# must not violate preference within hold-time in standard mode.
Examples

link-aggregation port switch to 17/2
link-aggregation port switch to 5/12
logging active

Enables or disables logging for active internal log files.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

logging active | copy runtime filters | [ event-verbosity event_level ] | [ pdu-data format ] | [ pdu-verbosity pdu_level ]

no logging active

no

Indicates the internal logging is to be disabled.

copy runtime filters

Copies the runtime filters and uses that copy to filter the current logging session.

event-verbosity event_level

Specifies the level of verboseness to use in logging of events as one of:

• min: Displays minimal information about the event. Information includes event name, facility, event ID, severity level, date, and time.

• concise: Displays detailed information about the event, but does not provide the event source within the system.

• full: Displays detailed information about event, including source information, identifying where within the system the event was generated.

pdu-data format

Specifies output format for packet data units when logged as one of:

• none: raw format (unformatted).
- **hex**: hexadecimal format.
- **hex-ascii**: hexadecimal and ASCII similar to a main-frame dump.

**pdu-verbosity pdu_level**
Specifies the level of verboseness to use in logging of packet data units as an integer from 1 through 5, where 5 is the most detailed.

**Usage Guidelines**
Adjust the active logging levels when excessive log file sizes are being generated or, conversely, not enough information is being sent to the active log files for adequate troubleshooting support. The **no** keyword is used to disable internal logging.

**Important**
A maximum of 50,000 events may be stored in each log. Enabling more events for logging may cause the log to be filled in a much shorter time period. This may reduce the effectiveness of the log data as a shorter time period of event data may make troubleshooting more difficult.

**Important**
Once a log has reached the 50,000 event limit the oldest events will be discarded as new log entries are created.

**Examples**
The following sets the active logging for events to the maximum.

```plaintext
logging active event-verbosity full
```

The following command sets the active logging for packet data units to level 3 and sets the output format to the main-frame style **hex-ascii**.

```plaintext
logging active pdu-data hex-ascii pdu-verbosity 3
```

The following disables internal logging.

```plaintext
no logging active
```
logging filter

Sets the logging filtering options for all or individual facilities.

Product
All

Privilege
Security Administrator, Administrator, Operator

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description
logging filter active facility facility level severity_level | critical-info | no-critical-info |

active
Indicates only active processes are to have logging options set.

facility facility
Specifies the facility to modify the filtering of logged information. Valid facilities for this command are:

- **a10**: A10 interface facility
- **a11**: A11 interface facility
- **a11mgr**: A11 Manager facility
- **aaa-client**: Authentication, Authorization and Accounting (AAA) client facility
- **aaamgr**: AAA manager logging facility
- **aaaproxy**: AAA Proxy facility
- **aal2**: ATM Adaptation Layer 2 (AAL2) protocol logging facility
- **acl-log**: Access Control List (ACL) logging facility
- **acscotr**: Active Charging Service (ACS) Controller facility
- **acsmgr**: ACS Manager facility
- **afctrl**: Fabric Controller facility [ASR 5500 only]
- **afmgr**: Fabric Manager logging facility [ASR 5500 only]
- **alarmctrl**: Alarm Controller facility
• **alcap**: Access Link Control Application Part (ALCAP) protocol logging facility
• **alcapmgr**: ALCAP manager logging facility
• **all**: All facilities
• **bfd**: Bidirectional Forwarding Detection (BFD) protocol logging facility
• **bgp**: Border Gateway Protocol (BGP) facility
• **bindmux**: IPCF BindMux-Demux Manager logging facility
• **bngmgr**: Broadband Network Gateway (BNG) Demux Manager logging facility
• **bssap+**: Base Station Sub-system Application Part+ protocol facility for the login interface between the SGSN and the MSC/VLR (2.5G and 3G)
• **bssgp**: Base Station Sub-system GPRS Protocol logging facility handles exchange information between the SGSN and the BSS (2.5G only)
• **callhome**: Call Home application logging facility
• **cap**: CAMEL Application Part (CAP) logging facility for protocol used in prepaid applications (2.5G and 3G)
• **chbsmgr**: Cell Broadcasting Service (CBS) logging facility [HNBGW]
• **cdf**: Charging Data Function (CDF) logging facility
• **cgw**: Converged Access Gateway (CGW) logging facility
• **cli**: Command Line Interface (CLI) logging facility
• **cmp**: Certificate Management Protocol (IPSec) logging facility
• **connectedapps**: SecGW ASR 9000 oneP communication protocol
• **connproxy**: Controller Proxy logging facility
• **credit-control**: Credit Control (CC) facility
• **csp**: Card/Slot/Port controller facility
• **css**: Content Service Selection (CSS) facility
• **css-sig**: CSS RADIUS Signaling facility
• **cx-diameter**: Cx Diameter Messages facility [CSCF <-- HSS]
• **data-mgr**: Data Manager Framework logging facility
• **dcardctrl**: IPSec Daughter Card Controller logging facility
• **dcardmgr**: IPSec Daughter Card Manager logging facility
• **demuxmgr**: Demux Manager API facility
• **dgmbmgr**: Diameter Gmb Application Manager logging facility
• **dhcp**: Dynamic Host Configuration Protocol (DHCP) logging facility
• **dhcpv6**: DHCPv6
• **dhost**: Distributed Host logging facility
• **diabase**: Diabase messages facility
• **diactrl**: Diameter Controller proclet logging facility
• **diameter**: Diameter endpoint logging facility
• **diameter-acct**: Diameter Accounting
• **diameter-auth**: Diameter Authentication
• **diameter-dns**: Diameter DNS subsystem
• **diameter-ecs**: ACS Diameter signaling facility
• **diameter-engine**: Diameter version2 engine logging facility
• **diameter-hdd**: Diameter Horizontal Directional Drilling (HDD) Interface facility
• **diameter-svc**: Diameter Service
• **diamproxy**: DiamProxy logging facility
• **dpath**: IPSec Data Path facility
• **drvctrl**: Driver Controller facility
• **dpath**: IPSec Data Path logging facility
• **drvctrl**: Driver Controller logging facility
• **doulosuemgr**: Doulos (IMS-IPSec-Tool) user equipment manager
• **eap-diameter**: Extensible Authentication Protocol (EAP) IP Security facility
• **eap-ipsec**: Extensible Authentication Protocol (EAP) IPSec facility
• **eap-sta-s6a-s13-s6b-diameter**: EAP/STA/S6A/S13/S6B Diameter messages facility
• **ecs-css**: ACSMG <-> Session Manager Signalling Interface facility
• **egtpc**: eGTP-C logging facility
• **egtpmgr**: enhanced GPRS Tunneling Protocol (eGTP) manager logging facility
• **egtpu**: eGTP-U logging facility
• **embms**: evolved Multimedia Broadcast Multicast Services Gateway facility
• **embms**: eMBMS Gateway Demux facility
• **epdg**: evolved Packet Data (ePDG) gateway logging facility
• **event-notif**: Event Notification Interface logging facility
• **evlog**: Event log facility
• **famgr**: Foreign Agent manager logging facility
• **firewall**: Firewall logging facility
• **fng**: Femto Network Gateway (FNG) logging facility
• **gbmgr**: SGSN Gb Interface Manager facility
• **gmm**:  

---

**Command Line Interface Reference, Modes E - F, StarOS Release 19**
• For 2.5G: Logs the GPRS Mobility Management (GMM) layer (above LLC layer)
• For 3G: Logs the access application layer (above the RANAP layer)

• **gprs-app**: GPRS Application logging facility
• **gprs-ns**: GPRS Network Service Protocol (layer between SGSN and the BSS) logging facility
• **gq-rx-tx-diameter**: Gq/Rx/Tx Diameter messages facility
• **gss-gcdr**: GTPP Storage Server GCDR facility
• **gtpc**: GTP-C protocol logging facility
• **gtpcmgr**: GTP-C protocol manager logging facility
• **gtp**: GTP-prime protocol logging facility
• **gtpu**: GTP-U protocol logging facility
• **gtpumgr**: GTP-U Demux manager
• **gx-ty-diameter**: Gx/Ty Diameter messages facility
• **gy-diameter**: Gy Diameter messages facility
• **h248prt**: H.248 port manager facility
• **hamgr**: Home Agent manager logging facility
• **hat**: High Availability Task (HAT) process facility
• **hdctrl**: HD Controller logging facility
• **henbapp**: Home Evolved NodeB (HENB) App facility (Do not use this keyword for HENB-GW in Release 20)
• **henbgw**: HENB-GW facility (Do not use this keyword for HENB-GW in Release 20)
• **henbgw-pws**: HENB-GW Public Warning System logging facility (Do not use this keyword for HENB-GW in Release 20)
• **henbgw-sctp-acs**: HENB-GW access Stream Control Transmission Protocol (SCTP) facility (Do not use this keyword for HENB-GW in Release 20)
• **henbgw-sctp-nw**: HENBGW network SCTP facility (Do not use this keyword for HNB-GW in Release 20)
• **henbgwdemux**: HENB-GW Demux facility (Do not use this keyword for HNB-GW in Release 20)
• **henbgwmgr**: HENB-GW Manager facility (Do not use this keyword for HNB-GW in Release 20)
• **hnb-gw**: HNB-GW (3G Femto GW) logging facility (Do not use this keyword for HNB-GW in Release 20)
• **hnbmgr**: HNB-GW Demux Manager logging facility (Do not use this keyword for HNB-GW in Release 20)
• **hss-peer-service**: Home Subscriber Server (HSS) Peer Service facility
• **igmp**: Internet Group Management Protocol (IGMP)
• **ikev2**: Internet Key Exchange version 2 (IKEv2)
logging filter

- **ims-authorizatn**: IP Multimedia Subsystem (IMS) Authorization Service facility
- **ims-sh**: HSS Diameter Sh Interface Service facility
- **imsimgr**: SGSN IMSI Manager facility
- **imsue**: IMS User Equipment (IMSUE) facility
- **ip-arp**: IP Address Resolution Protocol facility
- **ip-interface**: IP interface facility
- **ip-route**: IP route facility
- **ipms**: Intelligent Packet Monitoring System (IPMS) logging facility
- **ipne**: IP Network Enabler (IPNE) facility
- **ipsec**: IP Security logging facility
- **ipsecdemux**: IPSec demux logging facility
- **ipsg**: IP Service Gateway interface logging facility
- **ipsmgr**: IP Services Gateway facility
- **ipsp**: IP Pool Sharing Protocol logging facility
- **kvstore**: Key/Value Store (KVSTORE) Store facility
- **l2tp-control**: Layer 2 Tunneling Protocol (L2TP) control logging facility
- **l2tp-data**: L2TP data logging facility
- **l2tpdemux**: L2TP Demux Manager logging facility
- **l2tpmgr**: L2TP Manager logging facility
- **lagmgr**: Link Aggregation Group (LAG) manager logging facility
- **llc**: Logical Link Control (LLC) Protocol logging facility; for SGSN: logs the LLC layer between the GMM and the BSSGP layers for logical links between the MS and the SGSN
- **local-policy**: Local Policy Service facility
- **location-service**: Location Services facility
- **m3ap**: M3 Application Protocol facility
- **m3ua**: M3UA Protocol logging facility
- **magmgr**: Mobile Access Gateway manager logging facility
- **map**: Mobile Application Part (MAP) protocol logging facility
- **megadiammgr**: MegaDiameter Manager (SLF Service) logging facility
- **mme-app**: Mobility Management Entity (MME) Application logging facility

*li*: Refer to the *Lawful Intercept Configuration Guide* for a description of this command.
• **mme-embms**: MME evolved Multimedia Broadcast Multicast Service facility
• **mme-misc**: MME miscellaneous logging facility
• **mmedemux**: MME Demux Manager logging facility
• **mmemgr**: MME Manager facility
• **mmgr**: Master Manager logging facility
• **mobile-ip**: Mobile IP processes
• **mobile-ip-data**: Mobile IP data facility
• **mobile-ipv6**: Mobile IPv6 logging facility
• **mpls**: Multiprotocol Label Switching (MPLS) protocol logging facility
• **mrme**: Multi Radio Mobility Entity (MRME) logging facility
• **mseg-app**: Mobile Services Edge Gateway (MSEG) application logging facility (This option is not supported in this release.)
• **mseg-gtpc**: MSEG GTP-C application logging facility (This option is not supported in this release.)
• **mseg-gtpu**: MSEG GTP-U application logging facility (This option is not supported in this release.)
• **msegmgr**: MSEG Demux Manager logging facility (This option is not supported in this release.)
• **mtp2**: Message Transfer Part 2 (MTP2) Service logging facility
• **mtp3**: Message Transfer Part 3 (MTP3) Protocol logging facility
• **multicast-proxy**: Multicast Proxy logging facility
• **nas**: Non-Access Stratum (NAS) protocol logging facility [MME 4G]
• **netwstrg**: Network Storage facility
• **npuctrl**: Network Processor Unit Control facility
• **npudrv**: Network Processor Unit Driver facility [ASR 5500 only]
• **npumgr**: Network Processor Unit Manager facility
• **npumgr-acl**: NPUMGR ACL logging facility
• **npumgr-driv**: NPUMGR DRV logging facility
• **npumgr-flow**: NPUMGR FLOW logging facility
• **npumgr-fwd**: NPUMGR FWD logging facility
• **npumgr-init**: NPUMGR INIT logging facility
• **npumgr-lc**: NPUMGR LC logging facility
• **npumgr-port**: NPUMGR PORT logging facility
• **npumgr-recovery**: NPUMGR RECOVERY logging facility
• **npumgr-rri**: NPUMGR RRI (Reverse Route Injection) logging facility
• **npumgr-vpn**: NPUMGR VPN logging facility
• **npusim**: NPUSIM logging facility [ASR 5500 only]
• **ntfy-intf**: Notification Interface logging facility [Release 12.0 and earlier versions only]
• **ocsp**: Online Certificate Status Protocol logging facility.
• **orbs**: Object Request Broker System logging facility
• **osp**: OSPF protocol logging facility
• **ospf-v3**: OSPFv3 protocol logging facility
• **p2p**: Peer-to-Peer Detection logging facility
• **pagingmgr**: PAGINGMGR logging facility
• **pccmgr**: Intelligent Policy Control Function (IPCF) Policy Charging and Control (PCC) Manager library
• **pdg**: Packet Data Gateway (PDG) logging facility
• **pdgdmgr**: PDG Demux Manager logging facility
• **pdiff**: Packet Data Interworking Function (PDIF) logging facility
• **pgw**: Packet Data Network Gateway (PGW) logging facility
• **pmm-app**: Packet Mobility Management (PMM) application logging facility
• **ppp**: Point-To-Point Protocol (PPP) link and packet facilities
• **pppoe**: PPP over Ethernet logging facility
• **proclet-map-frwk**: Proclet mapping framework logging facility
• **push**: VPNMGR CDR push logging facility
• **radius-acct**: RADIUS accounting logging facility
• **radius-auth**: RADIUS authentication logging facility
• **radius-coa**: RADIUS change of authorization and radius disconnect
• **ranap**: Radio Access Network Application Part (RANAP) Protocol facility logging info flow between SGSN and RNS (3G)
• **rct**: Recovery Control Task logging facility
• **rdt**: Redirect Task logging facility
• **resmgr**: Resource Manager logging facility
• **rf-diameter**: Diameter Rf interface messages facility
• **rip**: Routing Information Protocol (RIP) logging facility [RIP is not supported at this time.]
• **rlf**: Rate Limiting Function (RLF) logging facility
• **rohc**: Robust Header Compression (RoHC) facility
• **rsvp**: Reservation Protocol logging facility
• **rua**: RANAP User Adaptation (RUA) [3G Femto GW - RUA messages] logging facility
• **s102**: S102 protocol logging facility
• **s102mgr**: S102Mgr logging facility
• **s1ap**: S1 Application Protocol (S1AP) Protocol logging facility
• **sabp**: Service Area Broadcast Protocol (SABP) logging facility
• **saegw**: System Architecture Evolution (SAE) Gateway facility
• **sbc**: SBe protocol logging facility
• **sccp**: Signalling Connection Control Part (SCCP) Protocol logging (connection-oriented messages between RANAP and TCAP layers).
• **sct**: Shared Configuration Task logging facility
• **sctp**: Stream Control Transmission Protocol (SCTP) Protocol logging facility
• **sef ecs**: SeverelyErrored Frames (SEF) APIs printing facility
• **sess-gr**: SM GR facility
• **sessctrl**: Session Controller logging facility
• **sessmgr**: Session Manager logging facility
• **sesstrc**: session trace logging facility
• **sft**: Switch Fabric Task logging facility
• **sgs**: SGs interface protocol logging facility
• **sgsn-app**: SGSN-APP logging various SGSN "glue" interfaces (for example, between PMM, MAP, GPRS-FSM, SMS).
• **sgsn-failures**: SGSN call failures (attach/activate rejects) logging facility (2.5G)
• **sgsn-gtpc**: SGSN GTP-C Protocol logging control messages between the SGSN and the GGSN
• **sgsn-gtpu**: SGSN GTP-U Protocol logging user data messages between the SGSN and GGSN
• **sgsn-mbms-bearer**: SGSN Multimedia Broadcast/Multicast Service (MBMS) Bearer app (SMGR) logging facility
• **sgsn-misc**: Used by stack manager to log binding and removing between layers
• **sgsn-system**: SGSN System Components logging facility (used infrequently)
• **sgsn-test**: SGSN Tests logging facility; used infrequently
• **sgtpcmgr**: SGSN GTP-C Manager logging information exchange through SGTPC and the GGSN
• **sgw**: Serving Gateway facility
• **sh-diameter**: Sh Diameter messages facility
• **sitmain**: System Initialization Task main logging facility
• **sls**: Service Level Specification (SLS) protocol logging facility
• **sm-app**: SM Protocol logging facility
• **sms**: Short Message Service (SMS) logging messages between the MS and the SMSC
• **sndcp**: Sub Network Dependent Convergence Protocol (SNDCP) logging facility
• **snmp**: SNMP logging facility
• **sprmgr**: IPCF Subscriber Policy Register (SPR) manager logging facility
• **srdb**: Static Rating Database
• **srp**: Service Redundancy Protocol (SRP) logging facility
• **sscfnni**: Service-Specific Coordination Function for Signaling at the Network Node Interface (SSCF-NNI) logging facility
• **sscop**: Service-Specific Connection-Oriented Protocol (SSCOP) logging facility
• **ssh-ipsec**: Secure Shell (SSH) IP Security logging facility
• **ssl**: Secure Socket Layer (SSL) message logging facility
• **stat**: Statistics logging facility
• **supserv**: Supplementary Services logging facility [H.323]
• **system**: System logging facility
• **tacacsplus**: TACACS+ Protocol logging facility
• **tcap**: TCAP Protocol logging facility
• **testctrl**: Test Controller logging facility
• **testmgr**: Test Manager logging facility
• **threshold**: threshold logging facility
• **ttg**: Tunnel Termination Gateway (TTG) logging facility
• **tucl**: TCP/UDP Convergence Layer (TUCL) logging facility
• **udr**: User Data Record (UDR) facility (used with the Charging Service)
• **user-data**: User data logging facility
• **user-l3tunnel**: User Layer 3 tunnel logging facility
• **usertcp-stack**: User TCP Stack
• **vim**: Voice Instant Messaging (VIM) logging facility
• **vinfo**: VINFO logging facility
• **vmgctrl**: Virtual Media Gateway (VMG) controller facility
• **vmgctrl**: VMG Content Manager facility
• **vpn**: Virtual Private Network logging facility
• **wimax-data**: WiMAX DATA
• **wimax-r6**: WiMAX R6
• **wsg**: Wireless Security Gateway (ASR 9000 Security Gateway)
• **x2gw-app**: X2GW (X2 proxy Gateway, eNodeB) application logging facility
• **x2gw-demux**: X2GW demux task logging facility

**level severity_level**

Specifies the level of information to be logged from the following list which is ordered from highest to lowest:
critical-display
error-display
warning-display
unusual-display
info-display
trace-display
debug-display

critical-info | no-critical-info

critical-info: Specifies that events with a category attribute of critical information are to be displayed. Examples of these types of events can be seen at bootup when system processes and tasks are being initiated. This is the default setting.

no-critical-info: Specifies that events with a category attribute of critical information are not to be displayed.

Usage Guidelines
Apply filters for logged data to collect only that data which is of interest.

Important
A maximum of 50,000 events may be stored in each log. Enabling more events for logging may cause the log to be filled in a much shorter time period. This may reduce the effectiveness of the log data as a shorter time period of event data may make troubleshooting more difficult.

Important
Once a log has reached the 50,000 event limit the oldest events will be discarded as new log entries are created.

Caution
Issuing this command could negatively impact system performance depending on the amount of system activity at the time of execution and/or the type of facility(ies) being logged.

Examples
The following are selected examples used to illustrate the various options. Not all facilities will be explicitly shown as each follows the same syntax for options.

The following sets the level to log only warning information for all facilities.
logging filter active facility all level warning

The following enables the logging of critical information for the SNMP facility while setting the level to error.
logging filter active facility snmp level error critical-info
logging trace

Enables or disables the logging of trace information for specific calls, mobiles, or network addresses.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name>
```

**Syntax Description**

```
| no | logging trace { callid call_id | ipaddr ip_address | msid ms_id | username user_name }
```

- **no**
  Indicates the logging of trace information is to be disabled.

  - **callid call_id | ipaddr ip_address | msid ms_id | username user_name**
    - **callid call_id**: Specifies the exact call instance ID which is to have trace data logged as a 4-byte hexadecimal number.
    - **ipaddr ip_address**: Specifies the IP address in IPv4 dotted-decimal notation for which trace information is to be logged.
    - **msid ms_id**: Specifies the mobile subscriber ID for which trace information is to be logged as 7 to 16 digits of an IMSI, MIN, or RMI.
    - **username user_name**: Specifies a previously configured user who is to have trace information logged.

**Usage Guidelines**

A trace log is useful in troubleshooting subscriber problems as well as for system verification by using a test subscriber. The **no** keyword is used to stop the logging of trace information.

**Important**

A maximum of 50,000 events may be stored in each log. Enabling more events for logging may cause the log to be filled in a much shorter time period. This may reduce the effectiveness of the log data as a shorter time period of event data may make troubleshooting more difficult.
Important

Once a log has reached the 50,000 event limit the oldest events will be discarded as new log entries are created.

Caution

Issuing this command could negatively impact system performance depending on the number of subscribers connected and the amount of data being passed.

Examples

The following commands enable/disable trace information for user user1.

logging trace username user1
no logging trace username user1

The following commands will enable/disable trace information logging for the user assigned IP address 10.2.3.4.

logging trace ipaddr 10.2.3.4
no logging trace ipaddr 10.2.3.4

The following enables/disables logging of trace information for call ID fe80AA12.

logging trace callid fe80AA12
no logging trace callid fe80AA12
**logs checkpoint**

Performs checkpointing operations on log data. Checkpointing identifies logged data as previously viewed or marked. Checkpointing results in only the log information since the last checkpoint being displayed; checkpointed log data is not available for viewing.

Individual logs may have up to 50,000 events in the active log. Checkpointing the logs results in at most 50,000 events being in the inactive log files. This gives a maximum of 100,000 events in total which are available for each facility logged.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

`logs checkpoint`

**Usage Guidelines**

Check point log data to set the log contents to a well-known point prior to special activities taking place. This command may also be a part of periodic regular maintenance to manage log data.

Checkpointing logs moves the current log data to the inactive logs. Only the most recently check pointed data is retained in the inactive logs. A subsequent check pointing of the logs results in the prior check pointed inactive log data being cleared and replaced with the newly check pointed data.

Checkpointing log data marks the active log data to be retained as the inactive log data. This results in the active log data, if displayed, having no data earlier than the point in time when the checkpointing occurred.

**Important**

Checkpointing logs should be done periodically to prevent the log files becoming full. Logs which have 50,000 events logged will discard the oldest events first as new events are logged.

**Examples**

The following command immediately sets a checkpoint for event logs and moves the current log data to inactive logs:

```
logs checkpoint
```
**lsp-ping**

Checks Multi Protocol Label Switching (MPLS) label switch path (LSP) connectivity for the specified IPv4 forwarding equivalence class (FEC). It must be followed by an IPv4 FEC prefix.

**Product**

All

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
lsp-ping  ip_prefix_FEC | count ping_packets | | verbose | | grep grep_options |
```

- **ip_prefix_FEC**
  Specifies an IP prefix FEC with or without subnet mask entered using IPv4 dotted-decimal CIDR notation.

- **count ping_packets**
  Sets the number of ping packets to be sent as an integer from 1 through 16. Default: 4.

**Important**

The timeout interval for the packets is 5 seconds by default.

- **verbose**
  Sets the verbose (detailed) output mode.

- **grep grep_options**
  Pipes (sends) the output of this command to the `grep` command.

**Usage Guidelines**

This command is used to verify the MPLS LSP connectivity for the specified FEC.
Examples

Following are the examples for using this command with all possible options for IPv4 address 13.13.13.1 and mask 32 (CIDR notation):

- `lsp-ping 13.13.13.1/32`
- `lsp-ping 13.13.13.1/32 count 15`
- `lsp-ping 13.13.13.1/32 verbose`
Isp-traceroute

Discovers MPLS LSP routes that packets actually take when traveling to their destinations. It must be followed by an IPv4 or IPv6 FEC prefix.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

Isp-traceroute ip_prefix_FEC | maxttl time_to_live | | verbose | | grep grep_options |

ip_prefix_FEC

Specifies the destination IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal with or without mask (CIDR notation).

maxttl time_to_live

Sets the maximum time to live in hops. TTL is an integer from 1 through 255. Default: 30.

verbose

Sets the verbose (detailed) output mode.

grep grep_options

Pipes (sends) the output of this command to the grep command.

Usage Guidelines

This command is used or the router to discover the MPLS LSP routes through which the packets will travel to their IPv4 or IPv6 destinations.

Examples

The following command specifies the destination IP address 13.13.13.13 for which the MPLS routes will be discovered for packets to traverse:

Isp-traceroute 13.13.13.13/32
mkdir

Creates a new directory in the local file system or in remote locations as specified.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name$ mkdir
```

**Syntax Description**

```
mkdir filepath
```

**filepath**
Specifies the directory path to create. The path must be formatted as follows:

For the ASR 5000:
```
[/flash | /pcmcia1 | /hd-raid] /directory /file_name
```

For the ASR 5500:
```
[/flash | /usb1 | /hd-raid] /directory /file_name
```

For VPC:
```
[/flash | /hd-raid | /usb1 | /usb2 | /cdrom1] /directory /file_name
```

**Important**
Use of the ASR 5000 SMC hard drive is not supported in this release.

**Important**
The USB ports and CDROM must be configured via the hypervisor to be accessible.

**Important**
Do not use the following characters when entering a string for the field names below: "/" (forward slash), ":" (colon) or "@" (at sign).

`directory` is the directory name

`filename` is the actual file of interest
**Usage Guidelines**

Create new directories as part of periodic maintenance activities to better organize stored files.

**Examples**

The following creates the directory `/flash/pub` in the local flash storage.

```
mkdir /flash/pub
```
**mme disconnect**

Performs a graceful/ungraceful disconnection of an SCTP peer.

**Product**
MME

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
mme disconnect s1-peer peer_ID [ graceful ] [ -noconfirm ]
```

- **s1-peer peer-ID**
  Specifies the eNodeB peer ID which has to be disconnected. peer-ID is an integer from 1 through 4294967295.

- **graceful**
  Specifies that the SCTP connection to the S1 peer will be terminated with a complete handshake. By default (without this keyword), SCTP connections are aborted.

- **-noconfirm**
  Executes the command without any additional prompts or confirmation from the user.

**Usage Guidelines**
Use this command to disconnect the SCTP connection to the specified peer eNodeB. This command can be used to remove stale eNodeB connections from the MME, even when no active SCTP connection exists.

**Examples**
The following gracefully disconnects the SCTP connection with the eNodeB with a peer ID of 22315734:

```
mme disconnect s1-peer 22315734 graceful -noconfirm
```
mme imsimgr

Triggers an MME IMSIMgr audit for IMSI, IMEI, MSISDN information for a specific SessMgr instance associated with a specific IMSIMgr instance.

**Product**
MME

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name# 
```

**Syntax Description**

```
mme imsimgr instance instance_id audit-with sessmgr { all | instance instance_id }
```

**imsimgr instance instance_id**

Specifies the IMSI manager instance for which the audit is initiated. The audit is initiated for only one specified instance of IMSI manager at a time.

*instance_id*: Enter an integer from 1 through 4.

**audit-with sessmgr { all | instance instance_id }**

Initiates an IMSIMgr for either all associated session managers or for a specific session manager (SessMgr) instance.

*all* | *instance instance_id*: Select *all* to initiate the audit for all SessMgr instances or select *instance* and for *instance_id* enter an integer from 1 to 1152 to identify a specific SessMgr for the audit.

**Usage Guidelines**

Use this command to manage the IMSIMgr's IMSI table, and to initiate an audit of one or more SessMgrs associated with the specific IMSIMgr. This is useful when the MME has been configured to support more than one MME IMSIMgr. The audit assists you to ensure that the IMSI table has the correct IMSI-SessMGR association triggers as the audit checks for IMSI, IMEI, MSISDN information for a specific SessMgr instance.

**Examples**

Use a command similar to the following to trigger an audit of SessMgr 243 associated with IMSIMgr 2:

```
mme imsimgr instance 2 audit-with sessmgr instance 243
```
**mme offload**

Initiates or stops the offload of UEs associated with a specified MME service.

**Product**  
MME

**Privilege**  
Security Administrator, Administrator

**Command Modes**  
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**  
The following command syntax is available in Release 12.2 and earlier.

```
mme offload mme-service mme_svc_name { start mme-init-release-timeout seconds paging-init-timeout seconds | stop }
```

The following command syntax is available in Release 14.0 and higher.

```
mme offload mme-service mme_svc_name { time-duration minutes offload-percentage percent [ disable-implicit-detach ] | | stop } [- noconfirm ]
```

**mme-service name**  
Specifies the name of an existing MME service from which UEs will be offloaded as an alphanumeric string of 1 through 63 characters.

**start mme-init-release-timeout seconds paging-init-timeout seconds**  
These keywords are available in Release 12.2 and earlier.

Sets the timeout for the initial release procedure and the paging procedure.

**start mme-init-release-timeout seconds**: Configures the timeout (in seconds) for triggering the IDLE MODE ENTRY procedure for UEs that are in the ECM_CONNECTED state as an integer from 1 to 120. The cause of the IDLE MODE ENTRY will be "Load balancing TAU required".

**paging-init-timeout seconds**: Configures the timeout (in seconds) for triggering the PAGING procedure for UEs in the ECM_IDLE state as an integer from 1 to 120. After returning the UEs to the ECM_CONNECTED state, the IDLE MODE ENTRY procedure is triggered with the "Load balancing TAU required" cause.

**time-duration minutes offload-percentage percent**  
**time-duration** specifies the maximum allowed time for the UE offload procedure to complete.

**minutes** can be any value 1 through 1000 minutes.
**offload-percentage** specifies the percentage of total subscribers on this mme-service to offload. *percent* can be any value 0 through 100.

**disable-implicit-detach**
By default, if the UE context is not transferred to another MME within 5 minutes, the UE will be implicitly detached. This option disables this implicit detach timer.

**stop**
Ends the offload process.

**-noconfirm**
Executes the command without any additional prompts or confirmation from the user.

**Usage Guidelines**
Use this command to initiate or stop the offloading of UEs associated with a specified MME service. Prior to initiating this command, you can set the **relative-capacity** command in the MME Service Configuration Mode to zero (0). This prevents this MME from accepting any new calls, and redirects them to other MMEs in the pool while existing UEs on this MME are removed.

**Important**
Emergency attached UEs in Connected or Idle mode are not considered for offloading.

**Examples**
This example applies to Release 12.2 and earlier.
The following command sets the trigger to start off-loading UEs from a service named mme3 at 60 seconds and the paging trigger at 90 seconds:

```
 mme offload mme-service mme3 start mme-init-release-timeout 60 paging-init-timeout 90
```

This example applies to Release 14.0 and higher.
The following example command rebalances (offloads) 30 percent of all UEs from the specified mme-service (to other mme-services in the MME pool) over the course of 10 minutes.

```
 mme offload mme-service mme_svc time-duration 10 offload-percentage 30 -noconfirm
```
mme paging cache clear

Enables the operator to clear the paging cache for either a specific SessMgr instance or for all SessMgs.

**Product**

MME.

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
mme paging cache clear { all | instance sessmgr_instance }
```

- **all**
  Instructs the MME to clear the paging cache for all Session Managers.

- **instance sessmgr_instance**
  Enter an integer from 0 to 4294967295 to specify a single Session Manager.

**Usage Guidelines**

This command clears the cache. It is important to clear the cache after the mme paging cache size is set to zero (0) to stop caching. This clear command needs to be used to reset the cache after caching is stopped.

**Examples**

Use the following command to clear the paging cache for all SessMgs:

```
mme paging cache clear all
```
mme relocate-ue imsi

This command enables the operator to detach a UE from the current MME and cause it to reattach to another MME in the pool.

Product: MME

Privilege: Security Administrator, Administrator

Command Modes: Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description:

mme relocate-ue imsi imsi new-guti mme-group-id grp_id mme-code mme_code mtmsi mtmsi

imsi imsi
Specifies the Mobile Station Identifier of the UE to be relocated. This UE must be registered or connected to this MME.

new-guti mme-group-id group_id
The group to which the target MME belongs.

grp_id:
- Beginning with Releases 16.5, 17.4, and 18.2 and forward, the valid range for mme group id is an integer from 0 through 65536.
- Previous releases, the valid range for mme group id is an integer from 32768 through 65536.

mme-code mme_code
The target MME to which this UE should be attached.

mme_code: The unique identifier for the target MME; must be an integer from 0 through 255.

mtmsi mtmsi
The new GUTI MME-TMSI for this UE.

mtmsi: An integer from 0 through 4294967295.
Usage Guidelines

MME uses this configuration to relocate UEs to a different MME using IMSI, mme-group-id, mme-code and m-tmsi.
mme reset

Sends an S1 RESET message to a designated eNodeB to reset all UE-associated S1 connections.

**Product**
MME

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
mme reset s1-peer peer_ID
```

**s1-peer peer-ID**
Specifies an existing eNodeB peer ID to which the REST message is to be sent as an integer from 1 through 4294967295.

**Usage Guidelines**
Use this command to send an S1 RESET message to a designated eNodeB to reset all UE-associated S1 connections.

The S1 peer ID for an eNodeB can be identified by executing the `show mme-service enodeb-association` command available in this mode. The peer ID is presented in the "Peerid" field.

**Examples**
The following command initiates the sending of an S1-peer reset message to an eNodeB with a peer ID of 22315734:
```
mme reset s1-peer 22315734
```
monitor interface

Enables monitoring of traffic on a particular interface.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

monitor interface *if_name*

*if_name*

Specifies the name of the interface to be monitored as an alphanumeric string of 1 through 79 characters.

**Usage Guidelines**

Use this command to monitor the traffic on a specified interface.

**Examples**

This command monitors the traffic on the interface named *if1001*:

```
monitor interface if1001
```
monitor protocol

Enters the system's protocol monitoring utility.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

monitor protocol

**Usage Guidelines**

Useful for troubleshooting, this command provides a tool for monitoring protocol transactions between the system and other network nodes including the mobile station(s).

The following protocols can be monitored:

- SNMP
- RADIUS Authentication
- RADIUS Accounting
- A11 (R-P Interface) (PDSN only)
- Mobile IPv4
- A11MGR
- PPP
- A10
- User L3 (User Layer 3 protocols)
- USERTCP STACK
- L2TP
- L2TPMGR
- L2TP Data
- GTPC
• GTPCMGR
• GTPU
• GTPP

**Important** If the hard disk drive (HDD) is used for CDR storage, the CDR option must be used and not the GTPP option (27).

• DHCP (GGSN only)
• CDR
• DHCPV6
• RADIUS COA
• MIP Tunnel
• L3 Tunnel (Layer 3 Tunnel Protocols)
• CSS Data
• CSS Signaling

**Important** In StarOS 9.0 and later releases the CSS Data Signaling option is not supported.

• EC Diameter (Diameter Enhanced Charging)
• SIP (IMS)
• IPSec IKE Inter-Node
• IPSec IKE Subscriber
• IPSG RADIUS Signal
• ROHC (Robust Header Compression)
• WiMAX R6
• WiMAX Data
• SRP
• BCMCS SERV AUTH
• RSVP
• Mobile IPv6
• ASNGWMGR
• STUN
• SCTP: Enabling this option will display the SCTP protocol message packets on HNB-GW node.
• M3UA
- SCCP
- TCAP
- MAP
- RANAP
- GMM
- GPRS-NS
- BSSGP
- CAP
- SSCOP
- SSCFNHI
- MTP3
- LLC
- SNDACP
- BSSAP+
- SMS
- PHS-Control (Payload Header Compression)
- PHS-Data
- DNS Client
- MTP2
- HNBAP: Enabling this option will display the HNB Application Part (HNBAP) protocol packets.
- RUA: Enabling this option will display the RANAP User Adaptation (RUA) protocol packets.
- EGTPC
- App Specific Diameter: Enabling this option will display the following sub-options —
  - 1 - DIABASE (OFF)
  - 2 - DIAMETER Gy (OFF)
  - 3 - DIAMETER Gx/Ty/Gxx (OFF)
  - 4 - DIAMETER Gq/Rx/Tx (OFF)
  - 5 - DIAMETER Cx (OFF)
  - 6 - DIAMETER Sh (OFF)
  - 7 - DIAMETER Rf (OFF)
  - 8 - DIAMETER EAP/STa/S6a/S6d/S6b/S13/SWm (OFF)
  - 9 - DIAMETER HDD (OFF)
- PHS-EAPOL
ICAP
- Micro-Tunnel
- ALCAP: Enabling this option will display the Access Link Control Application Part (ALCAP) protocol message packets on HNB-GW node.

SSL
- S1-AP
- NAS
- LDAP
- SGS
- AAL2: Enabling this option will display the ATM Adaptation Layer 2 (AAL2) protocol message packets on HNB-GW node.
- PHS (Payload Header Suppression)
- PPPOE
- RTP (IMS)
- RTCP (IMS)
- LMI
- NPDB (IMS)
- SABP (Femto-UMTS)
- OCSP (X.509)

Once the protocol has been selected by entering its associated number, the utility monitors and displays every relative protocol message transaction.

Protocol monitoring is performed on a context-by-context-basis. Therefore, the messages displayed are only those that are transmitted/received within the system context from which the utility was executed.

For additional information on using the monitor utility, refer to the System Administration Guide.

Caution
Protocol monitoring can be intrusive to subscriber sessions and could impact system performance. Therefore, it should only be used as a troubleshooting tool.

Examples
The following command opens the protocol monitoring utility for SIP (IMS) = 37:

```
monitor protocol 37
```
monitor subscriber

Enables the system's subscriber monitoring utility. Available keywords vary based on the licenses installed on the system.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]\host_name#
```

**Syntax Description**

```
monitor subscriber [ asn-peer-address bs_peer_address | callid call_id fng-peer-address ipv4_address | global-enb-id global-enb-id | imei imei_value | imsi imsi_value | ipaddr ip_address | ipv6addr ipv6_address | ipsg-peer-address ipsg_peer_address | msid ms_id | msisdn msisdn | next-call | pcf pcf_address | pdif-peer-address pdif_peer_address | peer-fa peer_fa_address | peer-lac lac_peer_address | sgsn-address sgsn_address | type { 1xrtt | asngw | asnpc | closedrp | evdorev0 | evdoreva | interrogating-cscf | ggsn | Next-Call By APN | ha | ipsg | lns | mmc | pdif | proxy-cscf | rfc3261-proxy | serving-cscf } next-call | type bcmcs { next-call | next-service-request } | username user_name | Next-Call By APN ]
```

**asn-peer-address bs_peer_address**

Specifies the peer ASN Base Station IP address in IPv4 address in dotted-decimal notation.

**callid call_id**

Specifies the call identification number assigned to the subscriber session by the system to be monitored as a 4-byte hexadecimal number.

**fng-peer-address ipv4_address**

Specifies the specific FNG WLAN IP address in IPv4 dotted-decimal notation.

**global-enb-id global-enb-id**

Specifies the Global eNodeB ID. This must be followed by MCC-MNC-eNBType-eNBID.
MCC consists of 3 digits.
MNC consists of 2 or 3 digits.
eNBType is 0 for Macro and 1 for Home.
eNBID has max 1048575 for MACRO eNB and max 268435456 for Home eNB.

**imei imei_value**
International Mobile Equipment Identification (IMEI). Must be followed by 8 digits of TAC (Type Allocation Code) and 6 digits of SNR (Serial Number). Only the first 14 digit of IMEI/IMEISV is used to find the equipment ID.

**imsi imsi_value**
Specifies the International Mobile Subscriber Identity (IMSI) of the subscriber session to be monitored an integer from 1 though 15 characters.

**ipaddr ip_address**
Specifies the IP address of the subscriber session to be monitored in IPv4 dotted-decimal notation.

**ipv6addr ipv6_address**
Specifies the IPv6 address of the subscriber session to be monitored in IPv6 colon-separated-hexadecimal notation.

**ipsg-peer-address ipsg_peer_address**
Specifies the peer IPSG IP address. Must be followed by an IPv4 address in dotted -decimal notation.

**msid ms_id**
Specifies the mobile subscriber identification number to be monitored as 7 to 16 digits of an IMSI, MIN, or RMI.

**msisdn msisdn**
Specifies the Mobile Subscriber ISDN number to be monitored as 7 to 16 digits of an IMSI, MIN, or RMI.

**next-call**
Specifies that the system will monitor the next incoming subscriber session.
Entering this keyword will display the available options of protocols to select. For a list of supported protocols with this keyword, refer to the **monitor protocol** command.

**pcf pcf_address**
Specifies the PCF IP address in IPv4 dotted-decimal notation.

**pdif-peer-address pdif_peer_address**
Specifies the peer PDIF IP address in IPV4 dotted-decimal notation.

**peer-fa peer_fa_address**
Specifies the peer FA IP address in IPv4 dotted-decimal notation.
peer-lac *lac_peer_address*

Specifies the peer LAC IP address in IPv4 dotted-decimal notation.

sgsn-address *sgsn_address*

Specifies the SGSN IP address in IPv4 dotted-decimal notation.

type { 1xrtt | asngw | asnpc | bcmcs { next-call | next-service-request } | closedrp | evdorev0 | evdoreva | fng | interrogating-cscf | ggsn | Next-Call By APN | ha | ipsg | lns | mme | openrp | pdif | pgw | proxy-cscf | rfc3261-proxy | saegw | serving-cscf } next-call [ apn apn ]

Allows monitoring for specific subscriber types established in the system when next call occurs.

- **1xrtt**: Displays logs for cdma2000 1xRTT call session subscriber
- **asngw**: Displays logs for ASN-GW call session subscriber
- **asnpc**: Displays logs for ASN PC/LR call session subscriber
- **bcmcs**: Displays logs for Broadcast and Multicast Service
- **closedrp**: Displays logs for cdma2000 Closed-RP call session subscriber
- **evdorev0**: Displays logs for cdma2000 EVDO Rev0 call session subscriber
- **evdoreva**: Displays logs for cdma2000 EVDO RevA call session subscriber
- **fng**: Displays logs for the FNG session subscriber
- **interrogating-cscf**: Displays logs for Interrogating CSCF subscriber
- **ggsn**: Displays logs for UMTS GGSN call session subscriber
- **Next-Call By APN**: Display logs for next call on APN basis, where APN name can be any Gi or Gn APN.
- **ha**: Displays logs for Home Agent call session subscriber
- **ipsg**: Displays logs for IPSG call session subscriber
- **lns**: Displays logs for LNS call session subscriber
- **mme**: Displays logs for MME session subscribers.
- **openrp**: Displays logs for OpenRTP subscriber
- **pgw**: Displays logs for P-GW call session subscriber
- **pdif**: Displays logs for PDIF call session subscriber
- **proxy-cscf**: Displays logs for Proxy CSCF subscriber
- **rfc3261-proxy-cscf**: Displays logs for non-ims-proxy (RFC-3261 proxy) subscriber
- **saegw**: Displays logs for SAEGW call session subscriber
- **serving-cscf**: Displays logs for Serving CSCF subscriber

username *user_name*

Specifies the username of an existing subscriber to be monitored.
The monitor subscriber utility provides a useful tool for monitoring information about and the activity of either a single subscriber or all subscribers with active sessions within a given context.

⚠️ Caution

The `monitor subscriber` command is intended for *system debugging only*. This command is complementary to external tracing systems and not meant as a replacement for ongoing external system monitoring.

The following items can be monitored:

- Control events
- Data events
- Event ID information
- Inbound events
- Outbound events
- Protocols (identical to those monitored by command)

Once the criteria has been selected, the utility will monitor and display every relative piece of information on the subscriber(s).

*For* additional information on using the monitor utility, refer to the *System Administration Guide*.

❗️ Important

Option Y for performing multi-call traces is only supported for use with the GGSN. This option is available when monitoring is performed using the "Next-Call" option. It allows you monitor up to 11 primary PDP contexts for a single subscriber.

Subscriber monitoring is performed on a context-by-context-basis. Therefore, the information displayed will be only that which is collected within the system context from which the utility was executed.

⚠️ Caution

Subscriber monitoring can be intrusive to subscriber sessions and could impact system performance; therefore, it should only be used as a troubleshooting tool.

Examples

The following command enables monitoring for user *user1*.

```
monitor subscriber username user1
```

The following command will enable monitoring for the user assigned IP address *10.2.3.4*.

```
monitor subscriber ip-address 10.2.3.4
```

The following enables monitoring for call ID *FE80AA12*.

```
monitor subscriber callid fe80aa12
```
newcall policy

Configures new call policies for busy-out conditions.

**Product**
- ASN-GW
- ASN PC/LR
- ePDG
- GGSN
- HA
- HNB-GW
- IPCF
- LNS
- MME
- PDSN
- P-GW
- S-GW
- SAEGW
- SGSN

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:

```
[local] host_name# 
```

**Syntax Description**

```
newcall policy { asngw-service | asnpc-service | ePDG-service | sgsn-service } { all | name service_name } reject
newcall policy { fa-service | lma-service | lns-service | mipv6ha-service } { all | name service_name } reject
newcall policy ggsn-service { apn name apn_name | all | name service_name } reject [ release-existing-session ]
newcall policy { ha-service | pdsn-service | pdsnclosedrp-service } { all | name service_name } { redirect target_ip_address [ weight weight_num ] | target_ipaddress2 | weight weight_num | ... target_ip_address16 | weight weight_num ] | reject }
newcall policy hnbgw-service { all | name service_name } reject
newcall policy mme-service { all | name service_name } reject
```
newcall policy { pcc-af-service | pcc-policy-service } { all | name service_name } reject
callback policy pgw-service { all | apn name apn_name | name service_name } reject [ release-existing-session ]
callback policy saegw-service { all | name service_name } reject [ release-existing-session ]
callback policy sgw-service { all | name service_name } reject [ release-existing-session ]

no newcall policy { asngw-service | asnpc-service | epDG-Service } { all | name service_name } 
no newcall policy { fa-service | ggsn-service | ha-service | lma-service | lns-service | mipv6ha-service | 
pdsn-service | pdsnclosedrp-service } { all | name service_name } 
no newcall policy ggsn-service { apn apn_name | all | name service_name } 
no newcall policy { ha-service | pdsn-service } { all | name service_name } redirect target_ip_address [ 
weight weight_num ] [ target_ip_address2 [ weight weight_num ] ... target_ip_address16 [ weight weight_num ] ] 
no newcall policy hnbgw-service { all | name service_name } 
no newcall policy mme-service { all | name service_name } 
no newcall policy { pcc-af-service | pcc-policy-service } { all | name service_name } 
no newcall policy pgw-service { all | apn name apn_name | name service_name } 
no newcall policy saegw-service { all | name service_name } 
no newcall policy sgw-service { all | name service_name } 

no

Disables the new call policy for all or specified service of a service type.

no newcall policy { ha-service | pdsn-service } { all | name service_name } redirect target_ip_address [ 
weight weight_num ] [ target_ip_address2 [ weight weight_num ] ... target_ip_address16 [ weight weight_num ] ] 

Deletes up to 16 IP addresses from the redirect policy. The IP addresses must be expressed in IPv4 dotted-decimal notation

newcall policy { asngw-service | asnpc-service | epDG-service } { all | name service_name } reject

Creates a new call policy to reject the calls based on the specified ASN-GW or ASN PC/LR service name or all services of this type.

asngw-service: Specifies the type of service as ASN GW for which new call policy is configured.

asnpc-service: Specifies the type of service as ASN PC/LR for which new call policy is configured.

epDG-service: Specifies the type of service as ePDG for which new call policy is configured.

name service_name: Specifies the name of the service for which new call policy is configured. service_name is name of a configured ASN GW or ASN PC/LR service.

reject: Specifies that the policy rejects new incoming calls. Depending on the type of service that the policy is applied to, the reason codes are reported as part of the reply to indicate the rejection. For ASN-GW and ASN PC/LR service rejection code is 81H (Registration Denied - administratively prohibited).

newcall policy { fa-service | lma-service | lns-service | mipv6ha-service } { all | name service_name } reject

Creates a new call policy that rejects calls based on the specified access point name.

fa-service | ha-service | lma-service | lns-service | mipv6ha-service | mme-service | pdsn-service | 
pdsnclosedrp-service

Specifies the type of service for which to configure a new call policy. The following services are supported:
• **fa-service**: A Foreign Agent service
• **ha-service**: A Home Agent service
• **lma-service**: A Local Mobility Anchor (LMA) service
• **lns-service**: An L2TP Network Server service
• **mipv6ha-service**: A Mobile IPv6 Home Agent service
• **pdsn-service**: A Packet Data Serving Node service
• **pdsnclosedrp-service**: A Closed R-P service

```
{ all | name service_name }
```

Specifies a filter for the new call policy. Whether the new call policy will be applied to all configured services or a specific one.

• **all**: Specifies that the new call policy will be applied to all instances of the selected service type.
• **name: service_name**: Specifies the name of a specific instance of the selected service type as an alphanumeric string of 1 through 63 characters that is case sensitive.

```
redirect target_ip_address [ weight weight_num ] | target_ip_address2 [ weight weight_num ] ... target_ip_address16 [ weight weight_num ]
```

Configures the busy-out action. When a redirect policy is invoked, the service rejects new sessions and provides the IP address of an alternate destination. This command can be issued multiple times.

`target_ip_address#` is the IP address of an alternate destination expressed in IPv4 dotted-decimal notation. Up to 16 IP addresses can be specified either in one command or by issuing the redirect command multiple times. If you try to add more than 16 IP addresses to the redirect policy the CLI issues an error message. If you specify an IP address and weight that already exists in the redirect policy the new values override the existing values.

**weight weight_num**: When multiple addresses are specified, they are selected in a weighted round-robin scheme. Entries with higher weights are more likely to be chosen. If a weight is not specified the entry is automatically assigned a weight of 1. `weight_num` must be an integer from 1 through 10.

Depending on the type of service that the policy is applied to, the following reason codes are reported as part of the reply:

• **ha service**: 88H (Registration Denied - unknown home agent address)
• **pdsn service**: 88H (Registration Denied - unknown PDSN address)

---

**Important**
The redirect option is not supported for use with FA and GGSN services.

```
reject
```

Specifies that the policy rejects new incoming calls. Depending on the type of service that the policy is applied to, the following reason codes are reported as part of the reply to indicate the rejection:

• **asngw service**: 81H (Registration Denied - administratively prohibited)
newcall policy

- **fa service**: 41H (administratively prohibited)

Important

When **newcall policy** is set to reject for the FA service, the Busy Bit is set in the Agent Advertisement. Any further RRQs will be rejected with this code value.

- **ggsn service**: C7H (Rejected - no resources available)
- **ha service**: 81H (Registration Denied - administratively prohibited)
- **mipv6ha-service**: 81H (Registration Denied - administratively prohibited)
- **mme service**: 81H (Registration Denied - administratively prohibited)
- **pdns service**: 81H (Registration Denied - administratively prohibited)
- **pdnsoftap-service**: 81H (Registration Denied - administratively prohibited)

**newcall policy hnbgw-service { all | name service_name } reject**

Creates a new call policy to reject the calls in a specified HNB-GW service name instance or all HNB-GW services on the system.

**name service_name**: Specifies the name of the HNB-GW service for which new call policy is configured.

**reject**: Specifies that the policy rejects all new incoming calls. Depending on the type of service that the policy is applied to, the reason codes are reported as part of the reply to indicate the rejection. For HNB-GW service rejection code is 81H (Registration Denied - administratively prohibited).

**newcall policy mme-service { all | name service_name } reject**

Creates a new call policy to reject the calls based on the specified MME service name or all MME services on the system.

**name service_name**: Specifies the name of the MME service for which new call policy is configured.

**reject**: Specifies that the policy rejects new incoming calls. Depending on the type of service that the policy is applied to, the reason codes are reported as part of the reply to indicate the rejection. For MME service rejection code is 0x16 (Registration Denied - administratively prohibited).

**newcall policy { pcc-af-service | pcc-policy-service | pcc-quota-service } { all | name service_name } reject**

Creates a new call policy to reject the calls for PCC services on the system for any of the following PCC services:

- **pcc-af-service name service_name**: Specifies the Policy and Charging Control-Application Function (PCC-AF) service for which new call policy is to be configured on the system.
  **name service_name**: Specifies the name of an existing PCC-AF service for which new call policy is configured.

- **pcc-policy-service name service_name**: Specifies the Policy and Charging Control-Policy (PCC-Policy) service for which new call policy is to be configure on the system.
  **name service_name**: Specifies the name of an existing PCC-Policy service for which new call policy is configured.
reject: Specifies that the policy rejects new incoming calls. Depending on the type of service that the policy is applied to, the reason codes are reported as part of the reply to indicate the rejection. For PCC services rejection code is 81H (Registration Denied - administratively prohibited).

newcall policy pgw-service { all | apn name apn_name | name service_name } reject [ release-existing-session ]

Creates a new call policy to reject the calls based on the specified P-GW service name, APN name, or all P-GW services (and any SAEGW service associated with the P-GW service) in this context.

all: Rejects all P-GW services on the system. Specifies that the new call policy will be applied to all instances of the P-GW service, and any associated SAEGW service, in this context.

apn apn_name: Specifies the name of the APN, and any associated P-GW/SAEGW service, for which new call policy is configured.

name service_name: Specifies the name of the P-GW service, and any SAEGW service associated with this P-GW service, for which new call policy is configured.

reject: Specifies that the policy rejects new incoming calls. Depending on the type of service that the policy is applied to, the reason codes are reported as part of the reply to indicate the rejection.

release-existing-session: All the pre-existing sessions across all eGTP/GTP services for that IMSI/IMEI will be released gracefully. Without this keyword, the receiving node rejects the CSReq without considering the existing sessions for that IMSI/IMEI, which may lead to junk sessions. Disabled by default.

newcall policy saegw-service { all | name service_name } reject [ release-existing-session ]

Creates a new call policy to reject the calls based on the specified SAEGW service name or all SAEGW services on the system.

name service_name: Specifies the name of the SAEGW service for which new call policy is configured.

reject: Specifies that the policy rejects new incoming calls. Depending on the type of service that the policy is applied to, the reason codes are reported as part of the reply to indicate the rejection.

release-existing-session: All the pre-existing sessions across all eGTP/GTP services for that IMSI/IMEI will be released gracefully. Without this keyword, the receiving node rejects the CSReq without considering the existing sessions for that IMSI/IMEI, which may lead to junk sessions. Disabled by default.

newcall policy sgw-service { all | name service_name } reject [ release-existing-session ]

Creates a new call policy to reject the calls based on the specified S-GW service name or all S-GW services on the system.

name service_name: Specifies the name of the S-GW service for which new call policy is configured.

reject: Specifies that the policy rejects new incoming calls. Depending on the type of service that the policy is applied to, the reason codes are reported as part of the reply to indicate the rejection.

release-existing-session: All the pre-existing sessions across all eGTP/GTP services for that IMSI/IMEI will be released gracefully. Without this keyword, the receiving node rejects the CSReq without considering the existing sessions for that IMSI/IMEI, which may lead to junk sessions. Disabled by default.

Usage Guidelines

This command is used to busy-out specific system services prior to planned maintenance or for troubleshooting. This is required when operator find out that the system is somehow overloaded, or needs some kind of maintenances or so.
**Examples**

The following command creates a new call policy to re-direct all new calls for all PDSN services to a device having an IP address of 192.168.1.23:

```
newcall policy pdsn-service all redirect 192.168.1.23
```

The following command creates a new call policy to reject all new calls for a GGSN service called `ggsn1`:

```
newcall policy ggsn-service name ggsn1 reject
```

The following command creates a new call policy to reject all new calls for an MME service called `MME1`:

```
newcall policy mme-service name MME1 reject
```

The following command creates a new call policy to reject all new calls for an HNB-GW service called `hnbgw1`:

```
newcall policy hnbgw-service name hnbgw1 reject
```

The following command creates a new call policy to reject all new calls for a PCC Policy service called `pcrf1`:

```
newcall policy pcc-policy-service name pcrf1 reject
```
password change

Provides a mechanism for local-user administrative users to change their passwords.

Product

All

Privilege

All local-user administrative levels except as noted below

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

Syntax Description

```
password change [ local-user name ]
```

local-user name

Specifies the name of an existing local-user administrative user for which to change the password as an alphanumeric string of 3 through 144 characters that is case sensitive.

Important

This keyword is only available to local-users with an authorization level of security-administrator.

Usage Guidelines

This command provides a mechanism for local-user administrative users to change their passwords. In addition, it also provides a mechanism for security-administrator local-users to change the password for other local-user accounts.

If the local-user keyword is not entered, the system prompts the user for their current password and for the new password. New passwords take effect at the next login. Users that have had their password changed by a security-administrator are prompted to change their passwords at their next login.

New passwords must meet the criteria dictated by the local-user password command options in the Global Configuration Mode.

Important

The system does not allow the changing of passwords unless the time limit specified by the local-user password min-change-interval has been reached.
Examples

The following command, executed by a security-administrator, resets the password for a local-user name *operator12*:

```
password change local-user operator12
```
patch plugin

Covers a patch intended for a specific plugin module onto the system. This function is associated with the patch process for accommodating dynamic software upgrades.

**Product**
ADC

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
patch plugin plugin_name filepath certificate filepath
```

**plugin_name**
Specifies the name of an existing plugin that will be copied onto the system as an alphanumeric string of 1 through 16 characters.

**certificate**
Specifies the name of a certificate associated with the plugin that will be copied onto the system as an alphanumeric string of 1 through 16 characters.

**filepath**
Specifies the location of the file to copy. The path must be formatted as follows:

For the ASR 5000:

```
[ file: ]{{/flash | /pcmcia1 | /hd }}/directory/file_name
```

**Important**
Use of the ASR 5000 SMC hard drive is not supported in this release.

For the ASR 5500:

```
[ file: ]{{/flash | /usb1 | /hd }}/directory/file_name
```

For VPC:

```
[ file: ]{{/flash | /hd-raid | /usb1 | /usb2 | /cdrom1 }}/directory/file_name
```
Important

The USB ports and CDROM must be configured via the hypervisor to be accessible.

Important

Do not use the following characters when entering a string for the field names below: "/" (forward slash), ":" (colon) or ":@" (at sign).

directory is the directory name.
filename is the actual file of interest.

Usage Guidelines

Use this command to verify and copy a patch onto the system. After the patch has been copied onto the system, you must run the install plugin command to unpack the kit and validate its contents.

Examples

To copy the plugin module named p2p onto the system enter the following command:

patch plugin p2p http://192.168.1.2/tmp/libp2p-1.2.0.tgz certificate http://192.168.1.2/tmp/1.2.0.cert

When the patch has been successfully copied the following message appears:

New patch for plugin p2p available for installation
**ping**

Verifies ability to communicate with a remote node in the network by passing data packets between and measuring the response. This is accomplished by sending IPv4 Internet Control Message Protocol (ICMP) echo request packets to the target node (pinging) and waiting for an ICMP response.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Important**
Inspector privileges are granted for all variables except `count`. To initiate a ping count, you must have a minimum privilege level of Operator.

**Syntax Description**

```
ping ( hostname | ip_address } | broadcast | [ count num_packets ] | [ dscp dscp_value ] | [ flood ] | [ pattern packet_pattern ] | [ size octet_count ] | [ src { src_host_name | src_host_ip_address } ] | [ vrf vrf_name ]
```

- **hostname**
  Sends ICMP echo request packets to the remote node specified the node's name (up to 127 alphanumeric characters) or assigned IPv4 address in dotted-decimal notation.

- **ip_address**
  IPv4 address of host to be pinged in dotted-decimal notation.

- **broadcast**
  Sends ping packets to broadcast addresses.

- **count num_packets**
  Specifies the number of packets to send to the remote host for verification as an integer from 1 through 10000. Default: 5
**dscp dscp_value**

Specifies the 6-bit DSCP value as an integer from 0 through 63. Default: 0. The DSCP value must be previously mapped to an internal-class-of-service value using the Global Configuration mode `qos ip-dscp-iphb-mapping` command.

**flood**

Sends ping packets as rapidly as possible or 100 per second, whichever is faster.

---

**Important**

Use with caution. Flood ping terminates after receiving (count) responses. If flood ping is used against an interface that is not responding, it will run indefinitely.

---

**pattern packet_pattern**

Specifies a pattern to use to fill the internet control message protocol packets in hexadecimal format with a value in the range of 0x0000 through 0xFFFF. By default each octet of the packet is encoded with the octet number of the packet.

**size octet_count**

Specifies the number of bytes in each IP datagram as an integer from 40 through 18432. Default: 56

**src host_ip_address**

Specifies the source IP address in IPv4 dotted-decimal notation. Default: originating system's IP address

**vrf vrf_name**

Specifies the VRF name for which routing information will be displayed. `vrf_name` is an alphanumeric string of 1 through 63 characters.

---

**Usage Guidelines**

This command is useful in verifying network routing and if a remote node is able to respond at the IPv4 layer.

---

**Examples**

The following command is the most basic and will report the results of trying to communication with remote node `remoteABC`.

`ping remoteABC`

The following command verifies communication with the remote node `10.2.3.4` using `1000` packets.

`ping 10.2.3.4 count 1000`

The following command verifies communication with remote node `remoteABC` while making it appears as though the source is remote node with IP address `10.2.3.4`.

`ping remoteABC src 10.2.3.4`

---

**Important**

The responses from the remote host to the ping packets will be rerouted to the host specified as the source.
**ping6**

Verifies ability to communicate with a remote node in the network by passing data packets between and measuring the response. This is accomplished by sending IPv6 Internet Control Message Protocol (ICMP) echo request packets to the target node (pinging) and waiting for an ICMP response.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
ping6 { hostname | ipv6_address } [ count num ] [ dscp dscp_value ] [ flood ] [ interface interface_name ] [ pattern val ] [ size val ] [ src ip_address ] [ vrf vrf_name ]
```

**host_name**

Name of the host to be pinged.

**ipv6_address**

IPv6 address of host to be pinged in colon-separated-hexadecimal notation.

**count num**

Sets the number of ping packets to be sent as an integer from 1 through 10000.

**dscp dscp_value**

Specifies the 6-bit DSCP value as an integer from 0 through 63. Default: 0. The DSCP value must be previously mapped to an internal-class-of-service value using the Global Configuration mode `qos ip-dscp-iphb-mapping` command.

**flood**

Configures ping6 to send packets as quickly as possible, or 100 per second, whichever is faster.
Use with caution. Flood ping terminates after receiving (count) responses. If flood ping is used against an interface that is not responding, it will run indefinitely.

**interface interface_name**
Defines a named source interface from which ping packets will originate. *interface_name* is an alphanumeric string of 1 to 79 characters.

**pattern val**
Specifies the hexadecimal pattern to fill ICMP packets as a hexadecimal number from 0x0 through 0xffff.

**size val**
Specifies the size of ICMP datagram (in bytes) as an integer from 40 through 18432. Default: 56.

**src ip_address**
Specifies the source IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation. Default: originating system's IP address.

**vrf name**
Specifies the name of an existing VRF as an alphanumeric string of 1 through 63 characters.

**Usage Guidelines**
This command is useful in verifying network routing and if a remote node is able to respond at the IPv6 layer.

**Examples**
Use this command to ping the IPv6 address 2001:0db8:85a3:0000:0000:8a2e:0370:7334
`ping6 2001:0db8:85a3:0000:0000:8a2e:0370:7334`
**port switch to**

Performs a manual switchover to an available redundant/standby line card, SPIO port or MIO port.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:
[local]host_name#

**Syntax Description**
port switch to *slot#/port#

*slot#
Identifies the physical chassis slot where the line card, SPIO or MIO is installed.

*port#
Identifies the physical port on the line card, SPIO or MIO to automatically switch to.

**Usage Guidelines**
This command is used to specify the redundant port on a Line Card (LC) or MIO. When port redundancy is enabled, if an external network device or cable failure occurs that causes a link down failure on the port, then the redundant port is used.

This command is not supported on all platforms.

**Examples**
On an ASR 5000 this command switched to port 17/1.
`port switch to 17/1`

On an ASR 5500 this command switches to port 6/11.
`port switch to 6/11`
**ppp echo-test**

Sends link control protocol (LCP) keep-alive echo packet to the peer point-to-point protocol (PPP) connection to verify proper communication between PPP connections, and awaits a response.

**Product**
- PDSN
- GGSN

**Privilege**
- Security Administrator, Administrator, Operator

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name
```

**Syntax Description**

```
ppp echo-test { callid call_id | imsi imsi_id | ipaddr ip_address | msid ms_id | username user_name } [ num_packets ] | grep grep_options | more }
```

- **callid call_id**
  Specifies the call instance ID for which the PPP link must be verified as a 4-byte hexadecimal number.

- **imsi imsi_id**
  Specifies the International Mobile Subscriber Identifier (IMSI) for which the PPP link must be verified.

- **ipaddr ip_address**
  Specifies the IP address for which the PPP link must be verified in IPv4 dotted-decimal notation.

- **msid ms_id**
  Specifies the mobile subscriber ID for which the PPP link must be verified as 7 to 16 digits of an MIN, or RMI.

- **username user_name**
  Specifies an existing user for which the PPP link must be verified as an alphanumeric string of 1 through 127 characters.

- **num_packets**
  Specifies the number of test packets to generate an integer from 1 through 1000000. Default: 1
Usage Guidelines

Use this command to verify the point-to-point protocol communications. This command sends LCP keep-alive echo packet to the peer PPP connection to verify proper communication between PPP connections. **ppp echo-test** command waits for LCP echo response for configured numbers of tries, if response is not received it will retry configured no of times with an interval of 5 seconds. This command accepts the parameters call ID, IMSI, IP address, MSID, and user name to specify which active PPP session to consider.

**ppp echo-test** command makes the dormant session active.

Caution

Issuing this command could negatively impact system performance depending on the number of subscribers using the same name and/or if the number of packets used in the test is large.

Examples

The following command tests the PPP link to user *user1*.

```
ppp echo-test username user1
```

The following command tests the PPP link to the user assigned IP address *10.2.3.4*.

```
ppp echo-test ipaddr 10.2.3.4
```

The following tests the PPP link associated with call ID *fe80aa12*.

```
ppp echo-test callid fe80aa12
```
**radius interim accounting now**

Check points current RADIUS Interim accounting messages immediately.

**Product**
- PDSN
- GGSN
- ASN-GW

**Privilege**
- Security Administrator, Administrator, Operator

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
- `radius interim accounting now`

**Usage Guidelines**
This command check points RADIUS Interim accounting as they are received. It is useful when preparing for system monitoring or troubleshooting.

**Examples**
The following command initiates immediate checkpointing of RADIUS Interim accounting messages:

```
radius interim accounting now
```
radius test

Verifies the RADIUS servers functions for accounting and authentication.

**Product**
- PDSN
- GGSN
- ASN-GW

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name# 
```

**Syntax Description**
```
radius test { accounting | admin authentication | authentication | probe authentication server ip_addr port port_no [ username username password password ] } all | [ on ] | off | radius group group_name user_name | server server_name port server_port } user_name password
```

**accounting**
Tests accounting server functionality.

**admin authentication name_admin admin_password**
Tests the RADIUS admin authentication.

- `name_admin`: Specifies the name of the administrator as an alphanumeric string of 1 through 127 characters.
- `admin_password`: Specifies the password for the administrator as an alphanumeric string of 1 through 63 characters.

**authentication**
Tests authentication server functionality.

**all | radius group group_name user_name | server server_name port server_port**

- `all`: Tests all configured servers.
- `server server_name port server_port`: Tests only the server specified by `server_name` and `server_port`. The server must have been previously configured.
**radius group** *group_name* *user_name*: Tests all configured authentication servers in a specific RADIUS group for a specific user. Must be followed by the RADIUS group name and user name.

*group_name* is an alphanumeric string of 1 through 63 characters that specifies the name of server group configured in the specific context for authentication/accounting.

**on/off**
Allows the user to turn RADIUS test accounting on or off.

**user_name**
Specifies the RADIUS user who is to be verified. The user must have been previously configured.

**password**
Specifies the RADIUS user who is to have authentication verified. *password* is only applicable when the **authentication** keyword is specified.

**Usage Guidelines**
Test the RADIUS accounting for troubleshooting the system for specific users or to verify all the system RADIUS accounting functions.

**Examples**
The following verifies all RADIUS servers.

- `radius test accounting all`
- `radius test authentication all`

The following verifies the RADIUS accounting and authentication for user `radius test authentication all user1` for the sampleServer.

- `radius test accounting server sampleServer port 5000 user1`
- `radius test authentication server sampleServer port 5000 user1 dummyPwd`

The following commands will verify the RADIUS accounting and authentication for RADIUS server group `star1` for the current context:

- `radius test accounting server sampleServer port 5000 user1`  
- `radius test authentication server sampleServer port 5000 user1 dummyPwd`  
- `radius test authentication all`

The following verifies the RADIUS authentication server group `star1` for user `user1`.

- `radius test authentication radius group star1 user1`
**reload**

Invokes a full system reboot. All processes are terminated and the system initiates a hardware reset (reboot). This command is identical to the `shutdown` command.

**Product**

All

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name# 
```

**Syntax Description**

`reload  [-noconfirm ]`

- `-noconfirm`
  
  Executes the command without any additional prompts or confirmation from the user.

**Usage Guidelines**

The system performs a hardware reset and reloads the highest priority boot image and configuration file specified in the boot.sys file. Refer to the `boot system priority` command in the Global Configuration Mode for additional information on configuring boot images, configuration files and priorities.

**Important**

To avoid the abrupt termination of subscriber sessions, it is recommended that a new call policy be configured and executed prior to invoking the `reload` command. This policy sets busy-out conditions for the system and allows active sessions to terminate gracefully. Refer to the `newcall` command in the Exec Mode for additional information.

**Caution**

Issuing this command causes the system to become unavailable for session processing until the reboot process is complete.

**Examples**

The following command performs a hardware reset on the system:

`reload`
rename

Changes the name of an existing local file.

**Product**

All

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```rename from_filepath to_filepath [ -noconfirm ]
```

*from_filepath*

Specifies the path to the file/directory to be renamed. The path must be formatted according to the following format:

For the ASR 5000:

```
[ file: ]{ / flash | / pcmcia1 | / hd-raid } [ / directory ] / file_name
```

For the ASR 5500:

```
[ file: ]{ / flash | / usb1 | / hd-raid } [ / directory ] / file_name
```

*Important*

Use of the SMC hard drive is not supported in this release.

*Important*

Do not use the following characters when entering a string for the field names below: "/" (forward slash), ":" (colon) or "@" (at sign).

`directory` is the directory name
`filename` is the actual file of interest

*to_filepath*

Specifies the path to the file/directory to be renamed. The path must be formatted according to the following format:
For the ASR 5000:
```
[ file: ]{/flash | /pcmcia1 | /hd }[/directory ]/file_name
```

**Important**  Use of the SMC hard drive is not supported in this release.

For the ASR 5500:
```
[ file: ]{/flash | /usb1 | /hd }[/directory ]/file_name
```

directory is the directory name
filename is the actual file of interest

**-noconfirm**
Executes the command without any additional prompt and confirmation from the user.

**Caution**  Extreme caution should be taken when using the **-noconfirm** option. The paths to the source and the destination should be verified prior to performing the command.

**Usage Guidelines**  Rename files as part of regular system maintenance in conjunction with the delete command.

**Examples**
The following renames the directory *pub* in the local PCMCIA1 device.
```
rename /pcmcia1/pub /pcmcia1/pub_old
```

The following renames the directory *pub* in the local USB device.
```
rename /usb1/pub /usb1/pub_old
```
reset active-charging

This command resets the active charging services.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
reset active-charging credit-control misc-info max-backpressure { all | facility sessmgr instance instance_number }
```

- **all**
  Displays the maximum backpressure information among all the active session manager instances.

- **facility sessmgr instance instance_number**
  Specifies the facility session manager instance as an integer ranging from 1 through 65535 characters.

**Usage Guidelines**

Use this CLI command to get or reset the maximum back-pressure hit and the timestamp it reached the maximum value. This helps to reset the gauge value for all/specific session manager instance to zero.

**Examples**

The following command resets the maximum backpressure value for all active session manager instances:

```
reset active-charging credit-control misc-info max-backpressure all
```
reset alcap-service

Resets a named Access Link Control Application Part (ALCAP) protocol service. ALCAP is the protocol used for the control plane of the UMTS transport layer. It manages and multiplexes users into ATM AAL2 virtual connections.

Product
All (ASR 5000 only)

Privilege
Security Administrator, Administrator, Operator

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description
reset alcap-service srvc_name aal2 node node_name aal2-path { path_name | all }

srvc_name
Specifies the name of an existing ALCAP service as an alphanumeric string of 1 through 63 characters.

aal2 node node_name
Specifies the name of an existing ATM Adaptation Layer 2 (AAL2) node as an alphanumeric string of 1 through 64 characters.

Usage Guidelines
Reset a named ALCAP service for a specified AAL2 node.

Examples
The following command resets the ALCAP service alcap_01 for the AAL2 node aal2_1001, all paths:
reset alcap-service alcap_01 aal2-node aal2_1001 aal2-path all
reset diameter

This command clears the Diameter statistics.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

`reset diameter aaa-statistics misc-data`

**Usage Guidelines**

Resets the Diameter statistics (highest backpressure statistics).

**Examples**

The following command resets the Diameter related miscellaneous statistics:

```
reset diameter aaa-statistics misc-data
```
reset ims-authorization

Resets the maximum backpressure related information associated with the IMS authorization services.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]<host_name>#

Syntax Description

reset ims-authorization policy-control misc-info max-backpressure { all | facility sessmgr instance instance_number }

all

Displays the maximum backpressure information among all the active session manager instances.

facility sessmgr instance instance_number

Specifies the facility session manager instance as a integer from 0 through 10000000 characters.

Usage Guidelines

Use this command to reset the values of maximum backpressure related information.

Examples

The following command resets all the backpressure related information:

reset ims-authorization policy-control misc-info max-backpressure all
reveal disabled commands

Enables or disables the input of commands for features that do not have license keys installed. The output of the command `show cli` indicates when this feature is enabled. This command affects the current CLI session only and is disabled by default.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local]<host_name>#
```
rlogin

Attempts to connect to a remote host.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```plaintext
[local] host_name#
```

**Syntax Description**

```plaintext
rlogin { host_name | host_ip_address } [ user user_name ]
```

- `host_name | host_ip_address`
  
  Identifies the remote node with which to attempt connection.
  
  - `host_name`: Specifies the remote node using the node's logical host name which must be resolved via DNS lookup.
  
  - `host_ip_address`: Specifies the remote node using its assigned IP address in IPv4 dotted-decimal notation.

- `user user_name`
  
  Specifies a user name attempting connection as an alphanumeric string of 1 through 1023 characters.

**Usage Guidelines**

Connect to remote network elements using rlogin.

---

**Important**

rlogin is not a secure method of connecting to a remote host. ssh should be used whenever possible for security reasons.

**Examples**

The following connects to remote host `remoteABC` as user `user1`.

```plaintext
rlogin remoteABC user user1
```

The following connects to remote host `10.2.3.4` without any default user.

```plaintext
rlogin 10.2.3.4
```
**rmdir**

Removes (deletes) a local directory.

**Product**

All

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
rmdir path [ force ]
```

**path**

Specifies the directory path to remove. The must be formatted according as follows:

For the ASR 5000:
```
[ file: ]{ /flash | /pcmcia | /hd-raid } [ /directory ] /file_name
```

For the ASR 5500:
```
[ file: ]{ /flash | /usb | /hd-raid } [ /directory ] /file_name
```

For VPC:
```
[ file: ]{ /flash | /hd-raid | /usb | /usb2 | /cdrom1 } [ /directory ] /file_name
```

**Important**

Do not use the following characters when entering a string for the field names below: "/" (forward slash), ":" (colon) or "@" (at sign).

- directory is the directory name
- filename is the actual file of interest

**force**

Over-rides any warnings to force deletion of the directory and any files contained therein.

**Important**

Use of the `force` keyword should be done with care to ensure the directory is specified accurately as there is no method to recover a directory which has been removed.
Usage Guidelines

Remove old directories as part of regular maintenance.

Examples

The following removes the local directory `/pcmcia1/pub`.

```
rmdir /pcmcia1/pub
```
rollback module

Loads a specified software plugin module from the Version Priority List (VPL) with the next higher priority number. This function is associated with the patch process for accommodating dynamic software upgrades.

Product
ADC

Privilege
Security Administrator, Administrator

Command Modes
Exec
The following prompt is displayed in the Exec mode:
[local] host_name#

Syntax Description
rollback module plugin_name

plugin_name
Specifies the name of an existing plugin module that you want to downgrade as an alphanumeric string of 1 through 16 characters. If the named module is not known to the system, an error message is displayed.

Usage Guidelines
Use this command to initiate a rollback of a previously loaded software plugin module. If it fails to load, the module with next highest priority will be loaded. If none of the modules are installed, the default patch which comes along with the ASR 5000 build is automatically loaded. The specified module must have been previously unpacked/verified and configured via the install plugin and plugin commands respectively.

For additional information, refer to the Plugin Configuration Mode Commands chapter.

Examples
To load the next plugin module named p2p enter the following command:
rollback module p2p
**rotate-hd-file**

Rotates the Diameter files stored on the hard disk drive.

**Product**

HSGW  
P-GW  
SAEGW  
S-GW

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#  
```

**Syntax Description**

`rotate-hd-file diameter [ name policy_name ]`

`name policy_name`

Specifies the hd-storage policy name of an existing HD Storage Policy as an alphanumeric string of 0 through 63 characters.

**Usage Guidelines**

Use this command to manually rotate the Diameter HD stored files.

**Examples**

The following command rotates Diameter files that were stored using the HD storage policy named CDR1:

`rotate-hd-file diameter name CDR1`
save configuration

Saves the configuration of current contexts to a local or remote location. The configuration contains the sequence of CLI commands that define system parameters and ends with the .cfg extension.

**Product**

All

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
save configuration url | obsolete-encryption | showsecrets | verbose | [-redundant] | [-noconfirm]
```

**url**

Default: saves to the location of the active configuration currently loaded.

Specifies the location in which to store the configuration file. `url` may refer to a local or a remote file and must be entered in the following format:

For the ASR 5000:

```
[ file: ] { /flash | /pcmcia1 | /hd-raid } /directory /file_name
tftp:// { host : port# } /directory /file_name
[ ftp: | sftp: ] // { username :password @ } { host : port# } /directory /file_name
```

For the ASR 5500:

```
[ file: ] { /usb1 | /hd-raid } /directory /file_name
tftp:// { host : port# } /directory /file_name
[ ftp: | sftp: ] // { username :password @ } { host : port# } /directory /file_name
```

For VPC:

```
[ file: ] { /hd-raid | /usb1 | usb2 | cdrom1 } /directory /file_name
tftp:// { host : port# } /directory /file_name
[ ftp: | sftp: ] // { username :password @ } { host : port# } /directory /file_name
```

**Important**

Do not use the following characters when entering a string for the field names below: "/" (forward slash), "." (colon) or "@" (at sign).

- `directory` is the directory name.
- `filename` is the actual file of interest.
username is the user to be authenticated.

password is the password to use for authentication.

host is the IP address or host name of the server.

Important host can only be used if the networkconfig parameter is configured for DHCP and the DHCP server returns a valid nameserver.

The following file transfer protocols are supported on all platforms to save the configuration to a destination on the network (off box):

tftp – Trivial File Transfer Protocol [no username/password required]
ftp – File Transfer Protocol [username/password required]
sftp – SSH File Transfer Protocol [SSH username/password required]

port# is the logical port number that the communication protocol is to use.

Specifies options when saving the configuration file.

obsolete-encryption: Saves the configuration with encrypted values generated via an obsolete encryption method. This option may be required to preserve a configuration for a possible downgrade.

Important The obsolete-encryption keyword is only available in StarOS 19.1 and prior releases.

showsecrets: Saves the CLI configuration file with all passwords in plain text, rather than their default encrypted format.

Important The showsecrets keyword is only available in StarOS 19.1 and prior releases.

verbose: Saves as much information as possible, including default values. If this option is not specified, the configuration will not include default values.

-redundant

Saves the configuration file to the local device on the management card, defined by the url variable, and then automatically copies that same file to the like device on the standby management card, if available.

The management card can be any of the following:

• ASR 5000 – System Management Card (SMC) [/flash or pcmcia1]
• ASR 5500 – Management Input/Output (MIO) card [/flash, usb1, usb2]
• VPC-DI – Control Function (CF) virtual machine

Use the -redundant keyword if you have only made changes to the configuration, but not to the boot order or after installing a new boot image. Changes to the boot order or installing a new image requires file synchronization via the filesystem synchronize command.
This keyword will only work for local devices on both the active and standby management cards. Otherwise, a failure message is displayed. When saving the file to an external network (non-local) device, the system disregards this keyword.

Important
This keyword does not synchronize the local file system. If you have added, modified, or deleted other files or directories to or from a local device for the active management card, then you must synchronize the local file system on both cards.

-noconfirm
Executes the command without any additional prompt and confirmation from the user.

Caution
Exercise caution when using the -noconfirm option as this will overwrite data if the URL targets an existing file.

Usage Guidelines
Backup the current configuration as part of periodic maintenance activities for emergency recovery.

Important
Saving a configuration does not save the boot options as configured via the Global Configuration mode boot commands.

Examples
The following command saves the configuration data to the local file /flash/pub/juneconfig.cfg with no confirmation from the user:

```
save configuration /flash/pub/juneconfig.cfg -noconfirm
```

The following command saves the configuration data to remote host remoteABC at /pub/juneconfig.cfg:

```
save configuration tftp://remoteABC/pub/juneconfig.cfg
```
save logs

Saves the current log file to a local or remote location.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
save logs { url } [ active ] [ inactive ] [ callid call_id ] [ event-verbosity evt_verboseness ] [ facility facility ] [ level severity_level ] [ pdu-data pdu_format ] [ pdu-verbosity pdu_verboseness ] [ since from_date_time ] [ until to_date_time ] [ { grep grep_options [ more ] }]
```

**url**

Specifies the location to store the log file(s). *url* may refer to a local or a remote file and must be entered in the following format.

For the ASR 5000:
```
tftp:// { host [ : port# ] } [ /directory ] /file_name
tftp:// { username [ : password ] @ } { host } [ : port# ] [ /directory ] /file_name
```

**Important**
Use of the SMC hard drive is not supported in this release.

For the ASR 5500:
```
tftp:// { host [ : port# ] } [ /directory ] /file_name
tftp:// { username [ : password ] @ } { host } [ : port# ] [ /directory ] /file_name
```

For VPC:
```
tftp:// { host [ : port# ] } [ /directory ] /file_name
tftp:// { username [ : password ] @ } { host } [ : port# ] [ /directory ] /file_name
```

**Important**
The USB ports and CDROM must be configured via the hypervisor to be accessible.
**Important**

Do **not** use the following characters when entering a string for the field names below: "/" (forward slash), ":" (colon) or "@" (at sign).

- **directory** is the directory name.
- **filename** is the actual file of interest.
- **username** is the user to be authenticated.
- **password** is the password to use for authentication.
- **host** is the IP address or host name of the server.

**Important**

**hostname** can only be used if the **networkconfig** parameter is configured for DHCP and the DHCP server returns a valid nameserver.

**port#** is the logical port number that the communication protocol is to use.

- **active**
  Saves data from active logs.

- **inactive**
  Saves data from inactive logs.

- **callid** **call_id**
  Specifies a call ID for which log information is to be saved as a 4-byte hexadecimal number.

- **event-verbosity** **evt_verboseness**
  Specifies the level of verboseness to use in displaying of event data as one of:

  - **min**: Logs minimal information about the event. Information includes event name, facility, event ID, severity level, date, and time.
  - **concise**: Logs detailed information about the event, but does not provide the event source within the system.
  - **full**: Logs detailed information about event, including source information, identifying where within the system the event was generated.

- **facility** **facility**
  Specifies the facility to modify the filtering of logged information. Valid facilities for this command are:

  - **a10**: A10 interface facility
  - **a11**: A11 interface facility
  - **a11mgr**: A11 Manager facility
  - **aaa-client**: Authentication, Authorization and Accounting (AAA) client facility
• aaamgr: AAA manager logging facility
• aaaproxy: AAA Proxy facility
• aal2: ATM Adaptation Layer 2 (AAL2) protocol logging facility
• acl-log: Access Control List (ACL) logging facility
• acsctrl: Active Charging Service (ACS) Controller facility
• acsmgr: ACS Manager facility
• afctrl: Fabric Controller facility [ASR 5500 only]
• afmgr: Fabric Manager logging facility [ASR 5500 only]
• alarmctrl: Alarm Controller facility
• alcap: Access Link Control Application Part (ALCAP) protocol logging facility
• alcapmgr: ALCAP manager logging facility
• all: All facilities
• asngwmgr: Access Service Network (ASN) Gateway Manager facility
• asnpcmgr: ASN Paging Controller Manager facility
• bfd: Bidirectional Forwarding Detection (BFD) protocol logging facility
• bgp: Border Gateway Protocol (BGP) facility
• bindmux: IPCF BindMux-Demux Manager logging facility
• bngmgr: Broadband Network Gateway (BNG) Demux Manager logging facility
• bssap+: Base Station Sub-system Application Part+ protocol facility for the login interface between the SGSN and the MSC/VLR (2.5G and 3G)
• bssgp: Base Station Sub-system GPRS Protocol logging facility handles exchange information between the SGSN and the BSS (2.5G only)
• callhome: Call Home application logging facility
• cap: CAMEL Application Part (CAP) logging facility for protocol used in prepaid applications (2.5G and 3G)
• cbsmgr: Cell Broadcasting Service (CBS) logging facility [HNBGW]
• cdf: Charging Data Function (CDF) logging facility
• cgw: Converged Access Gateway (CGW) logging facility
• cli: Command Line Interface (CLI) logging facility
• cmp: Certificate Management Protocol (IPSec) logging facility
• connectedapps: SecGW ASR 9000 oneP communication protocol
• connproxy: Controller Proxy logging facility
• credit-control: Credit Control (CC) facility
• csp: Card/Slot/Port controller facility
• **css**: Content Service Selection (CSS) facility
• **css-sig**: CSS RADIUS Signaling facility
• **cx-diameter**: Cx Diameter Messages facility [CSCF <-> HSS]
• **data-mgr**: Data Manager Framework logging facility
• **dcardctrl**: IPSec Daughter Card Controller logging facility
• **dcardmgr**: IPSec Daughter Card Manager logging facility
• **demuxmgr**: Demux Manager API facility
• **dgmnbmgr**: Diameter Gmb Application Manager logging facility
• **dhcp**: Dynamic Host Configuration Protocol (DHCP) logging facility
• **dhcpv6**: DHCPv6
• **dhost**: Distributed Host logging facility
• **diabase**: Diabase messages facility
• **diactrl**: Diameter Controller proclet logging facility
• **diameter**: Diameter endpoint logging facility
• **diameter-acct**: Diameter Accounting
• **diameter-auth**: Diameter Authentication
• **diameter-dns**: Diameter DNS subsystem
• **diameter-ecs**: ACS Diameter signaling facility
• **diameter-engine**: Diameter version2 engine logging facility
• **diameter-hdd**: Diameter Horizontal Directional Drilling (HDD) Interface facility
• **diameter-svc**: Diameter Service
• **diamproxy**: DiamProxy logging facility
• **dpath**: IPSec Data Path facility
• **drvctrl**: Driver Controller facility
• **dpath**: IPSec Data Path logging facility
• **drvctrl**: Driver Controller logging facility
• **doulosuemgr**: Doulos (IMS-IPSec-Tool) user equipment manager
• **eap-diameter**: Extensible Authentication Protocol (EAP) IP Security facility
• **eap-ipsec**: Extensible Authentication Protocol (EAP) IPSec facility
• **eap-sta-s6a-s13-s6b-diameter**: EAP/STA/S6A/S13/S6B Diameter messages facility
• **ecs-css**: ACSMGRI <-> Session Manager Signalling Interface facility
• **egtpc**: eGTP-C logging facility
• **egtpmgr**: enhanced GPRS Tunneling Protocol (eGTP) manager logging facility
• **egtpu**: eGTP-U logging facility
• **embms**: evolved Multimedia Broadcast Multicast Services Gateway facility
• **embms**: eMBMS Gateway Demux facility
• **epdg**: evolved Packet Data (ePDG) gateway logging facility
• **event-notif**: Event Notification Interface logging facility
• **evlog**: Event log facility
• **famgr**: Foreign Agent manager logging facility
• **firewall**: Firewall logging facility
• **fng**: Femto Network Gateway (FNG) logging facility
• **gbmgr**: SGSN Gb Interface Manager facility
• **gmm**:  
  • For 2.5G: Logs the GPRS Mobility Management (GMM) layer (above LLC layer)
  • For 3G: Logs the access application layer (above the RANAP layer)
• **gprs-app**: GPRS Application logging facility
• **gprs-ns**: GPRS Network Service Protocol (layer between SGSN and the BSS) logging facility
• **gq-rx-tx-diameter**: Gq/Rx/Tx Diameter messages facility
• **gss-gcdr**: GTPP Storage Server GCDR facility
• **gtpc**: GTP-C protocol logging facility
• **gtpcmgr**: GTP-C protocol manager logging facility
• **gtp**: GTP-prime protocol logging facility
• **gtpu**: GTP-U protocol logging facility
• **gtpumgr**: GTP-U Demux manager
• **gx-ty-diameter**: Gx/Ty Diameter messages facility
• **gy-diameter**: Gy Diameter messages facility
• **h248prt**: H.248 port manager facility
• **hamgr**: Home Agent manager logging facility
• **hat**: High Availability Task (HAT) process facility
• **hdctrl**: HD Controller logging facility
• **henbapp**: Home Evolved NodeB (HENB) App facility
• **henbgw**: HENB-GW facility
• **henbgw-pws**: HENB-GW Public Warning System logging facility
• **henbgw-sctp-acs**: HENB-GW access Stream Control Transmission Protocol (SCTP) facility
• **henbgw-sctp-nw**: HENBGW network SCTP facility
- **henbgwdemux**: HENB-GW Demux facility
- **henbgwmgr**: HENB-GW Manager facility
- **hnb-gw**: HNB-GW (3G Femto GW) logging facility
- **hnbmgr**: HNB-GW Demux Manager logging facility
- **hss-peer-service**: Home Subscriber Server (HSS) Peer Service facility
- **igmp**: Internet Group Management Protocol (IGMP)
- **ikev2**: Internet Key Exchange version 2 (IKEv2)
- **ims-authorizatn**: IP Multimedia Subsystem (IMS) Authorization Service facility
- **ims-sh**: HSS Diameter Sh Interface Service facility
- **imsimgr**: SGSN IMSI Manager facility
- **imsue**: IMS User Equipment (IMSUE) facility
- **ip-arp**: IP Address Resolution Protocol facility
- **ip-interface**: IP interface facility
- **ip-route**: IP route facility
- **ipms**: Intelligent Packet Monitoring System (IPMS) logging facility
- **ipne**: IP Network Enabler (IPNE) facility
- **ipsec**: IP Security logging facility
- **ipsecdemux**: IPSec demux logging facility
- **ipsg**: IP Service Gateway interface logging facility
- **ipsgmgr**: IP Services Gateway facility
- **ipsp**: IP Pool Sharing Protocol logging facility
- **kvstore**: Key/Value Store (KVSTORE) Store facility
- **l2tp-control**: Layer 2 Tunneling Protocol (L2TP) control logging facility
- **l2tp-data**: L2TP data logging facility
- **l2tpdemux**: L2TP Demux Manager logging facility
- **l2tpmgr**: L2TP Manager logging facility
- **lagmgr**: Link Aggregation Group (LAG) manager logging facility
- **lcs**: Location Services (LCS) logging facility
- **ldap**: Lightweight Directory Access Protocol (LDAP) messages logging facility
- **li**: Refer to the *Lawful Intercept Configuration Guide* for a description of this command.
- **linkmgr**: SGSN/BSS SS7 Link Manager logging facility (2.5G only)
- **llc**: Logical Link Control (LLC) Protocol logging facility; for SGSN: logs the LLC layer between the GMM and the BSSGP layers for logical links between the MS and the SGSN
- **local-policy**: Local Policy Service facility
• **location-service**: Location Services facility
• **m3ua**: M3UA Protocol logging facility
• **magmgr**: Mobile Access Gateway manager logging facility
• **map**: Mobile Application Part (MAP) protocol logging facility
• **megadiammgr**: MegaDiameter Manager (SLF Service) logging facility
• **mme-app**: Mobility Management Entity (MME) Application logging facility
• **mme-misc**: MME miscellaneous logging facility
• **mmedemux**: MME Demux Manager logging facility
• **mmemgr**: MME Manager facility
• **mmgr**: Master Manager logging facility
• **mobile-ip**: Mobile IP processes
• **mobile-ip-data**: Mobile IP data facility
• **mobile-ipv6**: Mobile IPv6 logging facility
• **mpls**: Multiprotocol Label Switching (MPLS) protocol logging facility
• **mrme**: Multi Radio Mobility Entity (MRME) logging facility
• **mseg-app**: Mobile Services Edge Gateway (MSEG) application logging facility (This option is not supported in this release.)
• **mseg-gtpc**: MSEG GTP-C application logging facility (This option is not supported in this release.)
• **mseg-gtpu**: MSEG GTP-U application logging facility (This option is not supported in this release.)
• **msegmgr**: MSEG Demux Manager logging facility (This option is not supported in this release.)
• **mtp2**: Message Transfer Part 2 (MTP2) Service logging facility
• **mtp3**: Message Transfer Part 3 (MTP3) Protocol logging facility
• **multicast-proxy**: Multicast Proxy logging facility
• **nas**: Non-Access Stratum (NAS) protocol logging facility [MME 4G]
• **netwstrg**: Network Storage facility
• **npuctrl**: Network Processor Unit Control facility
• **npudrv**: Network Processor Unit Driver facility [ASR 5500 only]
• **npumgr**: Network Processor Unit Manager facility
• **npumgr-acl**: NPUMGR ACL logging facility
• **npumgr-drv**: NPUMGR DRV logging facility
• **npumgr-flow**: NPUMGR FLOW logging facility
• **npumgr-fwd**: NPUMGR FWD logging facility
• **npumgr-init**: NPUMGR INIT logging facility
• **npumgr-ic**: NPUMGR LC logging facility
• npumgr-port: NPUMGR PORT logging facility
• npumgr-recovery: NPUMGR RECOVERY logging facility
• npumgr-rrri: NPUMGR RRI (Reverse Route Injection) logging facility
• npumgr-vpn: NPUMGR VPN logging facility
• npusim: NPUSIM logging facility [ASR 5500 only]
• ntfy-intf: Notification Interface logging facility [Release 12.0 and earlier versions only]
• oespp: Online Certificate Status Protocol logging facility.
• orbs: Object Request Broker System logging facility
• ospf: OSPF protocol logging facility
• ospfv3: OSPFv3 protocol logging facility
• p2p: Peer-to-Peer Detection logging facility
• pagingmgr: PAGINGMGR logging facility
• pccmgr: Intelligent Policy Control Function (IPCF) Policy Charging and Control (PCC) Manager library
• pdg: Packet Data Gateway (PDG) logging facility
• pdgdmg: PDG Demux Manager logging facility
• pdif: Packet Data Interworking Function (PDIF) logging facility
• pgw: Packet Data Network Gateway (PGW) logging facility
• pmm-app: Packet Mobility Management (PMM) application logging facility
• ppp: Point-To-Point Protocol (PPP) link and packet facilities
• pppoe: PPP over Ethernet logging facility
• procl-ennt-frwk: Procl mapping framework logging facility
• push: VPNMGR CDR push logging facility
• radius-acct: RADIUS accounting logging facility
• radius-auth: RADIUS authentication logging facility
• radius-coa: RADIUS change of authorization and radius disconnect
• ranap: Radio Access Network Application Part (RANAP) Protocol facility logging info flow between SGSN and RNS (3G)
• rct: Recovery Control Task logging facility
• rdt: Redirect Task logging facility
• resmgr: Resource Manager logging facility
• rf-diameter: Diameter Rf interface messages facility
• rip: Routing Information Protocol (RIP) logging facility [RIP is not supported at this time.]
• rlf: Rate Limiting Function (RLF) logging facility
• rohc: Robust Header Compression (RoHC) facility
• **rsvp**: Reservation Protocol logging facility
• **rua**: RANAP User Adaptation (RUA) [3G Femto GW - RUA messages] logging facility
• **s102**: S102 protocol logging facility
• **s102mgr**: S102Mgr logging facility
• **s1ap**: S1 Application Protocol (S1AP) Protocol logging facility
• **sabp**: Service Area Broadcast Protocol (SABP) logging facility
• **saegw**: System Architecture Evolution (SAE) Gateway facility
• **sbc**: SBC protocol logging facility
• **sccp**: Signalling Connection Control Part (SCCP) Protocol logging (connection-oriented messages between RANAP and TCAP layers).
• **sct**: Shared Configuration Task logging facility
• **sctp**: Stream Control Transmission Protocol (SCTP) Protocol logging facility
• **sef_ecs**: Severely Errored Frames (SEF) APIs printing facility
• **sess-gr**: SM GR facility
• **sessctrl**: Session Controller logging facility
• **sessmgr**: Session Manager logging facility
• **sesstrc**: session trace logging facility
• **sft**: Switch Fabric Task logging facility
• **sgs**: SGs interface protocol logging facility
• **sgsn-app**: SGSN-APP logging various SGSN "glue" interfaces (for example, between PMM, MAP, GPRS-FSM, SMS).
• **sgsn-failures**: SGSN call failures (attach/activate rejects) logging facility (2.5G)
• **sgsn-gtpc**: SGSN GTP-C Protocol logging control messages between the SGSN and the GGSN
• **sgsn-gtpu**: SGSN GTP-U Protocol logging user data messages between the SGSN and GGSN
• **sgsn-mbms-bearer**: SGSN Multimedia Broadcast/Multicast Service (MBMS) Bearer app (SMGR) logging facility
• **sgsn-misc**: Used by stack manager to log binding and removing between layers
• **sgsn-system**: SGSN System Components logging facility (used infrequently)
• **sgsn-test**: SGSN Tests logging facility; used infrequently
• **sgtpcmgr**: SGSN GTP-C Manager logging information exchange through SGTPC and the GGSN
• **sgw**: Serving Gateway facility
• **sh-diameter**: Sh Diameter messages facility
• **sitmain**: System Initialization Task main logging facility
• **sls**: Service Level Specification (SLS) protocol logging facility
• **sm-app**: SM Protocol logging facility
• **sms**: Short Message Service (SMS) logging messages between the MS and the SMSC
• **sndcp**: Sub Network Dependent Convergence Protocol (SNDCP) logging facility
• **snmp**: SNMP logging facility
• **sprmgr**: IPCF Subscriber Policy Register (SPR) manager logging facility
• **srdb**: Static Rating Database
• **srp**: Service Redundancy Protocol (SRP) logging facility
• **sscfnni**: Service-Specific Coordination Function for Signaling at the Network Node Interface (SSCF-NNI) logging facility
• **sscop**: Service-Specific Connection-Oriented Protocol (SSCOP) logging facility
• **ssh-ipsec**: Secure Shell (SSH) IP Security logging facility
• **ssl**: Secure Socket Layer (SSL) message logging facility
• **stat**: Statistics logging facility
• **supserv**: Supplementary Services logging facility [H.323]
• **system**: System logging facility
• **tacacsplus**: TACACS+ Protocol logging facility
• **tcap**: TCAP Protocol logging facility
• **testctrl**: Test Controller logging facility
• **testmgr**: Test Manager logging facility
• **threshold**: threshold logging facility
• **ttg**: Tunnel Termination Gateway (TTG) logging facility
• **tucl**: TCP/UDP Convergence Layer (TUCL) logging facility
• **udr**: User Data Record (UDR) facility (used with the Charging Service)
• **user-data**: User data logging facility
• **user-l3tunnel**: User Layer 3 tunnel logging facility
• **usertcp-stack**: User TCP Stack
• **vim**: Voice Instant Messaging (VIM) logging facility
• **vinfo**: VINFO logging facility
• **vmgctrl**: Virtual Media Gateway (VMG) controller facility
• **vmgctrl**: VMG Content Manager facility
• **vpn**: Virtual Private Network logging facility
• **wimax-data**: WiMAX DATA
• **wimax-r6**: WiMAX R6
• **wsg**: Wireless Security Gateway (ASR 9000 Security Gateway)
• **x2gw-app**: X2GW (X2 proxy Gateway, eNodeB) application logging facility

• **x2gw-demux**: X2GW demux task logging facility

**level severity_level**

Specifies the level of information to be logged from the following list which is ordered from highest to lowest:

- **critical**: Logs critical events
- **error**: Logs error events and all events with a higher severity level
- **warning**: Logs warning events and all events with a higher severity level
- **unusual**: Logs unusual events and all events with a higher severity level
- **info**: Logs info events and all events with a higher severity level
- **trace**: Logs trace events and all events with a higher severity level
- **debug**: Logs all events

**pdu-data pdu_format**

Specifies output format for the display of packet data units as one of:

- **none**: raw format (unformatted).
- **hex**: hexadecimal format.
- **hex-ascii**: hexadecimal and ASCII similar to a main-frame dump.

**pdu-verbosity pdu_verboseness**

Specifies the level of verboseness to use in displaying of packet data units as a value from 1 to 5, where 5 is the most detailed.

**since from_date_time [ until to_date_time ]**

Default: no limit.

**since from_date_time**: Saves only the log information which has been collected more recently than from_date_time.

**until to_date_time**: Saves no log information more recent than to_date_time. Defaults to current time when omitted.

from_date_time and to_date_time must be formatted as YYYY:MM:DD:HH:mm or YYYY:MM:DD:HH:mm:ss. Where:

- **YYYY** = 4-digit year
- **MM** = 2-digit month in the range 01 through 12
- **DD** = 2-digit day in the range 01 through 31
- **HH** = 2-digit hour in the range 00 through 23
- **mm** = 2-digit minute in the range 00 through 59
- **ss** = 2 digit second in the range 00 through 59
to_date_time must be a time which is more recent than from_date_time.

Using the until keyword allows for a time range of log information; using only the since keyword will display all information up to the current time.

grep grep_options | more

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter in Command Line Interface Reference.

Usage Guidelines

Backup the current log file as part of periodic maintenance activities.

Examples

The following saves the log to the local file /flash/pub/junelogs.logs with no confirmation from the user:

```
save logs /flash/pub/junelogs.logs -noconfirm
```

The following saves the configuration data to remote host remoteABC as /pub/junelogs.logs:

```
save logs tftp://remoteABC/pub/junelogs.logs
```
**session trace**

Enable or disables the subscriber session trace functionality based on a specified subscriber device or ID on one or all instance of session on a specified UMTS/EPS network element. It also clears/resets the statistics collected for subscriber session trace on a system.

**Product**
- GGSN
- MME
- P-GW
- SAEGW
- S-GW

**Privilege**
Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
session trace { reset statistics | subscriber network-element { mme | pgw | sgw | ggsn saegw [func-pgw | func-sgw] [ imei id | imsi id | interface { all | interface } | target-all-ne | target-ne { enb | target-interface { all | interface } } | pgw [ target-interface { all | interface } ] | sgw [ target-interface { all | interface } ] } trace-ref id collection-entity ip_address
no session trace subscriber network-element { mme | pgw | sgw | ggsn } [ trace-ref id ]
```

**no**

Disables the entire session trace or for a specific network element and/or trace reference.

**reset statistics**

Clears/resets the entire session trace statistical data collected on a system.

⚠️ **Caution**

This is a system wide command that affects all statistical data.

```
session trace subscriber network-element { mme | pgw | sgw | ggsn }
```

Identifies the network element that, in turn, identifies the interfaces where the session trace is to occur. Specific interfaces can be specified using the interface keyword described below.
**ggsn**: Specifies that the session trace is to occur on one or all interfaces on the GGSN.

**mme**: Specifies that the session trace is to occur on one or all interfaces on the MME.

**pgw**: Specifies that the session trace is to occur on one or all interfaces on the P-GW.

**sgw**: Specifies that the session trace is to occur on one or all interfaces on the S-GW.

**imei id**

Specifies the International Mobile Equipment Identification number of the subscriber UE. *id* must be the 8-digit TAC (Type Allocation Code) and 6-digit serial number. Only the first 14 digits of the IMEI/IMEISV are used to find the equipment ID.

**imsi id**

Specifies the International Mobile Subscriber Identification (IMSI). *id* must be the 3-digit MCC (Mobile Country Code), 2- or 3-digit MNC (Mobile Network Code), and the MSIN (Mobile Subscriber Identification Number). The total should not exceed 15 digits.

**interface** { all | interface }

Specifies the interfaces where the session trace application will collect data.

**all**: Specifies all interfaces associated with the selected network element

**interface**: Specifies the interface type where the session trace application will collect trace data. The following interfaces are applicable for each network element type:

**GGSN**:

- **gi**: Specifies that the interface where the trace will be performed is the Gi interface between the GGSN and RADIUS server.
- **gmb**: Specifies that the interface where the trace will be performed is the Gmb interface between the GGSN and BM-SC.
- **gn**: Specifies that the interface where the trace will be performed is the Gn interface between the GGSN and the SGSN.
- **gx**: Specifies that the interface where the trace will be performed is the Gx interface between the GGSN and PCRF.
- **gy**: Specifies that the interface where the trace will be performed is the Gy interface between the GGSN and OCS.

**MME**:

- **s1mme**: Specifies that the interface where the trace will be performed is the S1-MME interface between the MME and the eNodeB.
- **s3**: Specifies that the interface where the trace will be performed is the S3 interface between the MME and an SGSN.
- **s6a**: Specifies that the interface where the trace will be performed is the S6a interface between the MME and the HSS.
- **s10**: Specifies that the interface where the trace will be performed is the S10 interface between the MME and another MME.
• **s11**: Specifies that the interface where the trace will be performed is the S11 interface between the MME and the S-GW.

• **s13**: Specifies that the interface where the trace will be performed is the S13 interface between the MME and the EIR.

**P-GW:**

• **gx**: Specifies that the interface where the trace will be performed is the Gx interface between the P-GW and the PCRF.

• **gy**: Specifies that the interface where the trace will be performed is the Gy interface between the P-GW and OCS.

• **s2a**: Specifies that the interface where the trace will be performed is the S2a interface between the P-GW and the HSGW.

• **s2b**: Specifies that the interface where the trace will be performed is the S2b interface between the P-GW and an ePDG.

• **s2c**: Specifies that the interface where the trace will be performed is the S2c interface between the P-GW and a trusted, non-3GPP access device.

• **s5**: Specifies that the interface where the trace will be performed is the S5 interface between the P-GW and the S-GW.

• **s6b**: Specifies that the interface where the trace will be performed is the S6b interface between the P-GW and the 3GPP AAA server.

• **s8b**: Specifies that the interface where the trace will be performed is the S8b interface between the P-GW and the S-GW.

• **sgi**: Specifies that the interface where the trace will be performed is the SGi interface between the P-GW and the PDN.

**S-GW:**

• **gxc**: Specifies that the interface where the trace will be performed is the Gxc interface between the S-GW and the PCRF.

• **gy**: Specifies that the interface where the trace will be performed is the Gy interface between the S-GW and OCS.

• **s11**: Specifies that the interface where the trace will be performed is the S11 interface between the S-GW and the MME.

• **s4**: Specifies that the interface where the trace will be performed is the S4 interface between the S-GW and an SGSN.

• **s5**: Specifies that the interface where the trace will be performed is the S5 interface between the S-GW and the P-GW.

• **s8b**: Specifies that the interface where the trace will be performed is the S8b interface between the S-GW and the P-GW.
target-all-ne

This option is applicable for MME only. Specifies that the trace be propagated to neighboring Network Elements (NEs) including the eNodeB, P-GW and S-GW. With this option, tracing will occur on all applicable interfaces on the respective NEs.

target-ne { enb | target-interface { all | interface } } | pgw | target-interface { all | interface } | sgw | target-interface { all | interface }

This option is applicable for MME only.

The target-ne { enb | pgw | sgw } keyword specifies that the trace be propagated to the specified neighboring Network Elements (NE). More than one target-ne can be configured in the same command.

target-interface { all | interface }: This optional keyword specifies the interface on the target NE where the trace will be performed. Multiple target-interfaces can be defined within the same command.

trace-ref id

Specifies the trace reference for the trace being initiated. id must be the MCC (3 digits), followed by the MNC (3 digits), then the trace ID number (3-byte octet string).

collection-entity ip_address

Specifies the IP address of the collection entity where session trace data is pushed in IPv4 dotted-decimal notation.

Usage Guidelines

Use this command to initiate a session trace for a specified subscriber device or ID on one or all interfaces on a specified network element.

Important

Session trace configuration is performed in the Global Configuration Mode using the session trace command. Refer to the Global Configuration Mode Commands chapter for more information.

Examples

The following command initiates a session trace on a P-GW S5 interface for a subscriber with an IMSI of 322233123456789 and sets the trace reference as 322233987654 and the collection entity IP address as 10.2.3.4:

```
session trace subscriber network-element pgw imsi 322233123456789 interface s5 trace-ref 322233987654 collection-entity 10.2.3.4
```

The following command initiates a session trace on an MME S6a interface for a subscriber with an IMSI of 322233123456789 and sets the trace reference as 322233987654 and the collection entity IP address as 10.2.3.4:

```
session trace subscriber network-element mme imsi 322233123456789 interface s6a trace-ref 322233987654 collection-entity 10.2.3.4
```

The following command initiates a session trace on a Gn interface on GGSN between GGSN and SGSN for a subscriber with an IMSI of 322233123456789 and sets the trace reference as 322233987654 and the collection entity IP address as 10.2.3.4:

```
session trace subscriber network-element ggsn imsi 322233123456789 interface gn trace-ref 322233987654 collection-entity 10.2.3.4
```
MME Only: The following command activates a session trace on S-GW for S5 interface from the MME:

```
session trace subscriber network-element mme imsi 0000012345 target-ne sgw target-interface s5
```
session trace random

Enable or disables the subscriber session trace functionality based on a random trace on the network element. If enabled, the subscriber selection will be based on random logic all instance of session on a specified UMTS/EPS network element. It also clears/resets the statistics collected for subscriber session trace on a system.

Product
GGSN
P-GW

Privilege
Operator

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

[no] session trace random random_num network-element {ggsn | pgw} [interface {all | interface}]

no
Disables the entire random subscriber session trace or for a specific network element and/or interface.

session trace random random_num}
Configures the number of random subscriber sessions where the session trace is to occur.
random_num is an integer between 1 to 1000 identified the number of subscribers to be selected by random logic.

network-element {ggsn | pgw}
Identifies the network element that, in turn, identifies the interfaces where the random session trace is to occur. Specific interfaces can be specified using the interface keyword described below.
ggsn: Specifies that the random session trace is to occur on one or all interfaces on the GGSN.
pgw: Specifies that the random session trace is to occur on one or all interfaces on the P-GW.

interface { all | interface }
Specifies the interfaces where the random session trace application will collect data.
all: Specifies all interfaces associated with the selected network element
interface: Specifies the interface type where the random session trace application will collect trace data. The following interfaces are applicable for the network element type:

- **GGSN:**
  - **gi:** Specifies that the interface where the trace will be performed is the Gi interface between the GGSN and RADIUS server.
  - **gmb:** Specifies that the interface where the trace will be performed is the Gmb interface between the GGSN and BM-SC.
  - **gn:** Specifies that the interface where the trace will be performed is the Gn interface between the GGSN and the SGSN.
  - **gx:** Specifies that the interface where the trace will be performed is the Gx interface between the GGSN and PCRF.
  - **gy:** Specifies that the interface where the trace will be performed is the Gy interface between the GGSN and Diameter.

- **P-GW:**
  - **gx:** Specifies that the interface where the trace will be performed is the Gx interface between the P-GW and the PCRF.
  - **gy:** Specifies that the interface where the trace will be performed is the Gy interface between the GGSN and Diameter.
  - **s2a:** Specifies that the interface where the trace will be performed is the S2a interface between the P-GW and the HSGW.
  - **s2b:** Specifies that the interface where the trace will be performed is the S2b interface between the P-GW and an ePDG.
  - **s2c:** Specifies that the interface where the trace will be performed is the S2c interface between the P-GW and a trusted, non-3GPP access device.
  - **s5:** Specifies that the interface where the trace will be performed is the S5 interface between the P-GW and the S-GW.
  - **s6b:** Specifies that the interface where the trace will be performed is the S6b interface between the P-GW and the 3GPP AAA server.
  - **s8b:** Specifies that the interface where the trace will be performed is the S8b interface between the P-GW and the S-GW.
  - **sgi:** Specifies that the interface where the trace will be performed is the SGi interface between the P-GW and the PDN.

**Usage Guidelines**

Use this command to initiate the session trace for a specified subscriber sessions selected on random logic on one or all interfaces on a specified network element.

**Important**

Session trace configuration is performed in the *Global Configuration Mode* using the `session trace` command. Refer to the *Global Configuration Mode Commands* chapter for more information.
Examples

The following command initiates a session trace on a GGSN Gx interface for 1000 subscriber session selected on random logic:

```
session trace random 1000 network-element ggsn interface gx
```
**session trace signaling**

Enable or disables the subscriber session trace functionality based on signaling information on one or all instances of session on a specified UMTS/EPS network element. It also clears/reset the statistics collected for subscriber session trace on a system.

**Product**

- GGSN
- P-GW

**Privilege**

Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
[no] session trace signaling network-element {ggsn | pgw}
```

- **no**
  - Disables the entire session trace based on signaling information for a specific network element and/or trace reference.

```
session trace signaling network-element {pgw | ggsn}
```

Identifies the network element that where the session trace based on signaling information for a subscriber session is to occur. Specific network element GPRS/EPS can be specified for this session trace.

- **ggsn**: Specifies that the session trace based on signaling is to occur on one or all interfaces on the GGSN.
- **pgw**: Specifies that the session trace based on signaling is to occur on one or all interfaces on the P-GW.

**Usage Guidelines**

Use this command to initiate a session trace for a specified subscriber based on signaling information on a specified network element.

**Important**

Session trace configuration is performed in the *Global Configuration Mode* using the `session trace` command. Refer to the *Global Configuration Mode Commands* chapter for more information.
The following command initiates a session trace on a GGSN for a subscriber based on signaling information.

```
session trace signaling network-element ggsn
```
setup

Enters the system setup wizard which guides the user through a series of questions regarding the system basic configuration options, such as initial context-level administrative users, host name, etc.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]\host_name#
```

**Syntax Description**
`setup`

**Usage Guidelines**
The setup wizard provides a user friendly interface for initial system configuration.

**Important**
If the configuration script generated by the setup wizard is applied when an existing configuration is in use, the options which are common to both are updated and all remaining options are left unchanged.

**Examples**
The following command starts the setup wizard:

```
setup
```
**sgs offload**

Enables or disables offloading of UEs associated with a VLR which has become unavailable. This enables the MME to preemptively move subscribers away from a VLR which is scheduled to be put in maintenance mode.

**Product**

MME

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
sgs offload sgs-service sgs_svc_name vlr vlr_name { start time-duration minutes | stop } [-noconfirm]
```

**sgs-service sgs_svc_name**

Specifies the SGs service to which the VLR belongs.

*sgs_svc_name* specifies the name of a pre-configured SGs service. For more information on the SGs service, refer to the **sgs-service** command in the Context Configuration Mode Commands chapter and refer to the MME SGs Service Configuration Mode Commands chapter.

**vlr vlr_name**

Specifies the VLR service which must have its UEs offloaded.

*vlr_name* specifies the name for a pre-configured VLR and must be an alphanumeric string of 1 through 63 characters. For more information, refer to the **vlr** command in the MME SGs Service Configuration Mode Commands chapter.

**start time-duration minutes**

Specifies that the UE offloading should be started for the specified the VLR.

*time-duration* defines the period in minutes over which all qualifying subscribers will be offloaded.

*minutes* must be an integer from 0 to 3000.

A value of 0 enables only Passive VLR Offloading, where the MME marks all affected sessions with the "VLR Offload" flag. During the next UE activity, the MME requires each UE to perform a combined TAU/LAU. This flag is not affected by the removal of the "offload" state by the operator. Even though the VLR state may later change from 'offloaded' to 'not-offloaded', the subscriber's state will not change to 'not-offloaded'.
A value of 1-3000 enables Active VLR Offloading and Passive VLR Offloading. The MME splits this time-duration into $n$ intervals, 5 seconds apart. A maximum of 50 subscribers will be actively detached per interval. For example, a setting of 120 minutes with 60000 subscribers would process all subscribers in 100 minutes. Any subscribers remaining at the expiry of the time-duration will not be detached.

Note: For Release 12.2, only Passive VLR Offloading is supported. While the time-duration value is not used in Release 12.2 or earlier, it is required for completion of the start command.

stop

Specifies that the offload state should no longer be set for the specified the VLR.

-noconfirm

Indicates that the command is to execute without additional prompt and confirmation from the user.

Usage Guidelines

This command enables the MME to preemptively move subscribers away from a VLR which is scheduled to be put in maintenance mode. When this offload command is set on the MME, all sessions matching this VLR are marked with an "offload" flag. If the time-duration keyword is set to 1-3000, sessions are also detached and required to reattach.

The behavior of SGs with respect to "Location Updates" towards the MSC is similar to the behavior when the "VLR Reliable" flag is set to "false". In other words, for offloaded subscribers, normal Combined TAU (without IMSI Attach) and periodic TAU will trigger a LU towards the MSC.

When issuing the command, the MME notifies the operator if this is the last available VLR in a pool.

More than one VLR may be offloaded at the same time.

VLR Offloading and MME offloading cannot be performed at the same time.

Important

This is a licensed feature and is unavailable unless the proper licensed is installed.

Related Commands:

• To display VLR offload information and statistics for a specified SGs service name, refer to the show sgs-service offload-status service-name sgs_svc_name command.

• To clear the counters displayed by the previous command, issue the clear sgs-service statistics service-name sgs_svc_name command.

Examples

The following command starts offloading the subscribers associated with vlr1 over the next 60 minutes.

\texttt{sgs offload sgs-service sgs1 vlr vlr1 start time-duration 60 -noconfirm}
**sgs vlr-failure**

This command configures the MME to monitor all VLRs and perform a controlled release (detach) of affected UEs when any VLR becomes unavailable.

**Product**

MME

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
[no] sgs vlr-failure sgs-service sgs_svc_name duration minutes backoff-timer seconds | -noconfirm |
```

- **no**
  Resets the command to its default setting of disabled.

- **sgs-service sgs_svc_name**
  Specifies the SGs service to which the VLR belongs.
  `sgs_svc_name` specifies the name of a pre-configured SGs service.

- **duration minutes**
  Specifies the amount of time in minutes during which all qualifying UEs will be detached.
  The MME splits this duration into \( n \) intervals, 5 seconds apart. A maximum of 50 subscribers are processed per interval. For example, a setting of 2 minutes with 100 subscribers would result in the MME processing all subscribers in the first 2 intervals (10) seconds. Any subscribers remaining at the expiry of the duration will not be processed.
  `minutes` must be an integer from 1 through 3000.

- **backoff-timer seconds**
  Specifies the period of time the MME will wait following the detection of a VLR condition before starting the controlled release of affected UEs.
  `seconds` must be an integer from 1 to 3000.
-noconfirm

Indicates that the command is to execute without additional prompt and confirmation from the user.

Usage Guidelines

When this command is issued, the MME monitors the availability of all VLRs. If one or more VLRs become unavailable, the MME performs a controlled release (EPS IMSI detach) for all UEs associated with that VLR. If another VLR is available, the MME sends a combined TA/LA Update with IMSI attach.

This command remains active until it is disabled with the no sgs vlr-failure command.

Important

This is a licensed feature and is unavailable unless the proper licensed is installed.

Related Commands:

- To display VLR failure information and statistics, refer to the show sgs-service vlr-status full command.

Examples

The following enables the monitoring and automatic detach of UEs when any VLR becomes unavailable. The MME will wait 2 minutes (120 seconds) after detecting a VLR condition before starting the controlled release of the affected UEs. The MME will process the UEs over a span of 60 minutes.

sgs vlr-failure sgs-service sgs1 duration 60 backoff-timer 120 -noconfirm
sgs vlr-recover

This command enables active recovery of Circuit Switched Fall Back (SMS-only) UEs when a failed VLR becomes responsive again.

**Product**
MME

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
[no] sgs vlr-recover sgs-service sgs_svc_name duration minutes backoff-timer seconds[ -noconfirm ]
```

- `no`
  Resets the command to its default setting of disabled.

- `sgs-service sgs_svc_name`
  Specifies the SGs service to which the VLR belongs.
  `sgs_svc_name` specifies the name for a pre-configured SGs service.

- `duration minutes`
  Specifies the amount of time in minutes over which all qualifying UEs will be recovered.
  The MME splits this duration into \( n \) intervals, 5 seconds apart. A maximum of 50 subscribers will be processed per interval. For example, a setting of 2 minutes with 100 subscribers would result in the MME processing all subscribers in the first 2 intervals (10) seconds. Any subscribers remaining at the expiry of the duration will not be processed.
  `minutes` must be an integer from 1 through 3000.

- `backoff-timer seconds`
  Specifies the period of time the MME will wait following the detection of a recovered VLR before starting the VLR recovery actions.
  `seconds` must be an integer from 1 to 3000.
-noconfirm
Indicates that the command is to execute without additional prompt and confirmation from the user.

Usage Guidelines
When this command is issued, the MME monitors the availability of all VLRs. If a failed VLRs become available again, the MME attempts to recover CSFB (SMS-only) UEs that failed while the VLR was unavailable with an EPS Detach.

Important
This is a licensed feature and is unavailable unless the proper licensed is installed.

Related Commands:
• To display VLR recovery information and statistics, refer to the `show sgs-service vlr-status full` command.

Examples
The following enables the active recovery of Circuit Switched Fall Back (SMS-only) UEs when a failed VLR becomes responsive again. The MME will wait 2 minutes (120 seconds) after detecting a recovered VLR before starting the recovery of the affected UEs. The MME will process the UEs over a span of 60 minutes.
`sgs vlr-recover sgs-service sgs1 duration 60 backoff-timer 120 -noconfirm`
sgsn clear-congestion

This command clears (terminates) congestion triggered using the `sgsn trigger-congestion` command.

**Product**  
SGSN

**Privilege**  
Security Administrator, Administrator

**Command Modes**  
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**  
`sgsn clear-congestion`

**Usage Guidelines**  
This command is only used if the `sgsn trigger-congestion` command has been issued in an OAM scenario. This `sgsn clear-congestion` command causes the SGSN to resume normal operations and does not apply any congestion control policy.

**Examples**  
Clear the triggered congestion on the SGSN.

```
sgsn clear-congestion
```
sgsn clear-detached-subscriptions

Clears subscription data belonging to a subscriber who has already detached.

**Product**
SGSN

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
`sgsn clear-detached-subscriptions imsni`<br>`imsi`

`imsi imsni`
Specifies the international mobile subscriber identity (IMSI) of the subscriber session identifying the subscription data to be cleared.

**Usage Guidelines**
This command can be issued on either a 2G or 3G SGSN to clear subscription data (including subscription information, and information for P-TMSI allocated, received authorization vectors, and NGAF flag values). This command is only effective if the subscriber has already detached.

After the data is purged, the SGSN sends an appropriate message to the HLR.

**Related Commands:**
- To clear subscription data for subscribers that are currently attached, refer to the `admin-disconnect-behavior clear-subscription` commands described in the chapters for *GPRS Service Configuration Mode* or the *SGSN Service Configuration Mode*.

**Examples**
`sgsn clear-detached-subscriptions imsi 040501414199978`
sgsn imsimgr

Initiates an audit for managing the SGSN's IMSI manager's (IMSIMgr) IMSI table.

These commands are used primarily for troubleshooting purposes and are intended for the use of specially trained service representatives.

**Product**

SGSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
sgsn imsimgr { instance instance_id } { add-record imsi sessmgr instance sessmgr# | audit-with sessmgr { all | instance sessmgr# } | remove-record imsi }
```

**instance instance_id**

The number of IMSI Managers supported is scaled up to "4" on ASR 5500 and a VPC-DI platforms. This keyword is used to specify the IMSI manager instance for which the audit is initiated. The audit is initiated from only one specified instance of IMSI Manager at a time. This feature is only supported on ASR5500 and VPC-DI platforms.

*instance_id*: The *instance_id* is an integer from 1 through 4, it identifies the IMSI Manager instance for which the audit is initiated.

**add-record imsi**

Adds a record for an IMSI to the IMSI manager's table and associates a specific session manager (SessMgr) with the IMSI.

*imsi*: Enter up to 15 digits. An IMSI consists of the 3-digit MCC (mobile country code) + the 2- or 3-digit MNC (mobile network code) + the MSIN (mobile station identification number) for the remaining 10 or 9 digits (depending on the length of the MNC).

**audit-with**

Initiates an IMSI audit with all SessMgrs or a Session Manager (SessMgr) instance specified.
remove-record imsi

Deletes a specific IMSI from the IMSI table.

imsi: Enter up to 15 digits. An IMSI consists of the 3-digit MCC (mobile country code) + the 2- or 3-digit MNC (mobile network code) + the MSIN (mobile station identification number) for the remaining 10 or 9 digits (depending on the length of the MNC).

sessmgr instance sessmgr#

For releases prior to 14.0, this keyword specifies a Session Manager (SessMgr) instance associated with the IMSI as an integer from 0 through 4095.

For releases 14.0 and later, this keyword specifies a Session Manager (SessMgr) instance associated with the IMSI as an integer from 0 through 384.

Usage Guidelines

Use this command to manage the IMSIMgr's IMSI table, and to initiate an audit of one or more SessMgrs with the IMSIMgr so that the IMSI table has the correct IMSI-SessMgr association. After this audit, any IMSI in the IMSIMGR which is not found in any Sessmgr is deleted and similarly any missing entries at the IMSIMgr are created.

Examples

Delete IMSI 04413325524211 from the audit table:

sgsn imsimgm remove-record 04413325524211
sgsn offload

Instructs the SGSN to begin the offloading procedure and actually starts and stops the offloading of subscribers which is part of the SGSN Gb (2G) or Iu (3G) Flex load redistribution functionality.

Product  SGSN

Privilege  Security Administrator, Administrator

Command Modes  Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

sgsn offload { gprs-service service_name | sgsn-service service_name } { activating | imsi imsi | nri-value nri_value | stop | imsi imsi | nri-value nri_value | target-nri target_nri } | connecting | nri-value nri_value | stop | imsi imsi | nri-value nri_value | target-nri target_nri | | target-nri target_nri | target-nri target_nri | t3312-timeout seconds | nri-value nri_value | target-nri target_nri | target-nri target_nri | target-nri target_nri | target-nri target_nri | target-nri target_nri | num_to_offload |

**gprs-service srvc_name**

Specifies a unique alphanumeric string of 1 through 63 characters that identifies a GPRS service that has already been defined for the 2G SGSN configuration.

**sgsn-service srvc_name**

Specifies a unique alphanumeric string of 1 through 63 characters that identifies an SGSN service that has already been defined for the 3G SGSN configuration.

**activating**

Instructs the SGSN to off load any subscribers sending an "activate request" message.

**connecting**

Instructs the SGSN to off load any subscribers sending either an Attach Request or a RAU Request message. Including this keyword without adding the target-nri and target-count keywords activates local offloading.

**imsi imsi**

Identifies a subscriber by the international mobile subscriber ID (IMSI) which consists of the 3-digit MCC (mobile country code) + the 2- or 3-digit MNC (mobile network code) + the MSIN (mobile station identification number) for the remaining 10 or 9 digits (depending on the length of the MNC).
**imsi**- enter an integer comprising up to 15 digits.

**nri-value**

Sets the local NRI. Including this keyword in the configuration instructs the SGSN to check the P-TMSI and use the SGSN matching the configured NRI value to off load subscribers.

---

**Important**  
**nri-value** and **target-nri** are mutually exclusive.

**nri-value** is an integer from 1 through 63 that identifies a specific, already defined, SGSN in a pool. (NRI defined in the service configuration.)

Use of 0 (zero) value is **not** recommended.

**stop**

Instructs the SGSN to stop offloading subscribers from the pool area.

**target-nri**

Instructs the SGSN to begin dynamically load balancing across a network of pooled SGSNs.

**target-nri** is an integer from 0 through 63 that identifies an already defined target NRI (SGSN) to which the subscribers are to be offloaded. (NRI previously defined in the service configuration.)

Use of 0 (zero) value is **not** recommended.

**target-count**

Identifies the number of subscribers to be offloaded as an integer from 0 through 4000000. Instructs the SGSN to begin target count-based offloading.

**t3312-timeout seconds**

Sets the timer (in seconds) for sending period RAUs to the MS as an integer from 2 through 60. Default: 4

---

**Usage Guidelines**

Use this command to configure the offloading of subscribers which is a part of the SGSN's load redistribution operation. This command can be used anytime an SGSN is to be taken out of service.

Commands, with different NRI values, are repeated to expand/contract the radius of the offloading.

Target count-based offloading and local offloading can not run simultaneously. When target count offloading is to be used, you should choose an algorithm to control offloading from the perspective of the IMSIMGR and SESSMGR. This is done with the **target-offloading** command in the SGSN-Global configuration mode.

---

**Examples**

The following two commands initiate **local offloading**.

Command 1: The following command instructs the SGSN to begin local offloading for the local NRI id 1 included in the gprs1 GPRS service configuration:

```bash
sgsn offload gprs-service gprs1 connecting nri-value 1
```

Command 2: Enter this second command to add offloading for NRI 2 to the offloading already occurring for NRI 1:

```bash
sgsn offload gprs-service gprs1 connecting nri-value 2
```
The following two commands discontinue local offloading and initiate **target count-based offloading**.

Command 1: The following command instructs the SGSN to discontinue local offloading for NRIs 5 included in the `sgnserv4` SGSN service configuration:

```
sgsn offload sgsn-service sgnserv4 connecting stop nri 5
```

---

**Important**

The next command is an example of provision configuration for multiple NRI with a single command.

Command 2: The following command instructs the SGSN to initiate target count-based offloading for target NRI 5 to a target count of **10000** and target NRI 6 to count of **300000**:

```
sgsn offload sgsn-service sgnserv4 connecting target-nri 5 target-count 10000 target-nri 6 target-count 300000
```
sgsn op

Instructs the SGSN to begin specific operations or functions.

**Product**

SGSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
sgsn op { auth-ptmsi-counters imsi <imsi> | convert | nse { fr | ip | sgsn-invoke-trace } | show | ss7-rd ss7-rd_id { destination | link | linkset | peer } }

auth-ptmsi-counters imsi <imsi>

Displays the authentication, P-TMSI reallocation, and P-TMSI signature reallocation counters for the specified IMSI.

<imsi>: Enter a unique 15-digit number associated with a mobile phone.

convert point-code pt_code variant variant

Converts SS7 point codes, according to identified variants, from dotted-decimal format to decimal format and vice versa.

**point-code pt_code**: Enters an SS7 point code in either dotted-decimal format or decimal format.

**variant variant**: Identifies the appropriate variant for the point code:

- ansi
- itu
- ttc

nse { fr operation | ip operation | sgsn-invoke-trace nse-id nse_id }

Enables the operator to perform a range of live control functions (for example, reset, block, unblock) for various types of virtual connections based on the signalling type of the NSE:

**fr**: Identifies a Frame Relay NSE.

**ip**: Identifies an IP NSE.
operation: Identifies the operation to be performed for the NSE connection (if available for the selected signalling type):

- **block nse-id nse_id**: Blocks signal flow through all network service virtual connections (NSVC) for the specified NSE:
  - **nse_id**: an integer from 0 to 65535.

- **bvc-flc-limit rate rate bvc_id nse-id nse_id**: SGSN initiates flow control at the defined percentage rate to limit the flow through the BSSGP virtual connection (BVC) for the specified NSE and optionally for a specified BVC.
  - **rate**: an integer from 0 to 100.
  - **bvc_id**: an integer from 0 to 65000.
  - **nse_id**: an integer from 0 to 65535.

- **bvc-reset bvc-id bvc_id nse-id nse_id**: SGSN initiates a BVC-Reset on the specified BVC and NSE:
  - **bvc_id**: an integer from 0 through 65000.
  - **nse_id**: an integer from 0 through 65535.

- **nsvc nsvc_id { block | enable | disable | unblock } nse_id**: SGSN initiates NS-Block or NS-Unblock for the specified NSVC of the specified NSE:
  - **nsvc_id**: an integer from 0 through 65535.
  - **nse_id**: an integer from 0 through 65535.

- **reset nse-id nse_id**: SGSN initiates NS-Reset for all NSVC configured in the NSE. **nse_id** is an integer from 0 through 65535.

- **unblock nse-id nse_id**: SGSN initiates NS-Unblock for all NSVC configured for the specified NSE. **nse_id** is an integer from 0 through 65535.

**sgsn-involve-trace nse-id nse_id record-type record_type trace-reference reference [ mobile-id type id_type | trace-transaction-id trace_id ]:**

---

**Important**

This command can be used for troubleshooting/debugging purposes and is primarily intended for the use of specially trained service representatives.

Instructs the SGSN (1) to send the BSSGP message SGSN-INVOLVE-TRACE to the BSC to initiate a BSC trace of a particular MS and (2) to define the type and triggering of the trace.

- **nse_id**: Identifies the peer NSE, enter an integer from 0 to 65535.

- **record_type**: Specifies the type of trace to be performed:
  - **basic**
  - **handover**
  - **no-bss-trace**
  - **radio**
• **trace-reference reference**: Specifies the trace reference ID as an integer from 0 to 65535.

• **mobile-id type id_type**: Select the appropriate mobile ID type for the MS that is to be traced:
  
  • **imei value**: Specifies the mobile ID type as the unique International Mobile Equipment Identity.
    
    *value*: 15-digit IMEI value.
  
  • **imeisv value**: Specifies the mobile ID type as the unique International Mobile Equipment Identity with the two-digit software version number.
    
    *value*: 16-digit IMEISV value.
  
  • **imsi value**: Specifies the mobile ID type as a network unique International Mobile Subscriber Identity as a 15-digit IMSI value.

• **trace-transaction-id trace_id**: Specifies the trace transaction ID as an integer from 0 through 65535.

```
show plmn-list smgr-inst sessmgr#
```

<table>
<thead>
<tr>
<th>Important</th>
<th>This function is only available in release 8.1.</th>
</tr>
</thead>
</table>

SGSN displays the configured PLMN list for the specified session manager (SessMgr):

*sessmgr#: Enter up to 4 digits, 0 to 4095.*

```
ss7-rd ss7-rd_id { destination | link | linkset | peer }
```

The **ss7-rd** commands assist with troubleshooting connections between the SGSN and the peer server.

*ss7-rd_id*: Specifies the configured SS7 routing domain as an integer from 1 through 12.

```
• destination audit asp-instance asp_id peer-server-id peer_id psp-instance-id psp_id
```

Initiates destination audit (DAUD) messages for all point codes reachable via the identified peer-server, which is in restricted/unavailable/congested state due to DRST/DUNA/SCON messages respectively from the far end.

  • **asp_id**: Specifies the relevant ASP configuration ID as an integer from 1 through 4.
  
  • **peer_id**: Specifies the relevant peer server configuration ID as an integer from 1 through 144.
  
  • **psp_id**: Specifies the relevant PSP configuration ID as an integer from 1 through 4

```
• link procedure linkset-id linkset_id link-id link_id
```

Initiates MTP3 network link management procedures for the specified link:

  • **activate**: Activates the deactivated link.
  
  • **deactivate**: Deactivates specified link.
  
  • **deactivate-l2-only**: Deactivates the link only at the MTP3 layer.
  
  • **inhibit**: Inhibits the link only if it does not make any destination unreachable.
  
  • **uninhibit**: Uninhibits the inhibited link.
• linkset_id: an integer between 1 and 144.
• link_id: an integer between 1 and 16.

**linkset-id procedure** linkset-id linkset_id

Initiates MTP3 network link management procedures for all the links in the specified linkset:
• activate: Activates the deactivated linkset.
• deactivate: Deactivates the linkset.
• deactivate-l2-only: Deactivates the linkset only at MTP3 layer.
• linkset_id: an integer between 1 and 144.

• peer message asp-instance asp_id peer-server-id peer_id psp-instance-id psp_id

Initiates one of the following SCTP/M3UA management messages from the identified link:
• abort: Sends an SCTP Abort message which aborts the SCTP association ungracefully.
• activate: Sends an M3UA ASP Active message to activate the link.
• down: Sends an M3UA ASP Down message to bring down the M3UA link.
• establish: Sends an SCTP INIT message to start the SCTP association establishment.
• inactivate: Sends an M3UA ASP Inactive message to deactivate the link.
• inhibit: Inhibits the M3UA link locally when the operator wants to lockout the link.
• terminate: Sends SCTP Shutdown message which closes the SCTP association gracefully.
• un-inhibit: Uninhibits the M3UA link.
• up: Sends an M3UA ASP UP message to bring up the M3UA link.
• asp_id: Specifies a relevant ASP configuration ID as an integer from 1 through 4.
• peer_id: Specifies the relevant peer server configuration ID as an integer from 1 through 144.
• psp_id: Specifies the relevant PSP configuration ID as an integer from 1 through 4

**Usage Guidelines**

In most cases, an operator will block/unblock/reset from the BSC-side. The nse commands cause the SGSN to initiate actions, usually for one of the following reasons:
• to resolve issues on the BSC-side,
• as part of an upgrade to the BSC,
• as part of link expansion,
• to resolve NSVC/BVC status mismatches observed between the SGSN and BSC.

The sgsn-invoke-trace command initiates the trace procedure where the BSC begins a trace record on a specified MS.
Examples

The following command instructs the SGSN to initiate an NS-Block for all NSVC associated with Frame Relay NSE ID 2422:

```
sgsn op nse fr unblock nse-id 2422
```

Activate linkset 1 configured in SS7 routing domain 1:

```
sgsn op ss7-rd 1 linkset activate linkset-id 1
```
sgsn retry-unavailable-ggsn

Marks the GGSN as available for further activation.

**Product**
SGSN

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]\host_name#
```

**Syntax Description**

```
sgsn retry-unavailable-ggsn  ip_address
```

*ip_address*
Specifies the IP address of a GGSN in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

**Usage Guidelines**

This command allows the operator to directly inform both the session manager and the SGTPC manager that the GGSN has been removed from a blacklist and is now available for activations. This action would override the GGSN blacklist timer configuration with `ggsn-fail-retry-timer` in the SGTP service configuration mode.

**Examples**
The following command indicates that the GGSN identified by its IP address is now available for activation:

```
sgsn retry-unavailable-ggsn 198.168.128.8
```
sgsn trigger-congestion

This command triggers a congestion state for the entire SGSN for operations and maintenance purposes (e.g., testing).

**Product**  
SGSN

**Privilege**  
Security Administrator, Administrator

**Command Modes**  
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**  
`sgsn trigger-congestion level { critical | major | minor }`

- **critical | major | minor**
  Select one of the three congestion severity levels. Each level is associated with congestion threshold settings and a congestion-action-profile.

**Usage Guidelines**  
Use the `sgsn clear congestion` to disable congestion simulation and return to normal operations.

Use the `show congestion-control configuration` command to display the SGSN's congestion-control policy with the congestion-action-profile name association with the level of congestion severity.

**Examples**  
Enable critical congestion control response testing with the following command:

```
sgsn trigger-congestion level critical
```
sgtpc test echo sgsn-address

Initiates SGTPC echo test procedure.

Product
SGSN

Privilege
Security Administrator, Administrator

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

sgtpc test echo sgsn-address  sgsn_ip_address { all | ggsn-address ggsn_ip_address }

sgsn-address  sgsn_ip_address
Identifies the IP address of the SGSN issuing the test in IPv4 dotted-decimal notation.

all
Sends GTPC echo requests to all GGSNs having current sessions with the SGTP service.

ggsn-address  ggsn_ip_address
Sends a GTPC echo request to the specified GGSN whether or not the GGSN has active sessions with the SGTP service. ggsn_ip_address is entered using IPv4 dotted-decimal notation.

Usage Guidelines

This command initiates a test for the GTPC echo procedure -- echo from the specified SGSN to a specified GGSN or to all GGSNs that have sessions with the SGTP service. Issue the command from the Exec Mode within the context in which the SGTP service is configured.

Note that if the GGSN does not respond to the initial echo request, the echo requests will be retried for the max-retransmissions times.

Examples

This SGSN with IP address of 10.1.1.1 sends an echo test to all GGSNs attached to the SGTP service:

gtpc test echo sgsn-address 10.1.1.1 all
shutdown

Terminates all processes within the chassis. After all processes are terminated, the system initiates a hardware reset (reboot). This command is identical to the `reload` command.

**Product**

All

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```  

**Syntax Description**

`shutdown [-noconfirm]`

- `-noconfirm`
  
  Executes the command without any additional prompts or confirmation from the user.

**Usage Guidelines**

The system performs a hardware reset and reloads the highest priority boot image and configuration file specified in the boot.sys file. Refer to the `boot system priority` command in the Global Configuration Mode for additional information on configuring boot images, configuration files and priorities.

---

**Important**

To avoid the abrupt termination of subscriber sessions, it is recommended that a new call policy be configured and executed prior to invoking the `shutdown` command. This policy sets busy-out conditions for the system and allows active sessions to terminate gracefully. Refer to the `newcall` command in the Exec Mode for additional information.

---

**Caution**

Issuing this command causes the system to become unavailable for session processing until the reboot process is complete.

---

**Examples**

The following command performs a hardware reset on the system:

```
shutdown
```
sleep

Pauses the command line interface (CLI).

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

sleep seconds

sleep seconds

Specifies the number of seconds to pause as an integer from 1 through 3600.

Usage Guidelines

Sleep is a command delay which is only useful when creating command line interface scripts such as predefined configuration files/scripts.

Examples

The following will cause the CLI to pause for 30 seconds.

sleep 30
srp initiate-audit

Initiates an SRP audit between active and standby ICSR chassis.

**Product**

All products that support ICSR

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
srp initiate-audit manual-with-sync
```

**Usage Guidelines**

When issued from the active chassis, this command initiates a forced audit between ICSR chassis. This audit ensures that two ICSR peers are synchronized and identifies any discrepancies prior to scheduled or unscheduled switchover events.

**Examples**

The following command initiates a forced audit between ICSR chassis.

```
srp initiate-audit manual-with-sync
```
srp initiate-switchover

Changes the device status on the primary and backup chassis configured for Interchassis Session Recovery (ICSR) support employing Service Redundancy Protocol (SRP).

**Product**
All products that support ICSR

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
srp initiate-switchover [force | post-processing-timeout | reset-route-modifier | timeout seconds | [-noconfirm]]
```

- **force**
  Switchover by force, without any validating checks.

- **post-processing-timeout**
  Specifies the timeout value (in seconds) to initiate the post-switchover process as an integer from 0 through 3600.

- **reset-route-modifier**
  During a switchover, resets the route-modifier to the initial value.

- **timeout seconds**
  Specifies the number of seconds before a forced switchover occurs as an integer from 0 through 65535. Default: 300

- **-noconfirm**
  Executes the command without any additional prompt and confirmation from the user.

**Usage Guidelines**
This command executes a forced switchover from active to inactive. The command must be executed on the active system and switches the active chassis to the inactive state and the standby system to an active state.
Examples

The following initiates a switchover in 30 seconds.

srp initiate-switchover timeout 30
srp reset-auth-probe-fail

Resets Service Redundancy Protocol (SRP) authentication probe monitor failure information.

Product
All products that support Interchassis Session Recovery (ICSR)

Privilege
Security Administrator, Administrator, Operator, Inspector

Command Modes
Exec
The following prompt is displayed in the Exec mode:
[local]host_name#

Syntax Description
srp reset-auth-probe-fail

Usage Guidelines
This command resets the auth probe monitor failure information to 0.

Examples
The following command resets the auth probe monitor failure information to 0:
srp reset-auth-probe-fail
srp reset-diameter-fail

Resets Service Redundancy Protocol (SRP) Diameter monitor failure information.

**Product**
All products that support Interchassis Session Recovery (ICSR)

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
srp reset-diameter-fail

**Usage Guidelines**
This command resets the Diameter monitor failure information to 0.

**Examples**
The following command resets the SRP Diameter monitor failure information:

```
srp reset-diameter-fail
```
srp terminate-post-process

Forcibly terminates post-switchover processing by primary and backup chassis configured for Interchassis Session Recovery (ICSR) support employing Service Redundancy Protocol (SRP).

**Product**
All products that support ICSR

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]\host_name#
```

**Syntax Description**
```
srp terminate-post-process [ -noconfirm ]
```

- **-noconfirm**
  Executes the command without any additional prompt and confirmation from the user.

**Usage Guidelines**
Use this command to force the termination of post-switchover processing.

**Examples**
srp terminate-post-process
srp validate-configuration

Initiates a configuration validation check from the active chassis via Service Redundancy Protocol (SRP).

**Product**
All products that support Interchassis Session Recovery (ICSR)

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
srp validate-configuration

**Usage Guidelines**
Validates the configuration for an active chassis.

**Examples**
The following command initiates a configuration validation check from the active chassis:

```
srp validate configuration
```
**srp validate-switchover**

Validates that both the active and standby chassis are ready for a planned Service Redundancy Protocol (SRP) switchover.

**Product**

All products that support Interchassis Session Recovery (ICSR)

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

`srp validate-switchover`

**Usage Guidelines**

Validates that both the active and standby chassis are ready for a planned SRP switchover.

**Examples**

The following example performs SRP readiness validation on both ICSR chassis:

```
srp validate-switchover
```
**ssh**

Connects to a remote host using a secure shell (SSH) interface.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
ssh { host_name | host_ip_address } [ port port_num ] [ user user_name ]
```

**host_name | host_ip_address**

Identifies the remote node with which to attempt connection.

*host_name*: specifies the remote node using its logical host name which must be resolved via DNS lookup. This is an alphanumeric string of 1 through 127 characters.

*host_ip_address*: specifies the remote node using its assigned IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

**port port_num**

Specifies a specific port for connection as an integer from 1 through 65535. Default = 22

**user user_name**

Specifies the user name attempting connection as an alphanumerical string from 1 through 1024 characters.

**Usage Guidelines**

SSH connects to a remote network element using a secure interface.

**Examples**

The following connects to remote host *remoteABC* as user *user1*.

```
ssh remoteABC user user1
```

The following connects to remote host *10.2.3.4* without any default user.

```
ssh 10.2.3.4
```

The following connects to remote host *10.2.3.4* via port *2047* without any default user.

```
ssh 10.2.3.4 port 2047
```
**start crypto security-association**

Initiates Internet Key Exchange (IKE) negotiations.

**Product**  
PDSN  
HA  
GGSN

**Privilege**  
Security Administrator, Administrator, Operator, Inspector

**Command Modes**  
Exec  
The following prompt is displayed in the Exec mode:  
{local} host_name#

**Syntax Description**  
`start crypto security-association cryptomap`

`cryptomap`  
Specifies the name of an existing crypto map policy to use when starting the IKE negotiations as an alphanumeric string of 1 through 127 characters.

**Usage Guidelines**  
Use this command to start IKE negotiations for IPSec.

**Examples**  
The following command starts the IKE negotiations using the parameters set in the crypto map named `cryptomap1`:  
`start crypto security-association cryptomap1`
statistics-collection

This command allows to dynamically enable collection of Charging, Firewall or Post-processing ruledef statistics.

**Product**
ACS

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
statistics-collection active-charging {{ all | charging | firewall | post-processing } { callid call_id | imsi imsi_number } }
[ no ] statistics-collection active-charging { callid call_id | imsi imsi_number }
```

**no**
If previously configured, deletes the specified rule expression from the current ruledef.

**all | charging | firewall | post-processing**

- **all**: Specifies to collect all ruledef statistics.
- **charging**: Specifies to collect charging ruledef statistics.
- **firewall**: Specifies to collect firewall ruledef statistics.
- **post-processing**: Specifies to collect post-processing ruledef statistics.

**callid call_id**
Specifies a call identification number as an eight-byte hexadecimal number.

**imsi imsi_number**
Specifies the IMSI number to match.

`imsi_number` must be a sequence of digits.
**Usage Guidelines**

Use this command to dynamically enable collection of ruledef statistics — Charging, Firewall or Post-processing. By default, the statistics will not be maintained. If the command is not configured, statistics collection will not be enabled and the following error message will be displayed in the `show active-charging sessions full` CLI — "statistics collection disabled; not collecting <charging/firewall/postprocessing> ruledef stats”.

**Example**

The following command will collect firewall ruledef statistics with call ID set to 004c9961:

`statistics-collection active-charging firewall callid 004c9961`
**system**

Configures information about the system that will be accessible by the SNMP agent.

**Product**

P-GW

SAEGW

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```plaintext
[local] <host_name>
```

**Syntax Description**

```
system { carrier-id mcc mcc_num mnc mnc_num | contact name | description description | hostname name | location location }
default system { contact | description | hostname | location }
no system carrier-id
```

`carrier-id mcc mcc_num mnc mnc_num`

Specifies the system's Carrier ID via the three-digit MCC (mobile country code) and three-digit MNC (mobile network code).

`contact name`

Specifies the system's contact name as an alphanumeric string from 0 through 255 characters.

`description description`

Defines description text that as an alphanumeric string from 1 through 255 characters that includes text and some parameters, including:

- `%version%` - software version
- `%build%` - software build number
- `%chassis%` - chassis type ("asr5000")
- `%staros%` - ID of the kernel revision
- `%ostype%` - os type
- `%hostname%` - system name
hostname name
Specifies the system's host name (name of system) as an alphanumeric string of 1 through 63 characters.

location location
Specifies the system's geographic or referenced location as an alphanumeric string of 0 through 255 characters.

default system { contact | description | hostname | location }
Sets/restores the default value assigned for specified parameter.

no system carrier-id
Removes the Carrier ID established for the system.

Usage Guidelines
Use this command to configure information about the system that is accessible by the SNMP agent.

Examples
The following command identifies the system's location as boston:

system location boston
Exec Mode Commands (T-Z)

The Exec Mode is the initial entry point into the command line interface system. Exec mode commands are useful in troubleshooting and basic system monitoring.

This section includes the commands telnet through upgrade url-blacklisting database.

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Important

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

- tcpdump kernel, page 709
- telnet, page 710
- telnet6, page 711
- terminal, page 712
- test alarm, page 713
- test ggsn vapn, page 714
- test ipcf bindmux, page 715
- test ipsec tunnel ip-pool, page 716
- test mobile tunnel, page 717
- timestamps, page 719
- traceroute, page 720
- traceroute6, page 722
- update active-charging, page 724
- update firewall policy, page 728
- update ip access-list, page 729
- update ipv6 access-list, page 731
- update local-user database, page 733
- update module, page 734
- update qos policy map, page 735
- update qos tft, page 737
- upgrade, page 738
- upgrade content-filtering, page 741
- upgrade tethering-detection, page 743
- upgrade url-blacklisting database, page 745
**tcpdump kernel**

Runs the tcpdump packet analyzer and prints out a description of the contents of packets on a specified network interface that match the boolean expression.

**Product**

All

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
tcpdump kernel string
```

**string**

Specifies an existing interface match string as an alphanumeric string of 0 through 80 characters.

**Usage Guidelines**

Runs the tcpdump packet analyzer and prints out a description of the contents of packets on a specified network interface that match the boolean expression. This analyzer performs a sniff operation at the medma0 interface using the kernel BIA (Bump-in-the-API) as a filter. This allows sniffing of kernel traffic complete with midplane header.

**Examples**

The following command initiates a tcpdump for the default kernel interface:

```
tcpdump BPPP
```
**telnet**

Connects to a remote host using the terminal-remote host protocol and a hostname or IPv4 address and port number.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#`
```

**Syntax Description**

```
telnet { host_name | host_ipv4_address } [ port port_num ]
```

- **host_name | host_ipv4_address**

  Identifies the remote node with which to attempt connection.

  **host_name**: specifies the remote node using its logical host name which must be resolved via DNS lookup.

  **host_ipv4_address**: specifies the remote node using its assigned IP address entered using the IPv4 dotted-decimal notation.

- **port port_num**

  Specifies a specific port for connect connection as an integer from 1025 through 10000.

**Usage Guidelines**

Telnet to a remote node for maintenance activities and/or troubleshooting when unable to do so directly.

**Important**

**telnet** is not a secure method of connecting between two hosts. **ssh** should be used whenever possible for security reasons.

**Examples**

The following connects to remote host *remoteABC*.

```
telnet remoteABC
```

The following connects to remote host 10.2.3.4 port 2047.

```
telnet 10.2.3.4 port 2047
```
**telnet6**

Connects to a remote host using the terminal-remote host protocol and a hostname or an IPv6 address and port number.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
telnet6 { host_name | host_ipv6_address } | port port_num 
```

- **host_name | host_ipv6_address**
  Identifies the remote node with which to attempt connection.
  - **host_name**: specifies the remote node using its logical host name which must be resolved via DNS lookup.
  - **host_ipv6_address**: specifies the remote node using its assigned IP address entered using the IPv6 colon-separated-hexadecimal notation.

- **port port_num**
  Specifies a specific port for connect connection as an integer from 1025 through 10000.

**Usage Guidelines**
Telnet to a remote node for maintenance activities and/or troubleshooting when unable to do so directly.

**Important**

`telnet6` is not a secure method of connecting between two hosts. `ssh` should be used whenever possible for security reasons.

**Examples**

The following connects to remote host `remoteABC`.

```
telnet6 remoteABC
```

The following connects to remote host `FE80::172.30.67.89` port `2047`.

```
telnet6 FE80::172.30.67.89 port 2047
```
**terminal**

Sets the number of rows or columns for display output.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
terminal { length lines | width characters }
```

- **length lines | width characters**
  - **length lines**: sets the terminal length in number of lines (rows) of text from 5 to 4294967295 lines or the special value of 0 (zero). The value 0 sets the terminal length to infinity.
  - **width characters**: sets the terminal width in number of characters from 5 to 512 characters.

**Usage Guidelines**

Set the length to 0 (infinite) when collecting the output of a command line interface session which is part of a scripted interface.

**Examples**

The following sets the length then width in two commands.

```
terminal length 66
terminal width 160
```

The following command sets the number of rows of the terminal to infinity.

```
terminal length 0
```
test alarm

Tests the alarm capabilities of the chassis.

Product
All

Privilege
Security Administrator, Administrator, Operator, Inspector

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description
test alarm { audible | central-office { critical | major | minor } }

audible | central-office { critical | major | minor }

- **audible**: Tests the internal alarm on the ASR 5000 System Management Card (SMC) or the ASR 5500 System Status Card (SSC) for 10 seconds. The alarm status is returned to its prior state, such as if the audible alarm was enabled prior to the test, the alarm will again be enabled following the test.

- **central-office { critical | major | minor }**: Tests the specified central office alarm type.

Usage Guidelines
Test the alarm capabilities of the chassis as periodic maintenance to verify the hardware for generation of the internal audible alarms is functional.

⚠️ Caution
The use of test commands could adversely affect the operation of your system. It is recommended that they only be used under the guidance and supervision of qualified support representative.

Examples
test alarm audible
test alarm central-office critical
test alarm central-office major
test alarm central-office minor
test ggsn vapn

Tests for Virtual Access Point Names (VAPNs) in GGSN networks.

Product

GGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

test ggsn vapn {msisdn range | imsi range }

msisdn range | imsi range

msisdn range: Tests VAPNs within a range of previously specified Mobile Subscribers Integrated Services Digital Network (MSISDN) identifiers.

imsi range: Tests VAPNs within a range of previously specified International Mobile Subscriber Identity (IMSI) numbers.

Usage Guidelines

Test for the existence of VAPNs associated with MSISDN or IMSI numbers.

Caution

The use of test commands could adversely affect the operation of your system. It is recommended that they only be used under the guidance and supervision of qualified support representative.

Examples

test ggsn vapn msisdn range

test ggsn vapn imsi range
**test ipcf bindmux**

Tests the status of the Intelligent Policy Control Function (IPCF) BindMux Manager instance and also starts or stops the BindMux Manager instance on the chassis.

**Product**

IPCF

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

`test ipcf bindmux [start | stop ]`

**start**

Starts the IPCF BindMux Manager on the chassis. If already an instance of IPCF BindMux Manager is running it prompts accordingly.

**stop**

Stops the IPCF BindMux Manager instance running on the chassis.

**Usage Guidelines**

Use this command to test the status of IPCF BindMux Manager instance and also to start or stop the BindMux Manager instance on the chassis.

---

**Caution**

The use of test commands could adversely affect the operation of your system. It is recommended that they only be used under the guidance and supervision of qualified support representative.

**Examples**

The following command stops the BindMux Manager instance running on the chassis:

```
test ipcf bindmux stop
```
test ipsec tunnel ip-pool

Tests a specified IPSec tunnel associated with an IP pool name.

Product
All

Privilege
Security Administrator, Administrator, Operator

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local]host_name$

Syntax Description
test ipsec tunnel ip pool pool_name destination-ip ip_address }

pool_name destination-ip ip_address
ip pool pool_name: Specifies the name of an existing IP pool as an alphanumeric string of 1 through 32 characters.
destination-ip ip_address: Specifies a destination IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation

Usage Guidelines
Use this command to test a specified IPSec tunnel.

Caution
The use of test commands could adversely affect the operation of your system. It is recommended that they only be used under the guidance and supervision of qualified support representative.

Examples
The following command test the IPSec tunnel associated with pool3 with a destination IP address of 10.2.3.4:

test ipsec tunnel ip pool pool3 destination-ip 10.2.3.4
test mobile tunnel

Tests for the existence of a specified mobile tunnel.

Product
All

Privilege
Security Administrator, Administrator, Operator

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

test mobile tunnel \{ callid call_id | imsi imsi_value | ipaddr ip_address | msid msid_num | nai nai_value \}

callid call_id
Specifies the exact call instance ID which is to have trace data logged as a 4-byte hexadecimal number.

imsi imsi_value
Specifies the International Mobile Subscriber Identity (IMSI) of the subscriber session to be monitored an integer from 1 through 15 characters.

ipaddr ip_address
Specifies the IP address of the subscriber session to be monitored in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

msid msid_num
Specifies the mobile subscriber identification number to be monitored as 7 to 16 digits of an IMSI, MIN, or RMI.

nai nai_value
Specifies the mobile session Network Access Identifier as an alphanumeric string of 1 through 256 characters. The NAI is the user identity submitted by the client during network access authentication.

Usage Guidelines
Use this command to test a specified mobile tunnel.
The use of test commands could adversely affect the operation of your system. It is recommended that they only be used under the guidance and supervision of qualified support representative.

Examples

The following command tests the subscriber session associated with IP address 192.64.66.9:

```
test mobile tunnel ipaddr 192.64.66.9
```
timestamps

Enables or disables the generation of a timestamp in response to each command entered. The timestamp does not appear in any logs as it is a CLI output only. This command affects the current CLI session only. Use the `timestamps` command in the Global Configuration Mode to change the behavior for all future CLI sessions.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
[ no ] timestamps
```

**no**

Disables generation of timestamp output for each command entered. When omitted, the output of a timestamp for each entered command is enabled.

**Usage Guidelines**

Enable timestamps when logging a CLI session on a remote terminal such that each command will have a line of text indicating the time when the command was entered.

**Examples**

The following command initiates time stamping of CLI commands as they are entered for this login session:

```
timestamps
```
traceroute

Collects information on the route data will take to a specified IPv4 host.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Important**

Inspector privileges are granted for all variables except `count` and `port`. To initiate a traceroute count or to target a specific port for a traceroute, you must have a minimum privilege level of Operator.

**Syntax Description**

```
traceroute { host_name | host_ip_address } [ count packets ] [ df ] [ maxttl max_ttl ] [ minttl min_ttl ] [ port port_num ] [ size octet_count ] [ src { src_host_name | src_host_ip_address } ] [ timeout seconds ] [ vrf vrf_name ] || [ grep grep_options | more ]
```

- **host_name** | **host_ip_address**
  
  Identifies the remote node to trace the route to.
  
  `host_name`: specifies the remote node using its logical host name which must be resolved via DNS lookup.
  
  `host_ip_address`: specifies the remote node using its assigned IP address entered using the IPv4 dotted-decimal notation.

- **count packets**

  Specifies the number of UDP probe packets to send. Default: 3

- **df**

  Indicates the packets for the tracing of the route should not be fragmented. If a packet requires fragmenting, it is dropped and the result is the ICMP response "Unreachable, Needs Fragmentation" is received.

- **maxttl max_ttl**

  Specifies the maximum time to live for the route tracing packets as an integer from 1 through 255. `max_ttl` must be greater than `min_ttl` whether `min_ttl` is specified or defaulted. Default: 30
The time to live (TTL) is the number of hops through the network; it is not a measure of time.

**minttl min_ttl**

Specifies the minimum time to live for the route tracing packets as an integer from 1 through 255. `min_ttl` must be less than `max_ttl` whether `max_ttl` is specified or defaulted. Default: 1

The time to live (TTL) is the number of hops through the network; it is not a measure of time.

**port port_num**

Specifies a specific port for connection as an integer from 1 through 65535. Default: 33434

**size octet_count**

Specifies the number of bytes for each packet as an integer from 40 through 32768. Default: 40

**src { src_host_name | src_host_ip_address }**

Specifies an IP address to use in the packets as the source node. Default: originating system's IP address

*src_host_name:* specifies the remote node using its logical host name which must be resolved via a DNS lookup.

*src_host_ip_address:* specifies the remote node using its assigned IP address specified entered using IPv4 dotted-decimal notation.

**timeout seconds**

Specifies the maximum time (in seconds) to wait for a response from each route tracing packet as an integer from 2 through 100. Default: 5

**vrf vrf_name**

Specifies the name of an existing virtual routing and forwarding (VRF) context associated with this route as an alphanumeric string of 1 through 63 characters. Associates a Virtual Routing and Forwarding (VRF) context with this static ARP entry.

**grep grep_options | more**

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter in this guide.

**Usage Guidelines**

Trace an IPv4 route when troubleshooting network problems where certain nodes are having significant packet delays or packet loss. This can also be used to identify bottlenecks in the routing of data within the network.

**Examples**

The following command traces the route to remote host `remoteABC` and sends the output to the more command.

```
traceroute remoteABC | more
```

The following command traces the route to remote host `10.2.3.4's port 2047` waiting a maximum of 2 seconds for responses.

```
traceroute 10.2.3.4 port 2047 timeout 2
```
tracetoute6

Collects information on the route data will take to a specified IPv6 host.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name>
```

**Important**

Inspector privileges are granted for all variables except count and port. To initiate a traceroute count or to target a specific port for a traceroute, you must have a minimum privilege level of Operator.

**Syntax Description**

```
traceroute6 { host_name | host_ipv6_address } [ count packets ] [ maxttl max_ttl ] [ port port_num ] [ size octet_count ] [ src { src_host_name | src_host_ipv6_address } ] [ timeout seconds ] [ vrf vrf_name ] [ { grep grep_options | more } ]
```

**host_name | host_ipv6_address**

Identifies the remote node to trace the route to.

host_name: specifies the remote node using its logical host name which must be resolved via DNS lookup.

host_ipv6_address: specifies the remote node using its assigned IP address entered using the IPv6 colon-separated-hexadecimal notation.

**count packets**

Specifies the number of UDP probe packets to send. Default: 3

**maxttl max_ttl**

Specifies the maximum time to live for the route tracing packets as an integer from 1 through 255. max_ttl must be greater than min_ttl whether min_ttl is specified or defaulted. Default: 30

The time to live (TTL) is the number of hops through the network; it is not a measure of time.
**port port_num**
Specifies a specific port for connection as an integer from 1 through 65535. Default: 33434

**size octet_count**
Specifies the number of bytes for each packet as an integer from 40 through 32768. Default: 40

**src { src_host_name | src_host_ipv6_address }**
Specifies an IP address to use in the packets as the source node. Default: originating system's IP address
src_host_name: specifies the remote node using its logical host name which must be resolved via a DNS lookup.
src_host_ipv6_address: specifies the remote node using its assigned IP address specified entered using IPv6 colon-separated-hexadecimal notation.

**timeout seconds**
 Specifies the maximum time (in seconds) to wait for a response from each route tracing packet as an integer from 2 through 100. Default: 5

**vrf vrf_name**
Specifies the name of an existing virtual routing and forwarding (VRF) context associated with this route as an alphanumeric string of 1 through 63 characters.

**grep grep_options | more**
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
For details on the usage of **grep** and **more**, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter in this guide.

**Usage Guidelines**
Trace an IPv6 route when troubleshooting network problems where certain nodes are having significant packet delays or packet loss. This can also be used to identify bottlenecks in the routing of data within the network.

**Examples**
The following command traces the route to remote host `remoteABC` and sends the output to the more command.
**traceroute6 remoteABC | more**
The following command traces the route to remote host `2000:4A2B::1f3F`'s port 2047 waiting a maximum of 2 seconds for responses.
**traceroute6 2000:4A2B::1f3F port 2047 timeout 2**
update active-charging

Updates specified active charging option(s) for the matching sessions.

<table>
<thead>
<tr>
<th>Product</th>
<th>ACS</th>
<th>PSF</th>
<th>NAT</th>
<th>TPO</th>
</tr>
</thead>
</table>

| Privilege          | Security Administrator, Administrator, Operator, Inspector |

| Command Modes     | Exec        |

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
update active-charging { override-control rulebase-config | switch-to-fw-and-nat-policy fw_nat_policy_name | switch-to-rulebase rulebase_name | switch-to-tpo-policy tpo_policy_name } { all | callid call_id | fw-and-nat-policy fw_nat_policy_name | imsi imsi | ip-address ip_address | msid msid | rulebase rulebase_name | tpo-policy tpo_policy_name | username user_name } [-noconfirm | [ [ { grep grep_options | more } ]
```

**override-control rulebase-config**

This keyword initiates batch processing of all active calls to apply Override Control (OC) or Inheritance after any rulebase changes, charging action changes and/or addition/deletion of ruledefs for all subscribers having OC or Inheritance feature enabled. Since this is the batch processing of all active calls, the command execution will be in the background even after the CLI command returns to the CLI prompt.

---

**Important**

Override Control is a license-controlled feature. A valid feature license must be installed prior to configuring this feature. For more information on the licensing requirements, contact your Cisco account representative. For more information on the command to enable this feature, refer to ACS Rulebase Configuration Mode Commands chapter in the Command Line Interface Reference.

---

**Important**

In this release, both Inheritance and the Override Control features are supported. Note that these two features should not be enabled simultaneously. If by mistake, these two features are enabled, only Override Control is applied.
In 17 and later releases, this CLI command is used to apply the overridden or inherited values after any ruledef, charging action and rulebase changes performed through the CLI commands in the respective configuration modes. This CLI command is necessary because the configuration changes are reflected immediately on any new PDN session that gets established. However, for the existing PDN sessions established before the configuration change, explicit execution of this CLI command is necessary. This will get all the PDN sessions in system in sync with respect to the required configuration changes.

**Important**  
It is recommended that this CLI command is executed after all rulebase/charging action/ruledef changes are complete. So, this will help in one-time execution of the CLI to get all PDN sessions in sync.

Typically, this command is used whenever any rulebase, charging action or ruledef modification happens. Once this CLI command is executed, each subscriber will read the configuration and incorporate the rulebase or ruledef changes for Override Control. Until this CLI execution is complete, Inheritance or Override Control values will not be applied to the changes done in configuration for all existing calls. Charging and policy parameters configured at P-GW will apply during this period. Please follow recommended upgrade procedures to avoid this. For the upgrade procedure, contact your Cisco account representative.

In release 17, the batch processing will complete in 15 to 20 minutes depending on the call load in the system. In 18 and later releases, batch processing will complete in 1 to 3 minutes depending on the call load in the system.

If the `override-control rulebase-config` command has been issued multiple times, batch processing will be restarted and the latest rulebase/charging action/ruledef changes will be applied to all the active calls.

**Important**  
In release 17, there was no restriction on the usage of the CLI command "update active-charging override-control rulebase-config" on a standby chassis. In release 18 and later, this CLI command is not allowed to be executed on the standby chassis.

```
switch-to-fw-and-nat-policy fw_nat_policy_name
```

Specifies an existing Firewall-and-NAT policy to switch to as an alphanumeric string of 1 through 63 characters.

```
switch-to-rulebase rulebase_name
```

Specifies an existing rulebase to switch to as an alphanumeric string of 1 through 63 characters.

```
switch-to-tpo-policy tpo_policy_name
```

**Important**  
The Traffic Performance Optimization (TPO) in-line service is not supported in this release.

```
all
```

Updates rulebase/policy for all subscribers.

```
callid call_id
```

Updates rulebase/policy for the Call Identification number specified as an eight-digit hexadecimal number.
fw-and-nat-policy fw_nat_policy_name
Updates the rulebase/policy for sessions matching an existing Firewall-and-NAT policy specified as an alphanumeric string of 1 through 63 characters.

imsi imsi
Updates rulebase/policy for International Mobile Subscriber Identification (IMSI) specified here.
imsi must be 3 digits of MCC (Mobile Country Code), 2 or 3 digits of MNC (Mobile Network Code), and the rest with MSIN (Mobile Subscriber Identification Number). The total should not exceed 15 digits. For example, 123-45-678910234 can be entered as 12345678910234.

ip-address ip_address
Updates rulebase/policy for the IP address specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

msid msid
Updates rulebase/policy for an MSID specified as a string of 1 through 24 characters.

rulebase rulebase_name
Updates rulebase/policy for sessions matching an existing rulebase specified as an alphanumeric string of 1 through 63 characters.

tpo-policy tpo_policy_name

Important
The Traffic Performance Optimization (TPO) in-line service is not supported in this release.

username user_name
Updates rulebase/policy for user specified as a an alphanumeric of characters and/or wildcard characters (‘$’ and ‘*’) of 1 through 127 characters.

-noconfirm
Executes the command without any additional prompt and confirmation from the user.

| { grep grep_options | more }
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter in the Command Line Interface Reference.

Usage Guidelines
Use this command to change specified active charging option(s) for the matching sessions.
Examples

The following command changes the rulebase for sessions using the rulebase named *standard* to use the rulebase named *super*:

`update active-charging switch-to-rulebase super rulebase standard`
update firewall policy

This command is obsolete.
update ip access-list

When you update an IP Access list, this command forces the new version of the access list to be applied to any subscriber sessions that are currently using that list.

**Product**

- PDSN
- GGSN
- ASN-GW

**Privilege**

Security Administrator, Administrator

**Command Modes**

- Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
update ipv6 access-list list_name subscribers [ command_keyword ] [ filter_keywords ] [-noconfirm] [ verbose ]
```

- **list_name**
  Specifies the name of an existing IP Access list that you want to apply to the subscriber as an alphanumeric string of 1 through 47 characters.

- **[command_keyword]**
  **[filter_keywords]**
  These are the same command keywords and filter keywords available for the `show subscribers` command.

- **-noconfirm**
  Executes the command without any additional prompt and confirmation from the user.

- **verbose**
  Show detailed information.

**Usage Guidelines**

Use this command to force existing subscriber sessions that are already using a specific IP Access list to have that IP Access list reapplied. This is useful when you edit an IP Access list and want to make sure that even existing subscriber sessions have the new changes applied.
Examples

To apply the IP Access list named *ACLlist11* to all existing subscribers that are already using that IP Access list, enter the following command:

```
update ip access-list ACLlist11 subscribers all
```
update ipv6 access-list

When you update an IP Access list, this command forces the new version of the access list to be applied to any subscriber sessions that are currently using that list.

**Product**
- PDSN
- GGSN
- ASN-GW

**Privilege**
- Security Administrator, Administrator

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
update ipv6 access-list list_name subscribers [ command_keyword ] [ filter_keywords ] [-noconfirm] [verbose]
```

- `list_name`
  Specifies the name of an existing IPv6 Access list that you want to apply to the subscriber as an alphanumeric string of 1 through 47 characters.

- `[ command_keyword ] [ filter_keywords ]`
  These are the same command keywords and filter keywords available for the `show subscribers` command.

- `-noconfirm`
  Executes the command without any additional prompt and confirmation from the user.

- `verbose`
  Show detailed information.

**Usage Guidelines**
Use this command to force existing subscriber sessions that are already using a specific IPv6 Access list to have that IPv6 Access list reapplied. This is useful when you edit an IPv6 Access list and want to make sure that even existing subscriber sessions have the new changes applied.
Examples

To apply the IPv6 Access list named ACLv6List1 to all existing subscribers that are already using that IP Access list, enter the following command:

```
update ipv6 access-list ACLv6List1 subscribers all
```
update local-user database

Updates the local user (administrative) database with current user information. Run this command immediately after creating, removing or editing administrative users.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]\host_name#
```

**Syntax Description**
update local-user database

**Usage Guidelines**
Use this command to update the local-user database with current information.

**Examples**
The following command updates the local-user database:

```
update local-user database
```
update module

Loads a specified plugin module from the Module Priority List with the lowest priority number. This will also copy the Module priority list onto the Version priority list. This function is associated with the patch process for accommodating dynamic software upgrades.

**Product**
ADC

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
`update module plugin_name`

`plugin_name`
Specifies the name of an existing plugin module that you want to update as an alphanumeric string of 1 through 16 characters. If the named module is not known to the system, an error message is displayed.

**Usage Guidelines**
Use this command to initiate an update of a new software plugin module. If it fails to load, the module with next highest priority will be loaded. If none of the modules are installed, the default patch which comes along with the StarOS build is automatically loaded. The specified module must have been previously unpacked/verified and configured via the `install plugin` and `plugin` commands respectively.

For additional information, refer to the Plugin Configuration Mode Commands chapter.

**Examples**
The following command updates the plugin module named `p2p`:

```
update module p2p
```
update qos policy map

Updates QoS profile information based on specific subscriber policy maps.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

**Syntax Description**

`update qos policy-map map_name use-granted-profile-id id1 [id2 | id3] subscribers [command_keyword | filter_keywords | -noconfirm | verbose | match-requested-profile-id | | {grep grep_options | more}]`

`map_name`
Specifies the name of an existing policy map as an alphanumeric string of 1 through 15 characters.

`use-granted-profile-id id1 [id2 | id3]`
Specifies the profile IDs to update. Up to three different profile IDs can be specified. Each profile ID is specified as a hexadecimal value from 0x0 and 0xFFFF.

`subscribers [command_keyword | filter_keywords]`
These are the same command keywords and filter keywords available for the `show subscribers` command.

`-noconfirm`
Updates matching subscribers without prompting for confirmation.

`verbose`
Displays details for the profile updates.

`match-requested-profile-id`
Sends session-updates only to profile-ids matching the profile-ids in the requested list.
**grep grep_options | more**

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in this guide.

**Usage Guidelines**

Use this command to update subscriber session profile IDs based on the specified criteria.

**Examples**

The following command updates profile IDs 0x3E and 0x4C for all subscriber sessions and sends session-updates with the IDs:

```
update qos policy-map test use-granted-profile-id 0x3E 0x4C subscribers all match-requested-profile-id
```
update qos tft

Updates the subscriber traffic flow template (TFT) associated with the flow ID and direction.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

update qos tft flow-id flow-dir { forward | reverse } use-granted-profile-id id1 [ id2 ] [ id3 ] subscribers [ command_keyword ] [ filter_keywords ] [-noconfirm ] [ verbose ] [ match-requested-profile-id ] [ grep grep_options | more ]

flow-id flow-id

Sends session updates only when the flow ID matches the flow-id and flow-direction. flow-id must be specified as an integer from 1 through 255.

flow-dir { forward | reverse }

Specifies the direction of the TFT flow.

subscribers [ command_keyword ] [ filter_keywords ]

These are the same command keywords and filter keywords available for the show subscribers command.

Usage Guidelines

Supports QoS updates based on subscriber TFTs.

Examples

The following command update QoS for reverse flow 0, profile ID 0x0, all subscribers without prompting for confirmation:

update qos tft flow-id 0 flow-dir reverse use-granted-profile-id 0x0 subscribers all -noconfirm
**upgrade**

Installs major software releases to the system.

**Product**

All

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
upgrade { online | patch } image_url config cfg_url [-noconfirm ]
```

**online**

Perform a software upgrade from one release version to another. The online upgrade is only available for software release 3.5 and higher.

**patch**

Install an interim, or patch, software release.

---

**Important**

Software Patch Upgrades are not supported in this release.

---

**image_url**

Specifies the location of a image file to use for system startup. The URL may refer to a local or a remote file. The URL must be formatted as follows:

For the ST16:

```
| file: | { /flash | /pcmcia1 | /pcmcia2 } | directory | file_name
| tftp: | /| host | :port# | | directory | file_name
```

For the ASR 5000:

```
| file: | { /flash | /pcmcia1 | /hd } | directory | file_name
| http: | tftp: | /| host | :port# | | directory | file_name
```

For the ASR 5500:

```
| file: | { /flash | /usb1 | /hd } | directory | file_name
| http: | tftp: | /| host | :port# | | directory | file_name
```
Important  Do not use the following characters when entering a string for the field names below: "/" (forward slash), ":" (colon) or "@" (at sign).

directory is the directory name.

filename is the actual file of interest.

host is the IP address or host name of the server.

port# is the logical port number that the communication protocol is to use.

Important  A file intended for use on an ASR 5000 uses the convention xxxx.ASR5000.bin, where xxxx is the software build information.

Important  When using the TFTP, you should use a server that supports large blocks, per RFC 2348. This can be implemented by using the "block size option" to ensure that the TFTP service does not restrict the file size of the transfer to 32MB.

config config_path

Specifies the location of a configuration file to use for system startup. This must be formatted as follows:

For the ST16:
[ file: ]{ /flash | /pcmcia1 | /pcmcia2 }{ /path }/filename

For the ASR 5000:
[ file: ]{ /flash | /pcmcia1 | /hd }{ /path }/filename

For the ASR 5500:
[ file: ]{ /flash | /usb1 | /hd }{ /path }/filename

Where path is the directory structure to the file of interest, and filename is the name of the configuration file. This file typically has a .cfg extension.

-noconfirm

Executes the command without any additional prompt and confirmation from the user.

Usage Guidelines  Use the upgrade online command to perform a software upgrade when upgrading from one software release version to another, providing that both versions support this feature. For example, you can use this method to upgrade from release version 3.5 (any build number) to version 4.0 (any build number), but you cannot use this method to upgrade from release version 3.0 to version 3.5 since version 3.0 does not support the feature.

Important  Software Patch Upgrades are not supported in this release.
Important

This command is not supported on all platforms.

Examples

The following command performs a major software release upgrade from an older version to a newer version. In this example the new software image file is in a subdirectory on a tftp server, and the configuration file is in a subdirectory on the local flash at tftp://host/[path]/filename.

upgrade online tftp://imageserver/images/image.bin config /flash/configurations/localconfig.cfg
upgrade content-filtering

Upgrades the Static Rating Database (SRDB) for Category-based Content Filtering application.

**Product**
CF

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
upgrade content-filtering category { database | rater-pkg }
```

- **upgrade content-filtering category database**
  Triggers the upgrade of the Category-based Content Filtering Static Rating Database (SRDB).

- **upgrade content-filtering category rater-pkg**
  Triggers manual upgrade of the Dynamic Content-Filtering Rater Package (rater.pkg file).
  The rater.pkg file contains the models and feature counters that are used to return the dynamic content rating. The upgrade will trigger distribution of the rater.pkg to all the SRDBs.

**Important**
This command is customer specific. For more information, please contact your local sales representative.

**Usage Guidelines**
Use this command to load the Static Rating Database (SRDB) in to memory for Category-based Content Filtering application, and/or to load the rater.pkg file.

If the default directory of /cf does not exist on the flash, it will create the same. It also locates the recent full database and loads it into memory. This command also clears the old and excess incremental databases.

**Important**
This command is not supported on all platforms.
Examples

The following command upgrades the SRDB for the Category-based Content Filtering application:

```
upgrade content-filtering category database
```
upgrade tethering-detection

Upgrades the Tethering Detection feature's database(s).

**Product**
ACS

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
upgrade tethering-detection database { all | os-signature | tac | ua-signature } [ -noconfirm ]
```

- **all**
  Upgrades all Tethering Detection databases—OS, TAC and UA.

- **os-signature**
  Upgrades only the OS database.

- **tac**
  Upgrades only the TAC database.

- **ua-signature**
  Upgrades only the UA database.

- **- noconfirm**
  Executes the command without any prompts and confirmation from the user.

**Usage Guidelines**

Use this command to upgrade the database(s) used by the Tethering Detection feature.

This command upgrades the database(s) from file(s) kept in designated path. The name of the existing source file is prefixed with the word "new-". For example for OS DB, if the existing file name is "os-db", the upgrade file name is "new-os-db".
If there is a file named "new-xxx-db", it is verified that it is a valid Tethering Detection database and then loaded it into memory. If successful, the files is renamed "xxx-db" to "xxx-db-<number>" and then renamed "new-xxx-db" to "new-xxx-db".

For example, the command `upgrade tethering-database ua-signature -noconfirm` results in loading the file by name "new-ua-db" if it is present in the designated directory. In case of a successful upgrade, the previous version of the database is stored as backup in a file named "ua-db-1". Also, the newly uploaded database file is renamed as "ua-db".

Also see the `tethering-database` command in the *ACS Configuration Mode Commands* chapter.

**Examples**

The following command upgrades all Tethering Detection databases:

`upgrade tethering-detection database all -noconfirm`
**upgrade url-blacklisting database**

Upgrades the URL blacklisting database.

**Product**
CF

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
`upgrade url-blacklisting database [ -noconfirm ]`

- `-noconfirm`
  Executes the command without any additional prompt and confirmation from the user.

**Usage Guidelines**
Use this command to upgrade and load a URL blacklisting database whenever required.

**Examples**
The following command updates the URL blacklisting database:

```
upgrade url-blacklisting database
```
upgrade url-blacklisting database
Exec Mode show Commands (A-C)

The Exec Mode is the initial entry point into the command line interface system. Exec mode show commands are useful in troubleshooting and basic system monitoring.

This section includes the commands show aaa through show css service.

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Important

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

- show aaa, page 752
- show active-charging analyzer statistics, page 754
- show active-charging bandwidth-policy, page 765
- show active-charging charging-action, page 766
- show active-charging content-filtering category policy-id, page 768
- show active-charging content-filtering category statistics, page 769
- show active-charging content-filtering server-group, page 771
- show active-charging credit-control, page 773
- show active-charging dns-learnt-ip-addresses, page 775
- show active-charging edr-format, page 777
- show active-charging edr-udr-file, page 779
- show active-charging file-space-usage, page 781
- show active-charging firewall dos-protection, page 782
- show active-charging firewall statistics, page 784
• show active-charging firewall track-list, page 786
• show active-charging flow-control-counters, page 787
• show active-charging flow-mappings, page 788
• show active-charging flows, page 790
• show active-charging fw-and-nat policy, page 806
• show active-charging group-of-objects, page 808
• show active-charging group-of-prefixed-urls, page 810
• show active-charging group-of-ruledefs, page 812
• show active-charging nat statistics, page 814
• show active-charging p2p-dynamic-rules, page 816
• show active-charging packet-filter, page 817
• show active-charging pcp-service, page 819
• show active-charging qos-group-of-ruledefs, page 821
• show active-charging regex, page 823
• show active-charging rulebase, page 825
• show active-charging ruledef, page 827
• show active-charging service, page 829
• show active-charging sessions, page 830
• show active-charging sessions credit-control server-unreachable, page 845
• show active-charging subscribers, page 858
• show active-charging subsystem, page 860
• show active-charging tcp-proxy statistics, page 862
• show active-charging tethering-detection, page 864
• show active-charging timedef, page 866
• show active-charging udr-format, page 868
• show active-charging url-blacklisting statistics, page 869
• show active-charging video detailed-statistics, page 871
• show active-charging xheader-format, page 872
• show administrators, page 873
• show alarm, page 874
• show alcap counters, page 876
• show alcap-service, page 878
• show alcap statistics, page 880
• show apn, page 882
• show apn counters ip-allocation, page 884
• show apn statistics, page 886
• show apn-profile, page 888
• show apn-remap-table, page 890
• show aps, page 892
• show asngw-service, page 894
• show asngw-service session, page 896
• show asngw-service session counters, page 898
• show asngw-service statistics, page 900
• show asnpc-service, page 902
• show asnpc-service session, page 904
• show asnpc-service session counters, page 906
• show asnpc-service session counters verbose, page 908
• show asnpc-service statistics, page 910
• show asnpc-service statistics verbose, page 912
• show banner, page 914
• show bcmcs counters, page 916
• show bcmcs statistics, page 917
• show bfd, page 918
• show boot, page 919
• show bssap+ statistics, page 921
• show bssgp statistics, page 923
• show bssgp status, page 925
• show bulkstats, page 927
• show ca-certificate, page 932
• show ca-crl, page 933
• show cae-group server, page 934
• show call-control-profile, page 935
• show call-home, page 937
• show camel-service, page 939
• show card, page 941
• show cbs counters, page 943
• show cbs sessions, page 944
• show cbs statistics, page 946
• show cbs-service, page 948
• show cdr, page 949
• show certificate, page 951
• show cgw-service, page 952
• show cli, page 953
• show clock, page 955
• show cloud configuration, page 956
• show cloud hardware, page 957
• show cloud monitor, page 958
• show cmp history, page 960
• show cmp outstanding-req, page 961
• show cmp statistics, page 962
• show configuration, page 963
• show configuration errors, page 967
• show congestion-control, page 971
• show connectedapps, page 974
• show content-filtering category database, page 975
• show content-filtering category policy-id, page 977
• show content-filtering category statistics, page 979
• show content-filtering category url, page 981
• show content-filtering server-group, page 983
• show context, page 985
• show cpu, page 986
• show crash, page 988
• show credit-control sessions, page 989
• show credit-control statistics, page 990
• show crypto blacklist file, page 991
• show crypto group, page 992
• show crypto ikev1, page 994
• show crypto ikev2-ikesa security-associations, page 996
• show crypto ikev2-ikesa transform-set, page 998
• show crypto ipsec security-associations, page 1000
• show crypto ipsec transform-set, page 1003
• show crypto isakmp keys, page 1005
• show crypto isakmp policy, page 1006
• show crypto isakmp security-associations, page 1007
• show crypto managers, page 1008
• show crypto map, page 1010
• show crypto statistics, page 1012
• show crypto template, page 1014
• show crypto whitelist file, page 1016
• show cs-network, page 1017
• show cs-network counters, page 1019
• show cs-network statistics, page 1021
• show css delivery-sequence, page 1023
• show css server, page 1024
• show css service, page 1025
show aaa

Displays AAA (Authentication Authorization and Accounting) statistics for the current context.

**Product**
- PDSN
- GGSN
- SGSN

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show aaa { group { all | name aaa_group_name } | local counters } | | { grep grep_options | more }
```

- **group { all | name aaa_group_name }**
  Displays AAA information.
  - **all**: If the exec context is local, information for all the default AAA groups, and the AAA groups configured in all the contexts are displayed. If the exec context is not local, information for only the context-specific AAA groups are displayed.
  - **name aaa_group_name**: Displays information for an existing AAA group specified as an alphanumeric string of 0 through 64 characters.

- **local counters**
  Displays information for current context.

  | | { grep grep_options | more }

  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the Command Line Interface Overview chapter.

**Usage Guidelines**
This command is used to view accounting and authentication statistics for the current context.
Examples

The following command displays AAA statistics for the current context:

```
show aaa local counters
```

The following command displays AAA statistics for the AAA group `aaa_group1`:

```
show aaa group name aaa_group1
```

Important

Output descriptions for commands are available in the Statistics and Counters Reference.
show active-charging analyzer statistics

Displays statistical information for protocol analyzers.

Product
ACS

Privilege
Security Administrator, Administrator, Operator, Inspector

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description
show active-charging analyzer statistics [ name protocol_name [ instance instance_number ] [ verbose ] ] [ | { grep grep_options | more } ]

name protocol_name
Displays detailed information for the specified protocol analyzer:

• cdp
• dns
• file-transfer
• ftp
• h323
• http
• icmp
• icmpv6
• imap
• ip
• ipv6
• mms
• p2p [ application p2p_list ] [ protocol-group group_list ] [ duration ] [ audio { application p2p_audio_duration_list } [ video { application p2p_video_duration_list } ] ] [ wide [ all ] ] : Peer-to-peer analyzer.
**p2p application** *p2p_list:* The supported applications are:

- 8tracks
- actionvoip
- actsync
- adobecconnect
- aimini
- amazoncloud
- amazonmusic
- amazonvideo
- antsp2p
- apple-push
- apple-store
- applejuice
- applemaps
- ares
- armagettron
- avi
- badoo
- baidumovie
- battlefld
- bbm
- beatport
- bitcasa
- bittorrent
- bittorrent-sync
- blackberry-store
- blackberry
- blackdialer
- box
- callofduty
- chikka
- cisco-jabber
- citrix
• clubbox
• clubpenguin
• crackle
• crossfire
• cyberghost
• ddlink
• didi
• directconnect
• dish-anywhere
• dofus
• dropbox
• edonkey
• espn
• facebook
• facetime
• fandor
• fasttrack
• feidian
• fiesta
• filetopia
• flash
• flickr
• florensia
• foursquare
• fox-sports
• freenet
• friendster
• fring
• funshion
• gadu_gadu
• gamekit
• gmail
• gnutella
• go90
• goober
• google-music
• google-push
• google
• googleplay
• googleplus
• gotomeeting
• gtalk
• guildwars
• halflife2
• hamachivpn
• hbogo
• hbonow
• heytell
• hgtv
• hike-messenger
• hls
• hotspotvpn
• hulu
• hyves
• iax
• icall
• icecast
• icloud
• idrive
• igo
• iheartradio
• imesh
• imessage
• imgur
• imo
• instagram
show active-charging analyzer statistics

- iplayer
- iptv
- irc
- isakmp
- iskoot
- itunes
- jabber
- jap
- jumblo
- kakaotalk
- kik-messenger
- kontiki
- kugoo
- kuro
- linkedin
- lync
- magicjack
- manolito
- mapfactor
- mapi
- maplestory
- meebo
- mgcp
- mlb
- mojo
- monkey3
- mozy
- msn
- msrp
- mute
- mypeople
- myspace
- nateontalk
show active-charging analyzer statistics

- naverline
- navigon
- nbc-sports
- netmotion
- newsy
- nimbuzz
- nokia-store
- octoshape
- off
- ogg
- oist
- oovoo
- opendrive
- openft
- openvpn
- orb
- oscar
- outlook
- paltalk
- pando
- pandora
- path
- pcanywhere
- periscope
- pinterest
- plingm
- poco
- popo
- pplive
- ppstream
- ps3
- qq
- qqqgame
show active-charging analyzer statistics

• qqlive
• quake
• quic
• quicktime
• radio-paradise
• radius
• rdp
• rdt
• regram
• rfactor
• rhapsody
• rmstream
• rodi
• rynga
• samsung-store
• scydo
• secondlife
• shoutcast
• showtime
• silverlight
• siri
• skinny
• skydrive
• skype
• slacker-radio
• slingbox
• slingtv
• smartvoip
• snapchat
• softether
• sopcast
• soribada
• soulseek
• soundcloud
• spdy
• speedtest
• splashfighter
• spotify
• ssdp
• starz
• stealthnet
• steam
• stun
• sudaphone
• svtplay
• tagged
• talkatone
• tango
• teamspeak
• teamviewer
• telegram
• thunder
• tmo-tv
• tor
• truecaller
• truphone
• tumblr
• tunein-radio
• tunnelvoice
• tvants
• tvuplayer
• twitch
• twitter
• ultrabac
• ultrasurf
• univision
• upc-phone
• usenet
• ustream
• usee
• vchat
• veohtv
• vessel
• vevo
• viber
• vine
• voipdiscount
• vopium
• vpnx
• voxer
• vtok
• vtun
• vudu
• warcft3
• waze
• webex
• wechat
• whatsapp
• wii
• windows-azure
• windows-store
• winmx
• winny
• wmstream
• wofkungfu
• wofwarcraft
• wuala
• xbox
• xdcc
xing
• yahoo
• yahoomail
• youku
• yourfreetunnel
• youtube
• zattoo

**p2p protocol-group** *group_list*: The following P2P protocol groups are supported:

• generic
• anonymous-access
• business
• communicator
• cloud
• e-store
• e-mail
• e-news
• internet-privacy
• filesharing
• gaming
• p2p-filesharing
• p2p-anon-filesharing
• remote-control
• social-nw-gaming
• social-nw-generic
• social-nw-videoconf
• standard
• streaming

**wide** [ all ]: Displays all available P2P statistics in a single wide line. The **all** keyword displays all available P2P statistics without suppressing zeroes.

• pop3
• pptp
• rtcp
• rtp
show active-charging analyzer statistics

- rtsp
- sdp
- secure-http
- sip
- smtp
- tcp
- tftp
- udp
- wsp
- wtp

[ instance instance_number ]
Displays the ACS/Session Manager information for specific instances.
instance_number must be an integer from 1 through 65535.

verbose
Specifies to display detailed (all available) information. If not specified, concise information is displayed.

| { grep grep_options | more }
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to display statistic information for active charging protocol analyzers.

Examples
The following command displays detailed statistic information for all P2P protocol analyzers:
show active-charging analyzer statistics name p2p verbose

The following command displays detailed statistic information for all TCP protocol analyzers:
show active-charging analyzer statistics name tcp verbose

Important
Output descriptions for commands are available in the Statistics and Counters Reference.
show active-charging bandwidth-policy

Displays information on bandwidth policies configured in a service.

Product ACS

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

show active-charging bandwidth-policy { all | name bandwidth_policy_name } [ | { grep grep_options | more } ]

all
Displays information for all bandwidth policies configured in the service.

name bandwidth_policy_name
Displays detailed information for an existing bandwidth policy specified as an alphanumeric string of 1 through 63 characters.

| { grep grep_options | more } |
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to view information on bandwidth policies configured in a service.

Examples
The following command displays detailed information for the bandwidth policy named standard:
show active-charging bandwidth-policy name standard
show active-charging charging-action

Displays information for charging actions configured in the Active Charging Service (ACS).

Product
ACS

Privilege
Security Administrator, Administrator, Operator, Inspector

Command Modes
Exec

The following prompt is displayed in the Exec mode:
[local]host_name#

Syntax Description
show active-charging charging-action { { all | name charging_action_name } | service name acs_service_name | | statistics { name charging_action_name | } | | { grep grep_options | more } }

all
Displays information for each configured charging action.

name charging_action_name
Displays detailed information for an existing charging action specified as an alphanumeric string of 1 through 63 characters.

statistics
Displays statistical information for all configured charging actions.

service name acs_service_name
Displays information for all or a specific charging action in the specified ACS. acs_service_name is an alphanumeric string of 1 through 15 characters.

| { grep grep_options | more } |
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter.
Usage Guidelines

Use this command to display information for charging actions configured in a service.

Examples

The following command displays a detailed information for all charging actions:

```
show active-charging charging-action all
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show active-charging content-filtering category policy-id

Displays Content Filtering (CF) category policy definitions.

**Product**
CF

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show active-charging content-filtering category policy-id { all | id policy_id } [ | { grep grep_options | more } ]
```

- **all**
  Displays definitions of all Content Filtering category policies.

- **id policy_id**
  Displays definitions of an existing Content Filtering category policy specified as an integer from 1 through 4294967295.

- **| { grep grep_options | more }**
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

  For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to view Content Filtering category definitions for a specific/all Policy IDs.

**Examples**

The following command displays Content Filtering category definitions for policy ID 3:

```
show active-charging content-filtering category policy-id id 3
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show active-charging content-filtering category statistics

Displays category-based content filtering statistics.

**Product**
CF

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show active-charging content-filtering category statistics [ rulebase { name rulebase_name | all } ] | verbose | | { grep grep_options | more }
```

- **rulebase { name rulebase_name | all }**
  Displays category-based content filtering statistics, either for all or for a specific rulebase.
  - **name rulebase_name**: Specifies an existing rulebase as an alphanumeric string of 1 through 63 characters.
  - **all**: Displays category-based content filtering statistics for each rulebase in the ACS.

- **verbose**
  Specifies to display detailed (all available) information. If not specified, concise information is displayed.

- | { grep grep_options | more }
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

  For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to view category-based content filtering statistics for a specific rulebase, or cumulative statistics for all rulebases in the ACS.

**Examples**

The following command displays category-based content filtering statistics for the rulebase named **consumer**:

```
show active-charging content-filtering category statistics rulebase name consumer
```
The following command displays cumulative category-based content filtering statistics for all rulebases in verbose mode:

```
show active-charging content-filtering category statistics verbose
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show active-charging content-filtering server-group

Displays information for Content Filtering Server Group (CFSG) configured in the service.

**Product**
CF

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show active-charging content-filtering server-group [name cfsg_name | statistics [name cfsg_name | acsmgr instance instance_number [priority priority] | verbose [ | {grep grep_options | more} ]]]
```

- `name cfsg_name`
  Specifies name of an existing CFSG as an alphanumeric string of 1 through 63 characters.

- `acsmgr instance instance_number`
  Specifies the manager instance as an integer from 1 through 65535.

- `priority priority`
  Specifies the priority of the server for which statistics has to be displayed as an integer from 1 through 65535.

- `verbose`
  Specifies to display detailed (all available) information, for each ICAP server connection at each instance. If not specified, concise information is displayed.

  ```
  | { grep grep_options | more }
  ```

  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

  For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to view CFSG information/statistics.
show active-charging content-filtering server-group name cfs_name: The output of this command displays detailed information for the specified CFSG.

show active-charging content-filtering server-group statistics name cfs_name: The output of this command displays cumulative statistics for the specified CFSG. This will include all the instances and all the servers configured in the CFSG.

show active-charging content-filtering server-group statistics name cfs_name acsmgr instance instance_number: The output of this command displays the cumulative statistics of all the ICAP server connections on the specified manager instance.

show active-charging content-filtering server-group statistics name cfs_name acsmgr instance instance_number priority priority: The output of this command displays the statistics for the specified ICAP server connection on the specified manager instance.

show active-charging content-filtering server-group statistics verbose: The output of this command displays statistics of each ICAP server connection at each instance.

**Examples**

The following command displays information for the CFSG named *test12*:

```
show active-charging content-filtering server-group name test12
```

The following command displays detailed information for all CFSGs:

```
show active-charging content-filtering server-group statistics verbose
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show active-charging credit-control

Displays statistics for Diameter/RADIUS Prepaid Credit Control Service in the Active Charging Service (ACS).

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

```
show active-charging credit-control { misc-info max-backpressure [ all | facility sessmgr instance instance_number ] | statistics [ group group_name | server { all | ip-address ip_address [ port port_num ] | name server_name } ] | session-states [ rulebase rulebase_name ] | content-id content_id ] } | | { grep grep_options | more }
```

**misc-info max-backpressure [ all | facility sessmgr instance instance_number ]**

Displays miscellaneous information including the maximum backpressure hit count for all active session managers.

- **all**: Displays the max-backpressure count from all session manager instances.
- **facility sessmgr instance instance_number**: Displays logged events for specific facility. That is, it will display the maximum backpressure count on that specific session manager instance.

  The session manager instance number must be an integer ranging from 1 through 65535 characters.

**statistics [ group group_name | server { all | ip-address ip_address [ port port_num ] | name server_name } ]**

Displays prepaid credit control statistics.

- **group group_name**: Displays statistics for an existing credit control group specified as an alphanumeric string of 1 through 63 characters.
- **server { all | ip-address ip_address [ port port_num ] | name server_name }**: Displays statistics for the specified credit control server.
  - **all**: Displays all available statistics including host statistics.
  - **ip-address ip_address**: Displays available statistics for the specified server's address.
* **port port_num**: Displays available statistics for the specified server's port number.
* **name server_name**: Displays the credit control statistics for the specified server.

**session-states [ rulebase rulebase_name ] [ content-id content_id ]**
Displays prepaid CCA session status based on rulebase and/or content ID.

- **rulebase rulebase_name**: Displays the Credit Control Application (CCA) session state counts for an existing rulebase specified as an alphanumeric string of 1 through 63 characters.
- **content-id content_id**: Displays CCA session state counts for a content ID of a credit control service specified as an integer from 1 through 65535.

| { grep grep_options | more } |
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to view statistics for Diameter/RADIUS prepaid credit control service in the ACS.

**Examples**
The following command shows ACS statistics of configured Diameter or RADIUS Credit Control Application:

```
show active-charging credit-control statistics
```

**Important**
Output descriptions for commands are available in the Statistics and Counters Reference.
show active-charging dns-learnt-ip-addresses

Displays DNS learnt IP address statistics for the DNS Snooping feature.

**Product**

ACS

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

[local]\host_name#

**Syntax Description**

`show active-charging dns-learnt-ip-addresses statistics { sessmgr { all | instance sessmgr_instance_number } | verbose | summary } | { grep grep_options | more } }

`sessmgr { all | instance sessmgr_instance_number } | verbose`

Displays information for all or the specified Session Manager (SessMgr) instance.

- **all**: Displays information for all SessMgr instances.
- **instance sessmgr_instance_number**: Displays information for a SessMgr instance specified as an integer from 1 through 65535.
- **verbose**: Displays detailed statistics for specified criteria. Use this keyword to view the learnt IP addresses.

**summary**

Displays summary information.

| { grep grep_options | more } |

Specifies that the output of this command is to be piped (sent) to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to view statistics for the DNS Snooping feature related DNS learnt-ip-addresses.

This command displays the number of learnt IP entries per rule line. It displays on a service level the number of resolved (learnt) IP addresses per rule line per rulebase (once if a rule line is used multiple times in the
same rulebase as it is shared across rulebase) per destination context per SessMgr instance. It also displays the number of entries flushed due to TTL expiry. The field entries_replaced gives the number of entries replaced (same IP returned again) in the pool due to a DNS response by same/another subscriber for same domain-name, wherein the TTL of the entry will be replaced.

IPv4-overflows will start incrementing when the maximum limit of 51200 across system is reached OR limit of 200 per pattern is reached.

Ipv6-overflows will start incrementing when maximum limit of 25600 across system is reached OR limit of 100 per pattern is reached.

Limits are:

- Maximum of 51,200 IPv4 entries per instance shared across IPv4 all pools.
- Maximum of 200 IPv4 entries per pool (pool is same as discussed before (per rule-line pattern)).
- Maximum of 25,600 IPv6 entries per instance shared across all IPv6 pools.
- Maximum of 100 IPv6 entries per pool.

In releases prior to 14.0, this CLI command `show active-charging dns-learnt-ip statistics sessmgr all` displayed all the configured patterns and rulebase names for each of the pattern entry, even though the pattern has not learnt any IP address. When a large number of DNS snooping ruledefs are configured (configured as ip server-domain name under ruledef configuration), the memory allocated for sending this information exceeded the message size limit for messenger calls and hence the crash was observed.

To avoid the crash occuring, in 14.0 and later releases, the output of the CLI command `show active-charging dns-learnt-ip statistics sessmgr all` is modified to display only the patterns for which at least one IPv4/IPv6 address is learnt as all other information is available from the configuration. Also for each of the patterns this CLI command will not be displaying rulebase name as it can be printed once.

**Examples**

The following command displays summary statistics for DNS learnt IP addresses:

```
show active-charging dns-learnt-ip-addresses statistics summary
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference.*
show active-charging edr-format

Displays information about Event Data Record (EDR) formats configured in the Active Charging Service (ACS).

**Product**
ACS

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show active-charging edr-format [ statistics ] [ all | name edr_format_name ] | | { grep grep_options | more }
```

- **all**
  Displays information for all EDR formats.

- **statistics**
  Displays statistics for all or an existing EDR format.
  If neither **all** nor **name** is specified, summarized statistics over all EDR formats is displayed.

- **name edr_format_name**
  Displays information for an existing EDR format specified as an alphanumeric string of 1 through 63 characters.

  | { grep grep_options | more }

  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.
  For details on the usage of **grep** and **more**, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to display information for EDR format(s) in the ACS.
The following command displays all configured EDR formats in the ACS:

```
show active-charging edr-format all
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show active-charging edr-udr-file

Displays CDR flow control information. This command also displays the Event Data Record (EDR) and Usage Data Record (UDR) file information.

**Product**
ACS

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show active-charging edr-udr-file { flow-control-counters | verbose | statistics } | | { grep grep_options | more }
```

- **flow-control-counters | verbose |**
  Displays the counters for dropped EDR/UDR records. These counters are for when CDRMOD uses flow control to stop ACS/Session Managers from sending the records.
  - **verbose** displays detailed information.

- **statistics**
  Displays EDR and UDR file statistics.

- **Important**
  This keyword is obsolete. The option is now supported through the `show cdr` command.

  | { grep grep_options | more }
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**
Use this command to view CDR flow control information.
show active-charging edr-udr-file

Examples

The following command displays EDR and UDR files statistics:

```
show active-charging edr-udr-file statistics
```

The following command displays CDR flow control information:

```
show active-charging edr-udr-file flow-control-counters
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show active-charging file-space-usage

Displays the file space used by Charging Data Record (CDR) and Event Data Record (EDR) files.

**Product**
ACS

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show active-charging file-space-usage [ | { grep grep_options | more } ]
```

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to view CDR/EDR file space usage information. The context in which this command is used is not relevant.

**Examples**

The following command displays CDR/EDR file space usage:

```
show active-charging file-space-usage
```
show active-charging firewall dos-protection

Displays the list of servers involved in any IP Sweep attacks.

**Product**
PSF

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show active-charging firewall dos-protection ip-sweep server-list { all | instance instance_num } | | { grep grep_options | more }
```

- **all**
  Displays the IP Sweep server list for all instances.

- **instance instance_num**
  Displays statistics for the specified ACS Manager instance.
  `instance_num` must be an integer from 1 through 65535.

- `| | { grep grep_options | more }
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

  For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to display the list of servers involved in any IP Sweep attacks.

**Examples**
The following command displays the IP Sweep server list for all instances:

```
show active-charging firewall dos-protection ip-sweep server-list all
```
Important

Output descriptions for commands are available in the *Statistics and Counters Reference.*

show active-charging firewall dos-protection
show active-charging firewall statistics

Displays Active Charging Stateful Firewall statistics.

**Product**

PSF

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```
- **other**: Protocols other than TCP, UDP, and ICMPv4/ICMPv6.
- **tcp**
- **udp**

**username** *user_name*

Specifies the user name as an alphanumeric string of 1 through 127 characters.

**verbose**

Specifies to display detailed (all available) information. If not specified, concise information is displayed.

**wide**

Displays all available information in a single wide line.

| {grep grep_options | more |

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to view Stateful Firewall statistics. If you are in the local context, statistics for all contexts are displayed. Otherwise, only statistics of your current context are displayed.

**Examples**

The following command displays Stateful Firewall statistics:

```
show active-charging firewall statistics
```

---

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show active-charging firewall track-list

Displays the list of servers being tracked for involvement in any Denial-of-Service (DOS) attacks.

**Product**

PSF

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show active-charging firewall track-list attacking-servers [ | { grep grep_options | more } ]
| { grep grep_options | more } |
```

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of `grep` and `more`, refer to the `Regulating a Command's Output` section of the `Command Line Interface Overview` chapter.

**Usage Guidelines**

Use this command to view details of servers being tracked for involvement in any DOS attack.

**Examples**

The following command displays the list of servers being tracked for involvement in any DOS attacks:

```
show active-charging firewall track-list attacking-servers
```

**Important**

Output descriptions for commands are available in the `Statistics and Counters Reference`. 
show active-charging flow-control-counters

Displays information for dropped EDR and UDR records.

Product
ACS

Privilege
Security Administrator, Administrator, Operator, Inspector

Command Modes
Exec
The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description
show active-charging flow-control-counters [ verbose ] [ | { grep grep_options | more } ]

verbose
Specifies to display detailed (all available) information. If not specified, concise information is displayed.

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to view EDR-UDR flow control information—for dropped EDR and UDR records.

Examples
The following command displays detailed EDR-UDR flow control information:
show active-charging flow-control-counters verbose

Important
Output descriptions for commands are available in the Statistics and Counters Reference.
show active-charging flow-mappings

Displays information about all the active flow mappings based on the applied filters.

<table>
<thead>
<tr>
<th>Product</th>
<th>PSF</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NAT</td>
</tr>
</tbody>
</table>

| Privilege | Security Administrator, Administrator, Operator, Inspector |

<table>
<thead>
<tr>
<th>Command Modes</th>
<th>Exec</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The following prompt is displayed in the Exec mode:</td>
</tr>
<tr>
<td></td>
<td>[local] host_name#</td>
</tr>
</tbody>
</table>

| Syntax Description | show active-charging flow-mappings [ all | call-id call_id | nat { not-required | required | nat-realm nat_realm_name | } | trans-proto { tcp | udp } | + | { grep grep_options | more | } |

| all | Displays all the available active-charging flow-mapping information. |

| call-id call_id | Displays detailed information for a call ID specified as an 8-digit hexadecimal number. |

| nat { required | nat-realm string | not-required } | Displays the active charging flow mappings for which NAT is enabled or disabled. |

| trans-proto { tcp | udp } | Displays the transport layer. |

| { grep grep_options | more } | Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent. |

For details on the usage of grep and more, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter.

| Usage Guidelines | Use this command to view the Active Charging flow-mapping details. |
Examples

The following command displays the total number of Active Charging flow-mappings:

```
show active-charging flow-mappings all
```

The following command displays the flow-mappings for which NAT is enabled and the NAT-realm used is `natpool3`:

```
show active-charging flow-mappings nat required nat-realm natpool3
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*. 

---

**Exec Mode show Commands (A-C)**

`show active-charging flow-mappings`
show active-charging flows

Displays information for active charging flows.

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

show active-charging flows { all | [ callid call_id ] | connected-time [ < | > | greater-than | less-than | seconds ] | [ control-connection { ftp | pptp | rtsp | sip | tftp } ] | [ flow-id flow_id ] | [ full ] | [ idle-time [ < | > | greater-than | less-than | seconds ] ] | [ firewall { not-required | required } ] | [ imsi imsi_value ] | [ ip-address ] | [ server ] | [ subscriber ] | [ IPv4 | greater-than | less-than | address ] | [ msisdn msisdn_num ] | [ nat { not-required | required | nat-ip nat_ip_address } ] | [ binding-info ] | [ pacing-bitrate | < | > | greater-than | less-than | equal-to | number ] | [ port-number ] | [ server ] | [ subscriber ] | [ IPv4 | greater-than | less-than | number ] | [ rx-bytes | < | > | greater-than | less-than | number ] | [ rx-packets | < | > | greater-than | less-than | number ] | [ tx-bytes | < | > | greater-than | less-than | number ] | [ tx-packets | < | > | greater-than | less-than | number ] | [ type flow_type ] | [ username user_name ] | [ grep grep_options | more ]

all
Displays information for all active charging flows.

callid call_id
Displays the specific Call Identification Number. call_id must be an eight digit hexadecimal number.

connected-time [ < | > | greater-than | less-than | seconds
Displays information for flows filtered by connected time period.
- < seconds: Displays flows that have been connected less than the specified number of seconds.
- > seconds: Displays flows that have been connected more than the specified number of seconds.
- greater-than seconds: Displays flows that have been connected more than the specified number of seconds.
- less-than seconds: Displays flows that have been connected less than the specified number of seconds.
seconds is an integer from 0 through 4294967295.

control-connection { ftp | pptp | rtsp | sip | tftp }
Displays information for control connection of flows.
  • ftp: Displays control connection information for the FTP flow.
  • pptp: Displays control connection information for the PPTP flow.
  • rtsp: Displays control connection information for the RTSP flow.
  • sip: Displays control connection information for the SIP flow.
  • tftp: Displays control connection information for the TFTP flow.

firewall { not-required | required }
Displays information for flows filtered by Firewall required or not required setting.
  • not-required: Sessions with Firewall processing are not required.
  • required: Sessions with Firewall processing are required.

flow-id flow_id
Displays concise information for specified active charging flow ID.

full
Displays all available information for the specified flows.

idle-time | < | > | greater-than | less-than | seconds
Displays information for flows filtered by idle time period.
  • < seconds: Displays flows that have been idle less than the specified number of seconds.
  • > seconds: Displays flows that have been idle more than the specified number of seconds.
  • greater-than seconds: Displays flows that have been idle more than the specified number of seconds.
  • less-than seconds: Displays flows that have been idle less than the specified number of seconds.

seconds is an integer from 0 through 4294967295.

imsi imsi_value
Displays information for an International Mobile Subscriber Identity (IMSI). imsi_value must be a sequence of digits and/or wild characters.

ip-address [ server | subscriber ] | [ < | > | IPv4 ] greater-than | less-than | address
Displays information for flows filtered by IPv4 IP address.
  • server: Specifies the IP address for a specific server.
  • subscriber: Displays subscriber details for the IP address specified in IPv4 dotted-decimal format.
• `<address`: Specifies an IPv4 IP address that is less than `address`.

• `>address`: Specifies an IPv4 IP address that is greater than `address`.

• `greater-than address`: Specifies an IPv4 IP address that is greater than `address`.

• `less-than address`: Specifies an IPv4 IP address that is less than `address`.

`address` is an IP address expressed in IPv4 dotted-decimal notation.

`msisdn msisdn_num`

Displays information for the mobile user identified by the Mobile Subscriber ISDN Number (MSISDN). `msisdn_num` must be a numeric string of 1 to 15 digits.

`nat { not-required | required [ nat-ip nat_ip_address [ nat-port nat_port ] ] [ binding-info ] }`

The `nat` keyword and options are only available in StarOS 8.3 and later releases.

Displays information for flows filtered by Network Address Translation (NAT) required or not required setting.

• `not-required`: Sessions with NAT processing are not required.

• `required`: Sessions with NAT processing are required.

• `nat-ip nat_ip_address`: Sessions using the NAT IP address expressed in IPv4 dotted-decimal notation.

• `nat-port nat_port`: Sessions using the specified NAT IP address and NAT port number specified as an integer from 0 through 65535.

• `binding-info`: Displays the NAT binding information of the NATed flow.

`pacing-bitrate [ < | > | = | greater-than | less-than | equal-to | number ]`

Displays information on video flows filtered by a video pacing bit rate specified an integer from 1 to 256000000.

• `<number`: Specifies a number that is less than the specified video pacing bit rate.

• `>number`: Specifies a number that is greater than the specified video pacing bit rate.

• `=number`: Specifies a number that is equal to the specified video pacing bit rate.

• `greater-than number`: Specifies a number that is greater than the specified video pacing bit rate.

• `less-than number`: Specifies a number that is less than the specified video pacing bit rate.

• `equal-to number`: Specifies a number that is equal to the specified video pacing bit rate.

`port-number [ server | subscriber ] [ < | > | IPv4 | greater-than | less-than ] _number`

Displays information on flows filtered by port number.

• `server`: Specifies the port-number for a specific server.

• `subscriber`: Specifies subscriber details for this port-number, and must be an integer from 0 through 65535.
• `<number>`: Specifies a port number that is less than the specified port-number.
• `>number`: Specifies a port number that is greater than the specified port-number.
• `greater-than number`: Specifies a port number that is greater than the specified port-number.
• `less-than number`: Specifies a port number that is less than the specified port-number.

**rx-bytes [ < | > | greater-than | less-than ] number**
Displays information on flows filtered by the number of bytes received in the flow.
• `<number>`: Specifies the number of bytes that is less than the specified rx-bytes.
• `>number`: Specifies number of bytes that is greater than the specified rx-bytes.
• `greater-than number`: Specifies number of bytes that is greater than the specified rx-bytes.
• `less-than number`: Specifies number of bytes that is less than the specified rx-bytes.

*number* must be an integer from 0 through 18446744073709551615.

**rx-packets [ < | > | greater-than | less-than ] number**
Displays information on flows filtered by the number of packets received in the flow.
• `greater-than number`: Specifies the number of packets that is greater than the specified rx-packets.
• `less-than number`: Specifies the number of packets that is less than the specified rx-packets.

*number* must be an integer from 0 through 18446744073709551615.

**session-id session_id**
Displays detailed information for specific active charging session ID.

**summary**
Displays summary information for defined sessions, based on defined parameters.

**trans-proto { icmp | tcp | udp }**
Displays information on flows filtered by the transport protocol.
• `icmp`: ICMP protocol type flow
• `tcp`: TCP protocol type flow
• `udp`: User Datagram Protocol (UDP) flows

**tx-bytes [ < | > | greater-than | less-than ] number**
Displays information on flows filtered by the number of bytes received in the flow.
• `<number>`: Specifies the number of bytes that is less than the specified tx-bytes.
• `>number`: Specifies number of bytes that is greater than the specified tx-bytes.
• `greater-than number`: Specifies number of bytes that is greater than the specified tx-bytes.
• **less-than number**: Specifies number of bytes that is less than the specified tx-bytes. 

`number` must be an integer from 0 through 18446744073709551615.

**tx-packets [ < | > | greater-than | less-than ] number**

Displays information on flows filtered by the number of packets received in the flow.

• **greater-than number**: Specifies the number of packets that is greater than the specified tx-packets.
• **less-than number**: Specifies the number of packets that is less than the specified tx-packets.

`number` must be an integer from 0 through 18446744073709551615.

**type flow_type**

Displays information on flows filtered by flow type of application protocol.

`flow_type` must be one of the following:

• dns
• ftp
• http
• icmp
• icmpv6
• imap
• ip
• ipv6
• mms
• p2p [ application p2p_list [ traffic-type traffic_type ] | protocol-group group_list ]: Peer-to-peer analyzer.

**p2p application p2p_list**: P2P protocol type flows include one or more of the following applications:

• 8tracks
• actionvoip
• actsync
• adobeconnect
• aimini
• amazoncloud
• amazonmusic
• amazonvideo
• antsP2P
• apple-push
show active-charging flows
show active-charging flows

- dropbox
- ebuddy
- edonkey
- espn
- facebook
- facetime
- fandor
- fasttrack
- feidian
- ficall
- fiesta
- filetopia
- flash
- flickr
- florensia
- foursquare
- fox-sports
- freenet
- friendster
- fring
- funshion
- gadugadu
- gamekit
- gmail
- gnutella
- go90
- goober
- google-music
- google-push
- google
- googleplay
- googleplus
- gotomeeting
• gtalk
• guildwars
• halflife2
• hamachivpn
• hbogo
• hbnow
• heytell
• hgtv
• hike-messenger
• hls
• hotspotvpn
• hulu
• hyves
• iax
• icall
• icecast
• icloud
• idrive
• igo
• iheartradio
• imesh
• imessage
• imgur
• imo
• implus
• instagram
• iplayer
• iptv
• irc
• isakmp
• iskoot
• itunes
• jabber
- jap
- jumblo
- kakaotalk
- kik-messenger
- kontiki
- kugoo
- kuro
- linkedin
- lync
- magicjack
- manolito
- mapfactor
- mapi
- maplestory
- meebo
- mgcp
- mig33
- mlb
- mojo
- monkey3
- mozy
- msn
- msrp
- mute
- mypeople
- myspace
- nateontalk
- naverline
- navigon
- nbc-sports
- netflix
- netmotion
- newsy
• nimbuzz
• nokia-store
• octoshape
• off
• ogg
• oist
• oovoo
• opendrive
• openft
• openvpn
• operamini
• orb
• oscar
• outlook
• paltalk
• pando
• pandora
• path
• pcanywhere
• periscope
• pinterest
• plingm
• paco
• popo
• pplive
• ppstream
• ps3
• qq
• qggame
• qqlive
• quake
• quic
• quicktime

show active-charging flows
- radio-paradise
- rdp
- rdt
- regram
- rfactor
- rhapsody
- rmstream
- rodi
- rynga
- samsung-store
- scydo
- secondlife
- shoutcast
- showtime
- silverlight
- siri
- skinny
- skydrive
- skype
- slacker-radio
- slingbox
- slingtv
- smartvoip
- snapchat
- softether
- sopcast
- soribada
- soulseek
- soundcloud
- spdy
- speedtest
- splashfighter
- spotify
show active-charging flows
show active-charging flows
traffic-type *traffic_type*: P2P protocol flows include the following traffic type classifications:

<table>
<thead>
<tr>
<th>Important</th>
<th>The traffic type for a P2P protocol may vary depending on the P2P protocol.</th>
</tr>
</thead>
</table>

- ads
- audio
- file-transfer
- im
- video
- voipout
- unclassified

**p2p protocol-group** *group_list*: The following P2P protocol groups are supported:

- generic
- anonymous-access
- business
- communicator
- cloud
- e-store
- e-mail
- e-news
- internet-privacy
- filesharing
- gaming
- p2p-filesharing
- p2p-anon-filesharing
- remote-control
- social-nw-gaming
- social-nw-generic
- social-nw-videoconf
• standard
• streaming

• pop3
• pptp
• rtcp
• rtp
• rtsp
• secure-http
• sip
• smtp
• tcp
• tftp
• udp

• unknown: Unknown type of protocol type flow not listed here.

• wsp-connection-less
• wsp-connection-oriented

username **user_name**
Species the user name as a sequence of characters and/or wildcard characters ($ and *). **user_name** must be an alphanumeric string of 1 through 127 characters.

```
| { grep grep_options | more }
```

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to display charging flow type information.

**Examples**

The following command displays a detailed flow information for a session ID of **test**:

```
show active-charging flows session-id test
```

The following command displays a detailed flow information for a P2P type session:

```
show active-charging flows full type p2p
```

The following command displays a detailed information for a P2P type flow:

```
show active-charging flows type p2p
```
Important

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show active-charging fw-and-nat policy

Displays Firewall-and-NAT Policy information.

---

Important

This command is only available in StarOS 8.1, and in StarOS 9.0 and later. For more information on this command please contact your local service representative.

---

**Product**

ACS

PSF

NAT

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

**Syntax Description**

show active-charging fw-and-nat policy {{ all | name fw_nat_policy_name } | service name acs_service_name } | { statistics { all | name fw_nat_policy_name } } | { grep grep_options | more }

- **all**
  
  Displays information for all Firewall-and-NAT policies configured, optionally all in a specified service.

- **name fw_nat_policy_name**
  
  Displays detailed information for an existing Firewall-and-NAT policy specified as an alphanumeric string of 1 through 63 characters.

- **service name acs_service_name**
  
  Displays information for all or the specified Firewall-and-NAT policy in the specified ACS.
  
  `acs_service_name` must be the name of the active-charging service, and must be an alphanumeric string of 1 through 15 characters.

- **statistics**
  
  Displays statistics for all or the specified Firewall-and-NAT policy.
| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of `grep` and `more`, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to view Firewall-and-NAT Policy information.

**Examples**

The following command displays detailed information for the Firewall-and-NAT policy named `standard`:

```
show active-charging fw-and-nat policy name standard
```
show active-charging group-of-objects

Displays information for ACS group-of-objects.

Product ACS

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

[local] host_name>

Syntax Description

show active-charging group-of-objects { all | name group_of_objects_name } [ | { grep grep_options | more }]

all
Displays details of all group-of-objects configured in the system.

name group_of_objects_name
Displays details for the specified group-of-objects.

group_of_objects_name must be the name of a group-of-objects, and must be an alphanumeric string of 1 through 63 characters.

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of grep and more, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter.

Usage Guidelines

Use this command to view information for all/specific group-of-objects.

Examples

The following command displays information for a group-of-objects named test.

show active-charging group-of-objects name test
Important

Output descriptions for commands are available in the Statistics and Counters Reference.
show active-charging group-of-prefixed-urls

D displays information on group of prefixed URLs configured in an Active Charging Service (ACS).

**Product**
ACS

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show active-charging group-of-prefixed-urls { all | name prefixed_url_group } [ service name acs_service_name ] [ | { grep grep_options | more } ]
```

- **all**
  Displays information for all group of prefixed URLs configured in an ACS.

- **name prefixed_url_group**
  Displays detailed information for the group of prefixed URLs specified as an alphanumeric string of 1 through 63 characters.

- **service name acs_service_name**
  Displays information for all or the specified group of prefixed URLs in the specified ACS. `acs_service_name` must be the name of the ACS expressed as alphanumeric string of 1 through 15 characters.

  ```
  | { grep grep_options | more } |
  ```

  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

  For details on the usage of `grep` and `more`, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter

**Usage Guidelines**
Use this command to view information on group of prefixed URLs configured in the ACS.
Examples

The following command displays for the group of prefixed URLs named test123:

```
show active-charging group-of-prefixed-urls name test123
```
show active-charging group-of-ruledefs

Displays information for all groups or a specified group of ruledefs configured in the Active Charging Service (ACS).

Product ACS

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

[local]host_name$

Syntax Description

show active-charging group-of-ruledefs { { all | name group_of_ruledefs_name } | service name acs_service_name } | { statistics name group_of_ruledefs_name } | | { grep grep_options | more } |

**all**
Displays information for all groups of ruledefs configured, optionally all in a specified ACS.

**name group_of_ruledefs_name**
Displays detailed information for an existing group of ruledefs specified as an alphanumeric string of 1 through 63 characters.

**service name acs_service_name**
Displays information for all groups or the specified group of ruledefs within the ACS. *acs_service_name* must be the name of the ACS, and must be an alphanumeric string of 1 through 15 characters.

**statistics name group_of_ruledefs_name**
Displays statistics for an existing group of ruledefs specified as an alphanumeric string of 1 through 63 characters.

| { grep grep_options | more } |
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.
Usage Guidelines

Use this command to view information on group of ruledefs configured in an ACS.

Examples

The following command displays information on all groups of ruledefs configured:

```
show active-charging group-of-ruledefs all
```
show active-charging nat statistics

Displays Network Address Translation (NAT) realm statistics.

**Product**
NAT

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
show active-charging nat statistics [instance instance_number | nat-realm nat_realm_name | summary | unsolicited-pkts-server-list [instance instance_number | summary | {grep grep_options | more }
```

- **show active-charging nat statistics**
  When issued in the local context, this command displays statistics for all NAT realms in all contexts. When issued in a specific context, this command displays statistics for all NAT realms in that context.

- **show active-charging nat statistics instance instance_number**
  When issued in the local context, this command displays statistics for the specified ACS/Session Manager instance in all contexts. When issued in a specific context, this command displays statistics for the specified ACS/Session Manager instance in that context.

- **show active-charging nat statistics nat-realm nat_realm_name**
  When issued in the local context, this command displays statistics for the specified NAT realm in all contexts. When issued in a specific context, this command displays statistics for the specified NAT realm in that context.

- **show active-charging nat statistics unsolicited-pkts-server-list instance instance_num**
  When issued in the local context, this command displays statistics for unsolicited packets in all contexts. When issued in a specific context, this command displays statistics for unsolicited packets that context.

  *instance_number* must be an integer from 1 through 65535.

**nat-realm nat_realm_name**

- Specifies the NAT realm's / NAT realm group's name.

  *nat_realm_name* must be an alphanumeric string of 1 through 31 characters.
instance instance_number
Displays statistics for the specified ACS/Session Manager instance.

instance_number must be an integer from 1 through 65535.

summary
When the nat_realm_name specified is a "pool group" and the summary option is used, summary statistics of all pools in the pool group are displayed.

When the nat_realm_name specified is a pool and the summary option is not used, all available statistics for the specified pool are displayed.

When the nat_realm_name specified is a "pool group" and the summary option is not used, all available statistics of each pool in the specified "pool group" are displayed.

unsolicited-pkts-server-list
Displays statistics with the list of servers from where most number of unsolicited packets are received for the specified ACS/Session Manager instance.

| { grep grep_options | more }
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to view NAT realm statistics.

Examples
The following command when issued in the local context, displays NAT realm statistics for NAT realms named test135 in all contexts:

show active-charging nat statistics nat-realm test135
show active-charging p2p-dynamic-rules

This command is under development for a future release and is not supported in this release. This command displays P2P Dynamic signature file information.

**Product**
ADC

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:
[local]host_name#

**Syntax Description**

```
show active-charging p2p-dynamic-rules [verbose] [ acsmgr instance instance_number ] [ | { grep grep_options | more } ]
```

- **acsmgr instance instance_number**
  Specifies the ACS/Session Manager instance ID as an integer from 1 through 65535.

- **verbose**
  Displays P2P Dynamic rule statistics in detail.

  ```
  | { grep grep_options | more } |
  ```

  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

  For details on the usage of **grep** and **more**, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to view P2P Dynamic signature file statistics/information.

**Examples**
The following command displays P2P Dynamic rule information:
```
show active-charging p2p-dynamic-rules
```
show active-charging packet-filter

Displays information on packet filters configured in an Active Charging Service (ACS).

**Product**  
ACS

**Privilege**  
Security Administrator, Administrator, Operator, Inspector

**Command Modes**  
Exec

The following prompt is displayed in the Exec mode:

```
[local]\host_name#  
```

**Syntax Description**

```
show active-charging packet-filter { all | name packet_filter_name } [ service name acs_service_name ] [ { grep grep_options | more } ]
```

- **all**  
  Displays information for all packet filters configured, optionally all configured in an ACS.

- **name packet_filter_name**  
  Displays detailed information for an existing packet filter specified as an alphanumeric string of 1 through 63 characters.

- **service name acs_service_name**  
  Displays information for all filters or the specified packet filter in the specified ACS. `acs_service_name` must be the name of the ACS specified as an alphanumeric string of 1 through 15 characters.

  ```
  [ { grep grep_options | more } ]
  ```

  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

  For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**  
Use this command to view information on packet filters configured in an ACS.
show active-charging packet-filter

Examples

The following command displays information for the packet filter `filter12`:

`show active-charging packet-filter name filter12`
show active-charging pcp-service

Displays statistics for Port Control Protocol (PCP) service in the Active Charging Service (ACS).

Important
This command is customer specific. For more information contact your Cisco account representative.

Product
ACS
NAT
PSF

Privilege
Security Administrator, Administrator, Operator, Inspector

Command Modes
Exec
The following prompt is displayed in the Exec mode:
[local]host_name#

Syntax Description
show active-charging pcp-service { all | name pcp_service_name | statistics | instance instance_number | name pcp_service_name | wide | grep grep_options | more } }

all
Displays information for all PCP services configured in the service.

name pcp_service_name
Displays information for an existing PCP service specified as an alphanumeric string of 1 through 63 characters.

statistics | instance instance_number | name pcp_service_name | wide }
Displays statistical information for all configured PCP services.

• instance instance_number:Displays statistics for the specified ACS/Session Manager instance.
• name pcp_service_name:Displays statistics for the specified PCP service.
• wide:Displays all available information in a single wide line.
| { grep grep_options | more } |

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to view statistics for PCP service in the ACS.

- **show active-charging pcp-service statistics**: The output of this command displays statistics for all PCP services in all contexts when issued in the local context. When issued in a specific context, this command displays statistics for all PCP services in that context.

- **show active-charging pcp-service instance instance_number**: When issued in the local context, this command displays statistics for the specified ACS/Session Manager instance in all contexts. When issued in a specific context, this command displays statistics for the specified ACS/Session Manager instance in that context.

- **show active-charging pcp-service name pcp_service_name**: The output of this command displays the statistics for the specified PCP service.

**Examples**

The following command displays PCP service statistics for a PCP service named *pcp1*:

```
show active-charging pcp-service statistics name pcp1
```

---

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show active-charging qos-group-of-ruledefs

Displays information for ACS QoS-group-of-ruledefs.

**Product**
ACS

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show active-charging qos-group-of-ruledefs { all | name qos_group_of_ruledefs_name } | | { grep grep_options | more }
```

- `all`
  Displays details of all qos-group-of-ruledefs configured in the system.

- `name qos_group_of_ruledefs_name`
  Displays details for the specified qos-group-of-ruledefs.
  `qos_group_of_ruledefs_name` must be the name of a qos-group-of-ruledefs, and must be an alphanumeric string of 1 through 63 characters.

  ```
  | { grep grep_options | more }
  ```

  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

  For details on the usage of `grep` and `more`, refer to the `Regulating a Command's Output` section of the `Command Line Interface Overview` chapter.

**Usage Guidelines**
Use this command to view details of all/specific qos-group-of-ruledefs.

**Examples**
The following command displays a qos-group-of-ruledefs named `test`.

```
show active-charging qos-group-of-ruledefs name test
```
show active-charging qos-group-of-rules

---

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 

---
show active-charging regex

Displays regular expression (regex) related statistics and information.

**Product**
ACS

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show active-charging regex { statistics { memory | ruledef } { all | instance instance_number | summary } | status { all | instance instance_number } } | { grep grep_options | more }
```

**statistics { memory | ruledef } { all | instance instance_number | summary }**
Displays regex-related statistics.

- **memory**: Displays regex memory related statistics.
- **ruledef**: Displays regex ruledef related statistics.
- **all**: Displays specified statistics for all Session Manager instances.
- **instance instance_number**: Displays specified statistics for specified Session Manager instance.
  
  `instance_number` must be an integer from 1 through 65535.

- **summary**: Displays summary information for specified parameter.

**status { all | instance instance_number }**
Displays status information of regex engines.

- **all**: Displays status for all regex engines.
- **instance instance_number**: Displays status of regex engine for specified Session Manager instance.
  
  `instance_number` must be an integer from 1 through 65535.

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.
For details on the usage of `grep` and `more`, refer to the *Regulating a Command’s Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to view regular expression (regex) related statistics and status of regex engines.

**Examples**

The following command displays status information of all regex engines:

```
show active-charging regex status all
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show active-charging rulebase

Displays information for ACS rulebases.

**Product**
ACS

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show active-charging rulebase { { all | name rulebase_name } [ service name acs_service_name ] } | statistics [ name rulebase_name ] } | { grep grep_options | more } }
```

- **all**
  Displays details of all rulebases configured in the system.

- **name rulebase_name**
  Displays details of an existing rulebase specified as an alphanumeric string of 1 through 63 characters.

- **service name acs_service_name**
  Displays details of all or the specified rulebase configured in the specified ACS. `acs_service_name` must be the name of the ACS, and must be an alphanumeric string of 1 through 15 characters.

- **statistics**
  Displays statistical information for all or the specified rulebase.

  ```
  | { grep grep_options | more }
  ```
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.
  For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to view various statistics for a specific charging rulebase.
show active-charging rulebase

Examples

The following command displays active charging rulebase statistics.

```
show active-charging rulebase statistics
```

The following command displays configurations and statistics for a rulebase named `rulebase_1`.

```
show active-charging rulebase name rulebase_1
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show active-charging ruledef

Displays information for ACS ruledefs.

Product
ACS
PSF

Privilege
Security Administrator, Administrator, Operator, Inspector

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

show active-charging ruledef \{ all | charging | firewall | name ruledef_name | post-processing | routing | statistics | all \{ charging | firewall | wide \} | post-processing | tpo \} \{ name ruledef_name | wide \} \{ tpo \} \{ grep grep_options | more \}

all
Displays information for all ruledefs configured in the ACS.

charging
Displays information for all Charging ruledefs configured in the ACS.

firewall
Displays information for all Stateful Firewall ruledefs configured in the ACS.

name ruledef_name
Displays detailed information for an existing ruledef specified as an alphanumeric string of 1 through 63 characters.

post-processing
Displays information for all post-processing ruledefs configured in the ACS.

routing
Displays information for all Routing ruledefs configured in the ACS.
show active-charging ruledef

**service service_name**
This keyword is obsolete.

**statistics [all { charging | firewall [ wide ] | post-processing | tpo } | name ruledef_name [ wide ] ]**
Displays statistical information for all/specified ruledefs configured in the ACS. If none of the optional arguments are supplied, statistics totaled for all ruledefs will be displayed.

- **all**: Displays statistics for all ruledefs of the specified type configured in the ACS.
- **charging**: Displays statistics for all Charging ruledefs configured in the ACS.
- **firewall**: Displays statistics for all Firewall ruledefs configured in the service.
- **post-processing**: Displays statistics for all Post-processing ruledefs configured in the ACS.
- **tpo**

**Important**
The Traffic Performance Optimization (TPO) in-line service is not supported in this release.

- **name ruledef_name**: Displays statistics for an existing ruledef specified as an alphanumeric string of 1 through 63 characters.
- **wide**: Displays all available information in a single wide line.

**tpo**

**Important**
The Traffic Performance Optimization (TPO) in-line service is not supported in this release.

| { grep grep_options | more } |
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command’s Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**
Use this command to view information for ruledefs configured in the ACS.

**Examples**
The following command displays ACS ruledef statistics.

```
show active-charging ruledef statistics
```

**Important**
Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show active-charging service

Displays detailed information about an Active Charging Service (ACS).

**Product**
ACS

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show active-charging service { all | name acs_service_name } | { grep grep_options | more }
```

- **all**
  Displays information for all configured ACSs.

- **name acs_service_name**
  Displays detailed information for the ACS specified as an alphanumeric string of 1 through 15 characters.

  | { grep grep_options | more }

  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

  For details on the usage of **grep** and **more**, refer to the **Regulating a Command's Output** section of the **Command Line Interface Overview** chapter.

**Usage Guidelines**
Use this command to view ACS details.

**Examples**
The following command displays details for the ACS named **test1**.

```
show active-charging service name test1
```

**Important**
Output descriptions for commands are available in the **Statistics and Counters Reference**.
show active-charging sessions

Displays statistics for Active Charging Service (ACS) sessions.

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show active-charging sessions [ full | wide ] | wf1 | summary | [ filter_keyword + ] + | all ] [ ] { grep grep_options | more } ]

full | wide |
Displays all available information for the specified session.
Optionally all available information can be displayed in a single wide line.

summary
Displays active sessions count and packet and bytes statistics.

wf1
Displays all available information including MSISDN and rulebase in a single wide line.

display-dynamic-charging-rules
Displays information for the dynamic charging rules configured per session under Gx interface support.

dynamic-charging
Displays information for dynamic charging sessions.

filter_keyword
The following keywords are filters that modify or filter the output of the Command Keywords. Not all filters are available for all command keywords. Multiple filter keywords can be entered on a command line.
When multiple filter keywords are specified, the output conforms to all of the filter keywords specifications.
For example, if you enter the following command:

```
show active-charging sessions full active-charging-service acs_1
```

Counters for active charging sessions active in ACS `acs_1` with full details is displayed. Information for all other services is not displayed.

```
acsmgr instance instance_number
```

Displays session information for a specific ACS/Session Manager instance.

```
active-charging-service acs_service_name
```

Displays session information for the ACS specified as an alphanumeric string of 1 through 15 characters.

```
all
```

Displays session information for all active charging sessions.

```
cae-readdressing
```

Displays the Content Adaptation Engine (CAE) re-addressing session information for active charging sessions.

```
callid
```

Specifies the call identification number.

```
display-dynamic-charging-rules
```

Displays dynamic charging rules configured.

```
dynamic-charging
```

Displays session information for all dynamic charging sessions.

```
firwall { not-required | required }
```

Displays session information for sessions with Firewall Processing required or not required, as specified.

```
flows {active | idle | total} { < | = | > } { equal-to | greater-than | less-than } { bytes }
```

Displays information for all active charging flows filtered by all information, active, or idle sessions.

- `< bytes` or `less-than bytes`: Specifies filtering of flows that is less than the specified number of bytes.
- `> bytes` or `greater-than bytes`: Specifies filtering of flows that is greater than the specified number of bytes.
- `= bytes` or `equal-to bytes`: Specifies filtering of flows that is equal to the specified number of bytes.

`bytes` must be an integer from 0 through 18446744073709551615.

```/fw-and-nat policy fw_nat_policy_name
```

Displays information for the Firewall-and-NAT Policy specified as an alphanumeric string of 1 through 63 characters.
**imsi**
Specifies the International Mobile Subscriber Identity (IMSI) of the subscriber session.

**ip-address**
Specifies the IP address for the specific charging service.

**max-flows { < | = | > | equal-to | greater-than | less-than } { bytes }**
Displays information for the maximum flows made by the session.
- `< bytes` or `less-than bytes`: Specifies filtering of maximum flows that is less than the specified number of bytes.
- `> bytes` or `greater-than bytes`: Specifies filtering of maximum flows that is greater than the specified number of bytes.
- `= bytes` or `equal-to bytes`: Specifies filtering of maximum flows that is equal to the specified number of bytes.

`bytes` must be an integer from 0 through 18446744073709551615.

**msid**
Displays active charging session information for a specific subscriber's Mobile Station Identification (MSID) number.

**msisdn msisdn_number**
Displays active charging session information for a specific subscriber's Mobile Station Integrated Services Digital Network (MSISDN) number.
`msisdn_number` must be an integer with a maximum of 15 digits.

**ipv4**
Displays active charging session information with IPv4 Firewall enabled/disabled.

**ipv6**
Displays active charging session information with IPv6 Firewall enabled/disabled.

**nat { not-required | required [ nat-realm nat_realm_name ] } [ ipv4 | ipv6 ]**
Displays session information for sessions with NAT required or not required, as specified.
`nat-realm nat_realm_name` specifies the name of a NAT realm as an alphanumeric string of 1 through 63 characters.
`ipv4`: Displays active-charging sessions for which NAT44 processing is required.
`ipv6`: Displays active-charging sessions for which NAT64 processing is required.

**rulebase**
Displays information for a rulebase that is configured in an active charging session.
rx-data
Displays the bytes received in the session.

session-id
Displays detailed session information for a specific session identification.

transrating
Displays the transrating sessions.

tx-data
Displays the bytes sent in the session.

type
Displays session information for specified DNS application type(s).
  * dns
  * ftp
  * h323
  * http
  * icmp
  * icmpv6
  * imap
  * ip
  * ipv6
  * mms
  * p2p [ application p2p_list [ traffic-type traffic_type ] | protocol-group group_list ]: Displays session information for a P2P application type and P2P protocol group.

p2p application p2p_list: The supported P2P applications are:
  * 8tracks
  * actionvoip
  * actsync
  * adobeconnect
  * aimini
  * amazoncloud
  * amazonmusic
  * amazonvideo
  * antsp2p
show active-charging sessions
• dofus
• dropbox
• ebuddy
• edonkey
• espn
• facebook
• facetime
• fandor
• fasttrack
• feidian
• ficall
• fiesta
• filetopia
• flash
• flickr
• florensia
• foursquare
• fox-sports
• freenet
• friendster
• fring
• funshion
• gadugadu
• gamekit
• gmail
• gnutella
• go90
• goober
• google-music
• google-push
• google
• googleplay
• googleplus
show active-charging sessions
show active-charging sessions

- jabber
- jap
- jumblo
- kakaotalk
- kik-messenger
- kontiki
- kugoo
- kuro
- linkedin
- lync
- magicjack
- manolito
- mapfactor
- mapi
- maplestory
- meebo
- mgcp
- mig33
- mlb
- mojo
- monkey3
- mozy
- msn
- msrp
- mute
- mypeople
- myspace
- nateontalk
- naverline
- navigon
- nbc-sports
- netflix
- netmotion
show active-charging sessions
• quicktime
• radio-paradise
• rdp
• rdt
• regram
• rfactor
• rhapsody
• rmstream
• rodi
• rynga
• samsung-store
• scydo
• secondlife
• shoutcast
• showtime
• silverlight
• siri
• skinny
• skydrive
• skype
• slacker-radio
• slingbox
• slingtv
• smartvoip
• snapchat
• softether
• sopcast
• soribada
• soulseek
• soundcloud
• spdy
• speedtest
• splashfighter
• show active-charging sessions
• uusee
• vchat
• veohtv
• vessel
• veo
• viber
• vine
• voipdiscount
• вопium
• voxer
• vpnx
• vtok
• vtun
• vudu
• warcft3
• waze
• webex
• wechat
• weibo
• whatsapp
• wii
• windows-azure
• windows-store
• winmx
• winny
• wmstream
• wofkungfu
• wofwarcraft
• wuala
• xbox
• xdcc
• xing
• yahoo
• yahoomail
• youku
• yourfreetunnel
• youtube
• zattoo

traffic-type traffic_type: P2P protocol flows include the following traffic type classifications:

Important The traffic type for a P2P protocol may vary depending on the P2P protocol.

• ads
• audio
• file-transfer
• im
• video
• voipout
• unclassified

p2p protocol-group group_list: The following P2P protocol groups are supported:

• generic
• anonymous-access
• business
• communicator
• cloud
• e-store
• e-mail
• e-news
• internet-privacy
• filesharing
• gaming
• p2p-filesharing
• p2p-anon-filesharing
• remote-control
• social-nw-gaming
• social-nw-generic
show active-charging sessions

- social-nw-videoconf
- standard
- streaming
- pop3
- pptp
- rtcp
- rtp
- rtsp
- secure-http
- sip
- smtp
- tcp
- tftp
- udp
- unknown
- wsp-connection-less
- wsp-connection-oriented

**username**
Displays session information for a specific user name.

**dynamic-charging**
Displays all the sessions having received at least one Gx message from Session Manager/IMS Authorization.

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**
Use this command to display the configuration information for an active charging session.

**Examples**
The following command displays full information of an active charging session.

```
show active-charging sessions full all
```

The following command displays an active charging session summary.

```
show active-charging sessions summary
```
show active-charging sessions

---

*Important*

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show active-charging sessions credit-control server-unreachable

 Displays the details of sessions that are currently in server-unreachable state i.e. Gy Assume Positive state.

**Product**
ACS

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#`

**Syntax Description**
```
show active-charging sessions credit-control server-unreachable [filter_keyword + ] || { grep grep_options | more }`
```

**filter_keyword**
The following keywords are filters that modify or filter the output of the Command Keywords. Not all filters are available for all command keywords. Multiple filter keywords can be entered on a command line. When multiple filter keywords are specified, the output conforms to all of the filter keywords specifications. For example, if you enter the following command:

```
show active-charging sessions credit-control server-unreachable active-charging-service acs_1`
```
Counters for active charging sessions active in ACS acs_1 are displayed. Information for all other services is not displayed.

**acsmgr instance_number**
Displays session information for a specific ACS/Session Manager instance.

**active-charging-service acs_service_name**
Displays session information for the ACS specified as an alphanumeric string of 1 through 15 characters.

**callid**
Specifies the call identification number.
credit-control
Displays credit control information.

dynamic-charging
Displays session information for all dynamic charging sessions.

firewall { not-required | required }
Displays session information for sessions with Firewall Processing required or not required, as specified.

flows {active | idle | total} | < | = | > | equal-to | greater-than | less-than | { bytes }
Displays information for all active charging flows filtered by all information, active, or idle sessions.
  • < bytesor less-than bytes: Specifies filtering of flows that is less than the specified number of bytes.
  • > bytesor greater-than bytes: Specifies filtering of flows that is greater than the specified number of bytes.
  • = bytesor equal-to bytes: Specifies filtering of flows that is equal to the specified number of bytes.

bytes must be an integer from 0 through 18446744073709551615.

fw-and-nat policy fw_nat_policy_name
Displays information for the Firewall-and-NAT Policy specified as an alphanumeric string of 1 through 63 characters.

imsi
Specifies the International Mobile Subscriber Identity (IMSI) of the subscriber session.

ip-address
Specifies the IP address for the specific charging service.

max-flows { < | = | > | equal-to | greater-than | less-than } { bytes }
Displays information for the maximum flows made by the session.
  • < bytesor less-than bytes: Specifies filtering of maximum flows that is less than the specified number of bytes.
  • > bytesor greater-than bytes: Specifies filtering of maximum flows that is greater than the specified number of bytes.
  • = bytesor equal-to bytes: Specifies filtering of maximum flows that is equal to the specified number of bytes.

bytes must be an integer from 0 through 18446744073709551615.

msid
Displays active charging session information for a specific subscriber's Mobile Station Identification (MSID) number.
rulebase
Displays information for a rulebase that is configured in an active charging session.

rx-data
Displays the bytes received in the session.

session-id
Displays detailed session information for a specific session identification.

tx-data
Displays the bytes sent in the session.

type
Displays session information for specified DNS application type(s).

- dns
- ftp
- h323
- http
- icmp
- icmpv6
- imap
- ip
- ipv6
- mms
- p2p [ application p2p_list [ traffic-type traffic_type ] | protocol-group group_list ]: Displays session information for a P2P application type and P2P protocol group.

p2p application p2p_list: The supported P2P applications are:

- 8tracks
- actionvoip
- actsync
- adobeconnect
- aimini
- amazoncloud
- amazonmusic
- amazonvideo
- antsp2p
show active-charging sessions credit-control server-unreachable

- apple-push
- apple-store
- applejuice
- applemaps
- ares
- armagettron
- avi
- badoo
- baidumovie
- battlefd
- bbm
- beatport
- bitcasa
- bittorrent
- bittorrent-sync
- blackberry-store
- blackberry
- blackdialer
- box
- callofduty
- chikka
- cisco-jabber
- citrix
- clubbox
- clubpenguin
- comodounite
- crackle
- crossfire
- cyberghost
- ddlink
- didi
- directconnect
- dish-anywhere
• dofus
• dropbox
• ebuddy
• edonkey
• espn
• facebook
• facetime
• fandor
• fasttrack
• feidian
• ficall
• fiesta
• filetopia
• flash
• flickr
• floresnia
• foursquare
• fox-sports
• freenet
• friendster
• fring
• funshion
• gadugadu
• gamekit
• gmail
• gnutella
• go90
• goober
• google-music
• google-push
• google
• googleplay
• googleplus
• gotomeeting
• gtalk
• guildwars
• halflife2
• hamachivpn
• hbogo
• hbonow
• heytell
• hgtv
• hike-messenger
• hls
• hotspotvpn
• hulu
• hyves
• iax
• icall
• icecast
• icloud
• idrive
• igo
• iheartradio
• imesh
• imessage
• imgur
• imo
• implus
• instagram
• iplayer
• iptv
• irc
• isakmp
• iskoot
• itunes
• jabber
• jap
• jumblo
• kakaotalk
• kik-messenger
• kontiki
• kugoo
• kuro
• linkedin
• lync
• magicjack
• manolito
• mapfactor
• mapi
• maplestory
• meebo
• mgcp
• mig33
• mlb
• mojo
• monkey3
• mozy
• msn
• msrp
• mute
• mypeople
• myspace
• nateontalk
• naverline
• navigon
• nbc-sports
• netflix
• netmotion
show active-charging sessions credit-control server-unreachable

- newsy
- nimbuzz
- nokia-store
- octoshape
- off
- ogg
- oist
- ooovo
- opendrive
- openft
- openvpn
- operamini
- orb
- oscar
- outlook
- paltalk
- pando
- pandora
- path
- pcanywhere
- periscope
- pinterest
- plingm
- poco
- popo
- pplive
- ppstream
- ps3
- qq
- qqgame
- qqlive
- quake
- quic
- quicktime
- radio-paradise
- rdp
- rdt
- regram
- rfactor
- rhapsody
- rmstream
- rodi
- rynga
- samsung-store
- scydo
- secondlife
- shoutcast
- showtime
- silverlight
- siri
- skinny
- skydrive
- skype
- slacker-radio
- slingbox
- slingtv
- smartvoip
- snapchat
- softether
- sopcast
- soribada
- soulseek
- soundcloud
- spdy
- speedtest
- splashfighter
show active-charging sessions credit-control server-unreachable

- spotify
- ssdp
- ssl
- starz
- stealthnet
- steam
- stun
- sudaphone
- svtplay
- tagged
- talkatone
- tango
- teamspeak
- teamviewer
- telegram
- thunder
- tmo-tv
- tor
- truecaller
- truphone
- tumblr
- tunein-radio
- tunnelvoice
- tvants
- tvuplayer
- twitter
- twitch
- ultrabac
- ultrasurf
- univision
- upc-phone
- usenet
- ustream
• uusee
• vchat
• veohtv
• vessel
• veo
• viber
• vine
• voipdiscount
• vopium
• voxer
• vpnx
• vtok
• vtun
• vudu
• warcft3
• waze
• webex
• wechat
• weibo
• whatsapp
• wii
• windows-azure
• windows-store
• winmx
• winny
• wmstream
• wofkungfu
• wofwarcraft
• wuala
• xbox
• xdcc
• xing
• yahoo
• yahoomail
• youku
• yourfreetunnel
• youtube
• zattoo

traffic-type traffic_type: P2P protocol flows include the following traffic type classifications:

- ads
- audio
- file-transfer
- im
- video
- voipout
- unclassified

Important The traffic type for a P2P protocol may vary depending on the P2P protocol.

p2p protocol-group group_list: The following P2P protocol groups are supported:

- generic
- anonymous-access
- business
- communicator
- cloud
- e-store
- e-mail
- e-news
- internet-privacy
- filesharing
- gaming
- p2p-filesharing
- p2p-anon-filesharing
- remote-control
- social-nw-gaming
- social-nw-generic
username
Displays session information for a specific user name.

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to display the configuration information for an active charging session.

**Examples**
The following command displays full information of an active charging session.
```
show active-charging sessions full all
```
The following command displays an active charging session summary.
```
show active-charging sessions summary
```

**Important**
Output descriptions for commands are available in the Statistics and Counters Reference.
show active-charging subscribers

Displays statistics and information on active subscribers.

Product

ACS

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show active-charging subscribers callid call_id charging-updates [ statistics ] [ charging-action [ name charging_action_name ] ] [ qos-group [ name qos_group_of_ruledefs_name ] ] [ session ] [ [ grep grep_options ] [ more ] ]

callid call_id

Specifies a call identification number.

 call_id must be an eight digit HEX number.

charging-updates [ statistics ] [ charging-action [ name charging_action_name ] ] [ qos-group [ name qos_group_of_ruledefs_name ] ] [ session ]

Displays charging-update statistics for subscriber.

• statistics: Displays statistics related to dynamic updates to charging parameters.

• charging-action [ name charging_action_name ]: Displays charging-updates for activated charging-actions or specified charging action.

 charging_action_name must be the name of a charging action, and must be an alphanumeric string of 1 through 63 characters in length.

• qos-group [ name qos_group_of_ruledefs_name ]: Displays charging-updates for activated QoS groups or the specified QoS-group-of-ruledefs.

 qos_group_of_ruledefs_name must be the name of a QoS-group-of-ruledefs, and must be an alphanumeric string of 1 through 63 characters in length.

• session: Displays charging-updates for the session.
| { grep grep_options | more } |

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to view subscriber statistics and information on dynamic updates to charging parameters per call ID.

**Examples**

The following command displays all statistics related to dynamic updates to charging parameters for call ID `ca50ea54`:

```
show active-charging subscribers callid ca50ea54 charging-updates statistics
```

The following command displays information on charging updates for call ID `ca50ea54` and ACS charging action named `test12`:

```
show active-charging subscribers callid ca50ea54 charging-updates charging-action name test12
```

**Important**

Output descriptions for commands are available in the Statistics and Counters Reference.
show active-charging subsystem

Displays service and configuration counters for the ACS.

**Product**
ACS

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:
[local] *host_name*#

**Syntax Description**

```
show active-charging subsystem { all | facility acsmgr { all | instance instance_number } | rulebase name rulebase_name | sip } | | { grep grep_options | more }
```

- **all**
  Displays ACS subsystem information.

- **facility acsmgr { all | instance instance_number }**
  Displays logged events for all ACS/Session Managers or for a specific instance.
  `instance_number` must be an integer from 1 through 65535.

- **rulebase name rulebase_name**
  Displays rulebase statistics for the specified rulebase.
  `rulebase_name` must be the name of a rulebase, and must be an alphanumeric string of 1 through 63 characters.

- **sip**
  Displays SIP related statistics.

  | | { grep grep_options | more }
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

  For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.
Usage Guidelines

Use this command to view ACS/Session Manager information.

Examples

The following command displays ACS subsystem information:

```
show active-charging subsystem all
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*. 

show active-charging tcp-proxy statistics

Displays TCP Proxy statistics.

**Product**
ACS

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show active-charging tcp-proxy statistics [ all | dynamic-disable | ip-layer | proxy-fac | rulebase rulebase_name | socket-migration | tcp-layer ] [ verbose ] [ { grep grep_options | more } ]
```

- **all**
  Displays all TCP Proxy statistics aggregated over all rulebases, including for both IP and TCP layers.

- **dynamic-disable**
  Displays statistics for dynamic disabling of TCP Proxy.

- **ip-layer**
  Displays TCP Proxy statistics for IP layer.

- **proxy-fac**
  Displays TCP Proxy Flow Admission Control statistics.

- **rulebase rulebase_name**
  Displays TCP Proxy statistics for the rulebase specified as an alphanumeric string of 1 through 63 characters.

- **socket-migration**
  Displays TCP Proxy statistics for socket migration.

- **tcp-layer**
  Displays TCP Proxy statistics for TCP layer.
**verbose**

Displays detailed TCP Proxy statistics.

```
| { grep grep_options | more }
```

Specifies that the output of this command is to be piped (sent) to the command specified. You must specify a command to which the output will be sent.

For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to view TCP Proxy statistics.

**Examples**

The following command displays detailed TCP proxy statistics for the rulebase named *test14*:

```
show active-charging tcp-proxy statistics rulebase test14 verbose
```
show active-charging tethering-detection

Displays information/statistics pertaining to Tethering Detection databases.

**Product**
ACS

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show active-charging tethering-detection { database [ os-signature | tac | ua-signature ]+ | sessmgr { all | instance instance_number } | | { grep grep_options | more } | | statistics }
```

- `database [ os-signature | tac | ua-signature ]+ | sessmgr { all | instance instance_number } | | { grep grep_options | more } | | statistics` Displays information pertaining to the specified Tethering Detection database(s).
  - `os-signature`: Displays Tethering Detection OS (Operating System) database information.
  - `ua-signature`: Displays Tethering Detection UA (User Agent) database information.
  - `+`: Indicates that more than one of the preceding keywords can be entered in a single command.
  - `sessmgr { all | instance instance_number }`: Displays SessMgr Tethering Detection database status.
    - `all`: Displays status for all SessMgr instances.
    - `instance instance_number`: Displays status for the SessMgr instance specified as an integer from 1 through 10000.

- `statistics` Displays Tethering Detection related statistics.

```
| { grep grep_options | more }
```

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.
For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to view information/statistics pertaining to Tethering Detection databases.

**Examples**

The following command displays information pertaining to Tethering Detection UA and OS databases:

```
show active-charging tethering-detection database ua-signature os-signature
```

The following command displays information pertaining to all Tethering Detection databases:

```
show active-charging tethering-detection database
```
show active-charging timedef

Displays the details of timeslots configured in specified time definition(s).

Product ACS

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

show active-charging timedef { all | name timedef_name } [ service name acs_service_name ] [ ] [ grep grep_options | more ]

all
Displays information for all timedefs configured in the service.

name timedef_name
Displays detailed information for the timedef specified as an alphanumeric string of 1 through 63 characters.

service name acs_service_name
Displays information for all or a specific timedef configured in the specified ACS. acs_service_name must be the name of the active-charging service, and must be an alphanumeric string of 1 through 15 characters.

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines Use this command to view details of timeslots configured in specified timedef(s) that have been configured for the Time-of-Day Activation/Deactivation of Rules feature.
Examples

The following command displays timeslot details of all timedefs configured in the ACS:

```
show active-charging timedef all
```
show active-charging udr-format

Displays information about UDR formats configured in an Active charging Service (ACS).

**Product**
ACS

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show active-charging udr-format { all | name udr_format_name } [ | { grep grep_options | more } ]
```

- **all**
  Displays information for all UDR formats.

- **name udr_format_name**
  Displays information for an existing UDR format specified as an alphanumeric string of 1 through 63 characters.

  | { grep grep_options | more } |

  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

  For details on the usage of **grep** and **more**, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to display information for UDR format(s) in an ACS.

**Examples**
The following command displays all configured UDR formats in an ACS.
```
show active-charging udr-format all
```

**Important**
Output descriptions for commands are available in the Statistics and Counters Reference.
show active-charging url-blacklisting statistics

Displays URL Blacklisting statistics.

**Product**
CF

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] hostname#
```

**Syntax Description**
```
show active-charging url-blacklisting statistics [ rulebase { all | name rulebase_name } ] [ verbose | [ { grep grep_options | more } ] ]
```

- **rulebase { all | name rulebase_name }**
  Displays URL Blacklisting statistics for all or a specific rulebase.
  - **all**: Displays URL Blacklisting statistics for all configured rulebases.
  - **name rulebase_name**: Displays URL Blacklisting statistics for the rulebase specified as an alphanumeric string of 1 through 63 characters.

- **verbose**
  Displays detailed URL Blacklisting statistics.

  ```
  [ { grep grep_options | more } ]
  ```

  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

  For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**
Use this command to view URL Blacklisting hits and misses statistics.

**Examples**
The following command displays cumulative URL Blacklisting statistics:
```
show active-charging url-blacklisting statistics
```
The following command displays URL Blacklisting statistics for the rulebase rulebase_1:

```
show active-charging url-blacklisting statistics rulebase name rulebase_1
```

---

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference.*
show active-charging video detailed-statistics

Displays detailed statistics for TCP video flows. The command options enable you to collect statistical data for video per UE device type, per radio access type, and per video container type.

Product

MVG

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:
[local]host_name#

Syntax Description

show active-charging video detailed-statistics [ container { flv | mp4 | others } | rat { cdma | gprs | hspa | lte | others | umts | wlan } | ue { android | ios | laptop | others } ]

crntainer { flv | mp4 | others }
Displays detailed statistics for TCP video flows based on the specified container file format.

rat { cdma | gprs | hspa | lte | others | umts | wlan }
Displays detailed statistics for TCP video flows based on the specified radio access type.

ue { android | ios | laptop | others }
Displays detailed statistics for TCP video flows based on the specified UE device type.

Usage Guidelines

Use this command to display detailed statistics about video usage. Use the command options to display detailed statistics based on the UE device type, radio access type, or container file format.

Examples

The following command displays detailed statistics about video usage based on the UE device type *ios*:

```
show active-charging video detailed-statistics ue ios
```
show active-charging xheader-format

Displays x-header format configurations for an Active Charging Service (ACS).

---

**Important**

This is a customer-specific command. Please contact your local sales representative for more information.

---

**Product**

ACS

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name
```

**Syntax Description**

```
show active-charging xheader-format { all | name \textit{xheader\_format} } [ | { grep \textit{grep\_options} | more } ]
```

- **all**
  Displays information for all x-header formats configured.

- **name \textit{xheader\_format}**
  Displays information for the x-header format specified as an alphanumeric string of 1 through 63 characters.

  ```
  [ | { grep \textit{grep\_options} | more } ]
  ```

  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

  For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to view details of x-header formats configured in an ACS.

**Examples**

The following command displays information for the x-header format named `test12`:

```
show active-charging xheader-format test12
```
show administrators

Displays information regarding all CLI users currently connected to the system.

Product: All

Privilege: Security Administrator, Administrator, Operator, Inspector

Command Modes: Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description:

show administrators [ session id ] [ | { grep grep_options | more } ]

session id
Indicates the output is to contain additional information about the CLI user session including the assigned session ID.

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter.

Usage Guidelines: This command displays a list of administrative users that have command line interface sessions active.

Examples: The following command displays a list of administrative users with active command line interface sessions:
show administrators
The following command displays the list along with CLI user session IDs:
show administrators session id
**show alarm**

Displays alarm information.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```


**statistics**

Displays basic statistics on the alarming subsystem, including the current number of outstanding alarms of different severities and a cumulative total of alarms generated.

```
| { grep grep_options | more }
```

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

View alarms to verify system status or to periodically check the general health of the system.

---

**Important**

This command is not supported on all platforms.

---

**Examples**

The following command displays all alarms that are currently outstanding:

```
show alarm outstanding all
```

The following command displays more detailed information on all alarms that are currently outstanding:

```
show alarm outstanding all verbose
```

The following command displays alarm statistics:

```
show alarm statistics
```

---

**Important**

Output descriptions for commands are available in the Statistics and Counters Reference.
show alcap counters

Displays the Access Link Control Application Part (ALCAP) protocol message counters related to ALCAP protocol sessions associated with a Home-NodeB Gateway (HNB-GW) service instance configured and running on a system.

**Product**

HNBGW

**Privilege**

Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show alcap counters [ alcap-service alcap_svc_name | aal2-node aal2_node_name | aal2-path aal2_path_id ] | | | { grep grep_options | more }]
```

- **name alcap_svc_name**
  Specifies the name of the ALCAP service for which ALCAP protocol session counters are to be displayed.

- **aal2-node aal2-node**
  Specifies the name of the ATM Adaptation Layer 2 (AAL2) node for which protocol session counters will be filtered.

- **aal2-path aal2_path_id**
  Specifies the identity number of the AAL2 path on a specific ATM Adaptation Layer 2 (AAL2) node for which ALCAP protocol counters will be filtered.

  ```
  | { grep grep_options | more }
  ```

  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command's Output* section in *Command Line Interface Overview* chapter.

**Usage Guidelines**

This command is used to display the sessions statistics and counters for ALCAP service.
The following command displays the ALCAP protocol session counters for ALCAP service named as `alcap_hnb_svc1`:

```
show alcap counters alcap-service alcap_hnb_svc1
```

**Important**  
Output descriptions for commands are available in the *Statistics and Counters Reference*.
show alcap-service

Displays the Access Link Control Application Part (ALCAP) session statistics of an ALCAP service associated with a Home-NodeB Gateway (HNB-GW) service instance configured and running on a system.

Product

HNBGW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show alcap-service \{ all | name alcap_svc_name | aal2-node aal2_node_name | aal2-path aal2_path_id | aal2-channel aal2_channel_num | endpoint aal2_endpoint_name \} | | \{ grep grep_options | more \}

name alcap_svc_name

Specifies the name of the ALCAP service for which service statistics are to be displayed.

aal2-node aal2-node

Specifies the name of the ATM Adaptation Layer 2 (AAL2) node that will be used to filter the display of the ALCAP service statistics.

aal2-path aal2_path_id

Specifies the identity number of the AAL2 path on a specific ATM Adaptation Layer 2 (AAL2) node that will be used to filter the display of the ALCAP service statistics.

aal2-channel aal2_channel_num

 Specifies the AAL2 channel number of the AAL2 path on a specific ATM Adaptation Layer 2 (AAL2) node that will be used to filter the display of the ALCAP service statistics.

endpoint atm_endpoint_name

Specifies the ATM endpoint name that will be used to filter the display of the ALCAP service statistics for a specific ATM endpoint.

Usage Guidelines

This command is used to clear the sessions statistics and counters for ALCAP service.
Examples

The following command displays the service statistics of ALCAP service named as `alcap_hnb_svc1`:

```
show alcap-service name alcap_hnb_svc1
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show alcap statistics

Displays the session statistics related to Access Link Control Application Part (ALCAP) protocol sessions associated with a Home-NodeB Gateway (HNB-GW) service instance configured and running on a system.

**Product**
HNBGW

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show alcap statistics | alcap-service alcap_svc_name [aal2-node aal2_node_name | aal2-path aal2_path_id | ] | | [ verbose | | { grep grep_options | more } ]
```

**name alcap_svc_name**
Specifies the name of the ALCAP service for which statistics are to be displayed.

**aal2-node aal2-node**
Specifies the name of the ATM Adaptation Layer 2 (AAL2) node for which ALCAP service related statistics will be displayed.

**aal2-path aal2_path_id**
Specifies the identity number of the AAL2 path on a specific ATM Adaptation Layer 2 (AAL2) node for which ALCAP service statistics counters will be displayed.

```
| | { grep grep_options | more }
```

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the `grep` and `more` commands, refer to the Regulating a Command's Output section in Command Line Interface Overview chapter of the Command Line Interface Reference.

**Usage Guidelines**
This command is used to display the sessions statistics and counters for ALCAP service.
Examples

The following command displays the service session statistics counters for ALCAP service named as `alcap_hnb_svc1`:

```
show alcap counters alcap-service alcap_hnb_svc1
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference.*
show apn

Displays configuration information for either a specific or all configured Access Point Names (APNs).

**Product**
- GGSN
- P-GW
- SAEGW

**Privilege**
- Security Administrator, Administrator, Operator, Inspector

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show apn { all | name apn_name } | | { grep grep_options | more }
```

- **all**
  - Displays information on all APNs configured on the system.

- **name apn_name**
  - Displays information for an APN specified as an alphanumeric string of 1 through 62 characters that is case sensitive.

  ```
  | | { grep grep_options | more }
  ```

  - Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of `grep` and `more` options, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

This command is used to verify the configuration of one or all APNs for monitoring or troubleshooting purposes. The output is a concise listing of APN parameter settings.

If this command is executed from within the local context with the all keyword, information for all APNs configured on the system will be displayed.
Examples

The following command displays configuration information for all APNs:
```
show apn all
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference.*
show apn counters ip-allocation

Displays cumulative statistics of IP allocation method for calls set up so far, per Access Point Name (APN) basis.

**Product**
- GGSN
- P-GW
- SAEGW

**Privilege**
- Security Administrator, Administrator, Operator, Inspector

**Command Modes**
- Exec
  
The following prompt is displayed in the Exec mode:

  `[local] host_name#`

**Syntax Description**
```
show apn counters ip-allocation [ all | name apn_name | | { grep grep_options | more } ]
```

- **all**
  Displays statistics for all APNs.

- **name apn_name**
  Displays statistics for the APN specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

  ```
  | { grep grep_options | more }
  ```

  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

This command is used to display the cumulative IP allocation counters on a per APN basis. Output of this command gives the user clear idea of how many sessions in each APN have used a particular type of ip-allocation method.

If this command is issued from within the local context, the statistics displayed will be cumulative for all APNs configured on the system regardless of context. If no APN name is specified and the command is
executed from a context with multiple APNs configured, the output will be cumulative for all APNs in the context.

**Examples**

The following command displays statistics for all APN on a system:

```
show apn counter ip-allocation all
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference.*
show apn statistics

Displays statistics for either a specific Access Point Name (APN) or all configured APNs.

Product
- GGSN
- P-GW
- SAEGW

Privilege
Security Administrator, Administrator, Operator, Inspector

Command Modes
- Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description
```
show apn statistics [ all | name apn_name ] | | { grep grep_options | more } ]
```

- **all**
  Displays statistics for all APNs.

- **name apn_name**
  Displays statistics for the APN specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

- **1-15**
  Configures ARP priority level statistics for a specified ARP of 1 through 15.

<table>
<thead>
<tr>
<th>Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARP Granularity and Per QCI Packet Drop Counters is a license-controlled feature. Contact your Cisco account or support representative for licensing details.</td>
</tr>
</tbody>
</table>

| | { grep grep_options | more } |
|------------------|
| Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent. |

For details on the usage of **grep** and **more**, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.
Usage Guidelines

This command is used to view statistics for one or all APNs within a context for monitoring or troubleshooting purposes.

If this command is issued from within the local context, the statistics displayed will be cumulative for all APNs configured on the system regardless of context. If no APN name is specified and the command is executed from a context with multiple APNs configured, the output will be cumulative for all APNs in the context.

Examples

The following command displays statistics for an APN named isp2:

```
show apn statistics name isp2
```

Important

Output descriptions for commands are available in the Statistics and Counters Reference.
show apn-profile

Displays information for configured Access Point Name (APN) profiles.

**Product**
MME
SGSN

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show apn-profile { all | full { all | name apn_name } | name apn_name } | | { grep grep_options | more }
```

- **all**
  Lists all APN profiles configured on the system.

- **full { all | name apn_name }**
  - **full**: Displays all information in the APN profile(s).
  - **all**: Displays full information for all APN profiles configured on the system.
  - **name apn_name**: Displays full information for an APN profile specified as an alphanumeric string of 1 through 64 characters.

- **name apn_name**
  Displays information for an APN profile specified as an alphanumeric string of 1 through 64 characters.

  | { grep grep_options | more }
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to display information for APN profiles configured on the system. APN profiles are configured through the global configuration mode and in the APN profile configuration mode. For more
information regarding APN profile commands, refer to the *APN Profile Configuration Mode Commands* chapter.

**Examples**

The following command displays all available information for an APN profile named *apn-prof3*:

```
show apn-profile full name apn-prof3
```
show apn-remap-table

Displays information for Access Point Name (APN) remap tables configured on the system.

**Product**
MME
SGSN

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show apn-remap-table { all | full { all | name remap_table_name } | name remap_table_name } [ | { grep grep_options | more } ]
```

**all**
Lists all APN remap tables configured on the system.

**full { all | name remap_table_name }**

- **full**: Displays a full set (all) of available information for the configured APN remap table(s).
- **all**: Displays the full set of available information for all APN remap tables configured on the system.
- **name remap_table_name**: Displays the full set of available information for an existing APN remap table specified as an alphanumeric string of 1 through 64 characters.

**name remap_table_name**
Displays information for an existing APN remap table specified as an alphanumeric string of 1 through 64 characters.

```
[ | { grep grep_options | more } ]
```

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the Command Line Interface Overview chapter.
Usage Guidelines

Use this command to display information for APN remap tables configured on the system. APN remap tables are configured through the Global Configuration mode and in the APN remap table configuration mode. For more information regarding APN remap table commands, refer to the *APN Remap Table Configuration Mode Commands* chapter.

Examples

The following command displays all available information for an APN remap table named `remap-table12`:

```
show apn-remap-table full name remap-table12
```
show aps

Displays information for configured Automatic Protection Switching (APS) parameters.

**Product**
SGSN

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show aps { all | card-stats slot_number [ clear ] | info slot_number/port_number | port-stats slot_number/port_number [ clear ] | port-status } [ | { grep grep_options | more } ]
```

- **all**
  Lists APS information for all cards configured with APS.

- **card-stats slot_number [ clear ]**
  Displays the APS statistics for the identified card. If the **clear** keyword is included with the command, the APS statistics for the specified card are cleared (reset to zero).
  `slot_number` is an integer that identifies the chassis slot holding the card.

- **info slot_number/port_number**
  Displays APS information for a specific port.
  `slot_number/port_number`: The first number must be an integer that identifies the chassis slot holding the specified card. The slot number must be followed by a slash `/`, which must be followed immediately by the port number - an integer from 1 to 4 depending upon the type of card.

- **port-stats slot_number/port_number [ clear ]**
  Displays APS statistics for a specific port. If the **clear** keyword is included with the command then the APS statistics for the specified port are cleared (reset to zero).
  `slot_number/port_number`: The first number must be an integer from 1 to 48 to identify the chassis slot holding the specified card. The slot number must be followed by a slash `/`, which must be followed immediately by the port number - an integer from 1 to 4 depending upon the type of card.
**port-status slot_number/port_number**

Displays APS status information for a specific port.

*slot_number/port_number*: The first number must be an integer from 1 to 48 to identify the chassis slot holding the specified card. The slot number must be followed by a slash '/', which must be followed immediately by the port number - an integer from 1 to 4 depending upon the type of card.

\[
| \{ \text{grep grep_options} \mid \text{more} \}
\]

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to display APS redundancy configuration, APS card and port status, and APS card and port statistics. APS is configured at the card level. For details on configuring APS, refer to the *Card Configuration Mode Commands* chapter in this reference.

**Important**

APS is only relevant for the CLC2 and OLC2 line cards supporting SONET/SDH.

**Examples**

The following command displays all available APS configuration information for a specific port 1 on the line card in slot 27:

```
show aps info 27/1
```
show asngw-service

Displays information about selected Access Service Network Gateway (ASN-GW) calls/services.

Product
ASN-GW

Privilege
Security Administrator, Administrator, Operator, Inspector

Command Modes
Exec
The following prompt is displayed in the Exec mode:
[local] host_name#

Syntax Description
show asngw-service { all | name service_name | session | statistics } [ bs-status | address ip_address | filter { all | icmp-monitored | no-calls | summary | up } ] [ | { grep grep_options | more } ]

- **all**: Displays information for all configured ASN-GW services.

- **name service_name**: Displays information only for an existing ASN-GW service in the current context specified as an alphanumeric string of 1 through 63 characters.

- **session**: Displays information about configured ASN-GW sessions. See the show asngw-service session command

- **statistics**: Total of collected information for specific protocol since the last restart or clear command.

- **bs-status**: 
  - **address ip_address**: Displays the ASN base station (BS) status based on IP address and various filters.
  - **address ip_address** specifies the IP address of ASN base station whose status is requested. *ip_address* must be entered in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.
  - **filter { all | icmp-monitored | no-calls | summary | up }**: Filters the requested BS's status on the basis of following criteria:
    - **all**: Displays the status of all ASN base stations.
• **icmp-monitored**: Displays the status of ASN base stations that are monitored through ICMP ping messages.

• **no-calls**: Displays the status of an ASN base station that has no active calls.

• **summary**: Displays a summary of the status of requested ASN base stations.

• **up**: Displays the status of ASN base stations that are in active state.

```
| { grep grep_options | more }
```

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to view information for selected configured ASN-GW services.

**Examples**

The following command displays available information for all active ASN-GW services.

```
show asngw-service all
```

---

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show asngw-service session

Displays statistics for specific Access Service Network Gateway (ASN-GW) sessions.

**Product**
ASN-GW

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show asngw-service session [ all | anchor-only [ full ] | callid call_id | counters | full | ip-address ipv4_address | msid msid_number | non-anchor-only [ full ] | peer-address ipv4_address | summary | username user_name | [ | { grep grep_options | more } ]
```

- **all**
  Displays all related information for all active ASN-GW service sessions.

- **anchor-only**
  Displays all available information for all active ASN-GW service sessions on an anchor ASN-GW only.

- **callid call_id**
  Displays available information for the call identification number specified as an 8-digit hexadecimal number.

- **full**
  Displays all available information for the associated display or filter keyword.

- **ip-address ipv4_address**
  Specifies the IP address of the subscriber in IPv4 dotted-decimal notation.

- **msid msid_number**
  Displays available information for the specific mobile station identification number (MSID).

- **non-anchor-only**
  Displays all available information for all active ASN-GW service sessions on a non-anchor ASN-GW only.
peer-address ipv4_address
Specifies the IP address of an IP peer in dotted-decimal notation.

summary
Displays summary of available information for associated display or filter keyword (previous keyword).

username user_name
Specifies the name of a user within current context as an alphanumeric string of 1 through 127 characters.

| { grep grep_options | more }
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to view configuration information for an ASN-GW session.

Examples
The following command displays all available ASN-GW sessions.
show asngw-service session all

Important
Output descriptions for commands are available in the Statistics and Counters Reference.
show asngw-service session counters

Displays statistics for specific Access Service Network Gateway (ASN-GW) sessions.

**Product**
ASN-GW

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:
```
[local] host_name#
```

**Syntax Description**
```
show asngw-service session counters [ [ function-type { auth-relay | context-transfer | data-path | handoff | im-operation | ms-state-change | paging | qos } ] ] [ anchor-only | callid call_id | ip-address ipv4_address | msid msid_number | non-anchor-only | peer-address ipv4_address | username user_name ] [ | [ r4-only | r6-only | verbose ] ] [ | [ grep grep_options | more ] ]
```

**anchor-only**
Displays all available information for all active anchor sessions in an ASN-GW service.

**callid call_id**
Displays available information for the call identification number specified as an 8-digit hexadecimal number.

**function-type { auth-relay | context-transfer | data-path | handoff | im-operation | ms-state-change | paging | qos }**
Displays the counters for specific type of functions in an ASN-GW session.

**auth-relay**: Displays information about authentication relay messages.
**context-transfer**: Displays information about context-transfer messages.
**data-path**: Displays information about data-path registration messages.
**handoff**: Displays information about hand-off messages.
**im-operations**: Displays information about idle mode state operation messages.
**ms-state-change**: Displays information about MS state change messages.
**paging**: Displays information about paging messages.
**qos**: Displays information about RR messages.
ip-address \textit{ipv4\_address}

Specifies the IP address of the subscriber in IPv4 dotted-decimal notation.

\textbf{msid \textit{msid\_number}}

Displays available information for the specific mobile station identification (MSID) number.

\textbf{non-anchor-only}

Displays all available information for all active non-anchor sessions in an ASN-GW service.

\textbf{peer-address \textit{ipv4\_address}}

Specifies the IP address of an IP peer in IPv4 dotted-decimal notation.

\textbf{r6-only}

Displays all available counters for R6 interface in an ASN-GW session.

\textbf{r4-only}

Displays all available counters for R4 interface in an ASN-GW session.

\textbf{username \textit{user\_name}}

Displays available session information for the specific WiMAX user in ASN-GW service session.

\textit{user\_name} is an alphanumeric string of 1 through 127 characters.

\textbf{verbose}

Indicates the output should provide as much information as possible. If this option is not specified then the output will be the standard level which is the concise mode.

\begin{verbatim}
| { grep \textit{grep\_options} | more }
\end{verbatim}

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of \texttt{grep} and \texttt{more}, refer to the \textit{Regulating a Command's Output} section of the \textit{Command Line Interface Overview} chapter.

\textbf{Usage Guidelines}

Use this command to view the counters of an ASN-GW session.

\textbf{Examples}

The following command displays the counters for data path type function.

\begin{verbatim}
show asngw-service session counters function-type data-path
\end{verbatim}

\textbf{Important}

Output descriptions for commands are available in the \textit{Statistics and Counters Reference}. 

\pagebreak
show asngw-service statistics

Displays statistics for all Access Service Network Gateway (ASN-GW) sessions.

**Product**
ASN-GW

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show asngw-service statistics [ function-type { auth-relay | context-transfer | data-path | handoff | im-operations | ms-state-change | paging | qos | capability } ] [ name service_name ] [ r4-only | r6-only ] [ verbose ] [ peer-address ipv4_address ] [ peer-id id ] [ verbose ] [ grep grep_options | more ]
```

**function-type**
Displays information about selected function type on R4 or R6 interface.

```
function-type { auth-relay | context-transfer | data-path | handoff | im-operations | ms-state-change | paging | qos | capability } [ r4-only | r6-only ]
```

Displays the counters for specific type of functions in an ASN-GW session.

**auth-relay**: Displays information about authentication relay messages.
**context-transfer**: Displays information about context-transfer messages.
**data-path**: Displays information about data-path registration messages.
**handoff**: Displays information about hand-off messages.
**im-operations**: Displays information about idle mode state operation messages.
**ms-state-change**: Displays information about MS state change messages.
**paging**: Displays information about paging messages.
**qos**: Displays information about RR messages.
**capability**: Displays the capability negotiation between the ASNGW and the base station.
**r4-only**: Displays information about selected function on R4 interface.
**r6-only**: Displays information about selected function on R6 interface.
name service_name
Displays information for an existing service specified as an alphanumeric string of 1 through 63 characters.

r4-only
Displays statistics of R4 interface in ASN-GW services.

r6-only
Displays statistics of R6 interface in ASN-GW services.

peer-address ipv4_address
Specifies the IP address of an IP Peer in IPv4 dotted-decimal notation.

peer-id <id>
Display the statistics based on the 6-byte BSID or ASNGW ID in addition to the IPv4 address.

verbose
Specifies that the output should display all available information. If this option is not specified then the output will be the standard level which is the concise mode.

| {grep grep_options | more }
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to display ASN-GW statistics.

Examples
The following command displays information about selected MS-State-Change function.
show asngw-service statistics function-type ms-state-change

Important
Output descriptions for commands are available in the Statistics and Counters Reference.
**show asnpc-service**

Displays information about selected Access Service Network Paging Controller and Location Registry (ASN PC/LR) services.

**Product**
ASN-GW

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show asnpc-service { all | id | name service_name | session | statistics } | | { grep grep_options | more } }
```

- **all**
  Displays information for all configured ASN PC services.

- **paging-group**
  Displays all the configured paging-groups and associated paging nodes, and the offset count. For a specific paging group, enter the paging group id number.

- **name service_name**
  Displays information only for an existing ASN PC service specified as an alphanumeric string of 1 through 63 characters.

- **session**
  Displays information about configured ASN PC sessions.

- **statistics**
  Total of collected information for specific protocol since last restart or clear command.

  ```
  | { grep grep_options | more } }
  ```

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to view information for selected configured ASN PC services.

**Examples**

The following command displays available information for all active ASN PC services.

```
show asnpc-service all
```

**Important**

Output descriptions for commands are available in the Statistics and Counters Reference.
show asnpc-service session

Displays statistics for specific Access Service Network Paging Controller (ASN PC) service sessions.

Product
ASN-GW

Privilege
Security Administrator, Administrator, Operator, Inspector

Command Modes
Exec

The following prompt is displayed in the Exec mode:
[local] host_name#

Syntax Description
show asnpc-service session [ all | callid call_id | counters | full | msid msid_number | peer-address ipv4_address | summary | { grep grep_options | more } ]

- **all**
  Displays all related information for all active ASN PC service sessions.

- **callid call_id**
  Displays available information for the call identification number specified as an 8-digit hexadecimal number.

- **full**
  Displays all available information for the associated display or filter keyword.

- **msid msid_number**
  Displays available information for the specific mobile station identification (MSID) number.

- **peer-address ipv4_address**
  Specifies the IP address of an IP peer in IPv4 dotted-decimal notation.

- **summary**
  Displays summary of available information for associated display or filter keyword (previous keyword).
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter.

Usage Guidelines

Use this command to view configuration information for an ASN PC session.

Examples

The following command displays all available ASN PC session counters in verbose mode.

show asnpc-service session all

The following command displays full ASN PC session counters in verbose mode.

show asnpc-service session full

Important

Output descriptions for commands are available in the Statistics and Counters Reference.
show asnpc-service session counters

Displays session counters for Access Service Network Paging Controller (ASN PC) service sessions.

**Product**

ASN-GW

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name# 
```

**Syntax Description**

```
show asngw-service session counters [ all | callid call_id | msid msid_number | peer-address ipv4_address | verbose ] | { grep grep_options | more } 
```

- **all**
  Displays all available counters for all ASN PC service sessions.

- **callid call_id**
  Displays available information for the call identification number specified as an 8-digit hexadecimal number.

- **msid msid_number**
  Displays available information for the specific mobile station identification (MSID) number.

- **peer-address ipv4_address**
  Specifies the IP address of an IP peer in IPv4 dotted-decimal notation.

- **verbose**
  Indicates the output should provide as much information as possible. If this option is not specified then the output will be the standard level which is the concise mode.

- **| { grep grep_options | more }**
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of **grep** and **more**, refer to the **Regulating a Command's Output** section of the **Command Line Interface Overview** chapter.
Usage Guidelines

Use this command to view the counters of an ASN PC session.

Examples

The following command displays the counters for ASN PC service sessions in verbose mode.

```
show asnpc-service session counters verbose
```

Important

Output descriptions for commands are available in the Statistics and Counters Reference.
show asnpc-service session counters verbose

Displays session counters for Access Service Network Paging Controller (ASN PC) service sessions in complete detail.

**Product**
ASN-GW

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show asngw-service session counters verbose [ function-type { context-transfer | im-operations | ms-state-change | paging } | all | callid call_id | msid msid_number | peer-address ipv4_address ] | | | { grep grep_options | more } ]
```

- **All**
  Displays all available counters for all ASN PC service sessions in verbose mode.

- **Callid call_id**
  Displays full information for the call identification number specified as an 8-digit hexadecimal number.

- **Function-type { context-transfer | im-operations | ms-state-change | paging }**
  Displays the counters for specific type of functions in an ASN-GW session.

- **Context-transfer**
  Displays information about context-transfer messages.

- **Im-operations**
  Displays information about idle mode state operation messages.

- **Ms-state-change**
  Displays information about MS state change messages.

- **Paging**
  Displays information about paging messages.

- **Msid msid_number**
  Displays full information for the specific mobile station identification (MSID) number.

- **Peer-address ipv4_address**
  Specifies the IP address of an IP peer IPv4 dotted-decimal notation.
r4-only
Displays statistics of R4 interface in ASN PC services in verbose mode.

r6-only
Displays statistics of R6 interface in ASN PC services in verbose mode.

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command’s Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**
Use this command to view the counters of an ASN PC session in verbose mode.

**Examples**
The following command displays the counters for data path type function.
```
show asnpc-service session counters verbose
```

**Important**
Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show asnpc-service statistics

Displays statistics for all ASN PC service sessions.

Product
ASN-GW

Privilege
Security Administrator, Administrator, Operator, Inspector

Command Modes
Exec
The following prompt is displayed in the Exec mode:
[local] host_name#

Syntax Description
show asnpc-service statistics [ name service_name | peer-address ipv4_address | verbose | | r4-only | r6-only | | { grep grep_options | more } ]

name service_name
Specifies an existing service name as an alphanumeric string of 1 through 63 characters.

peer-address ipv4_address
Specifies the IP address of an IP peer in IPv4 dotted-decimal notation.

verbose
Indicates the output should provide as much information as possible. If this option is not specified then the output will be the standard level which is the concise mode.

| { grep grep_options | more } |
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to display ASN PC statistics.

Examples
The following command displays information about ASN PC service in verbose mode.
show asnpc-service statistics verbose
Important

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show asnpc-service statistics verbose

Displays statistics for all Access Service Network Paging Controller (ASN PC) service in verbose mode.

Product

ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

show asnpc-service statistics verbose [ function-type { context-transfer | im-operations | ms-state-change | paging } | all | r4-only | r6-only ] [ | { grep grep_options | more } ]

display-type { context-transfer | ms-state-change | paging }

Displays the statistics for specific type of functions in an ASN PC service in verbose mode.

context-transfer: Displays information about context-transfer messages.

im-operations: Displays information about idle mode state operation messages.

ms-state-change: Displays information about MS state change messages.

paging: Displays information about paging messages.

all

Displays statistics of all ASN PC services in verbose mode.

r4-only

Displays statistics of R4 interface in ASN PC services.

r6-only

Displays statistics of R6 interface in ASN PC services.

| { grep grep_options | more } |

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to display ASN PC service statistics in verbose mode.

**Examples**

The following command displays information about selected MS-State-Change function.

```
show asnpc-service statistics verbose function-type ms-state-change
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show banner

Displays the configured banner message for the current context.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

show banner { all | charging-service | motd | lawful-intercept | pre-login } [ | { grep grep_options | more } ]

all
Displays all banners configured for a service in a system including the enhanced charging service (ECS).

charging-service
Displays banner message configured for an enhanced charging service in the current context.

motd
Display the banner message that is configured for the current context.

lawful-intercept
Refer to the Lawful Intercept Configuration Guide for a description of this command.

| { grep grep_options | more } |

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines

Show the configured banner to verify the message of the day contents for possible change
Examples

The following command displays all current banner messages:

```
show banner all
```
show bcmcs counters

Displays Broadcast and Multicast Service (BCMCS)-specific counters and statistics.

Product PDSN

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description show bcmcs counters { all | callid call_id | flow-id flow_id }

all
Displays BCMCS-specific counters and statistics for all multicast sessions.

callid call_id
Displays BCMCS-specific counters and statistics for a specific call ID.

flow_id flow_id
Displays BCMCS-specific counters and statistics for a specific BCMCS flow, defined by a flow ID.

Usage Guidelines Use this command to view BCMCS-specific statistics. You may narrow the results of the command output by specifying a specific call ID or flow ID.

Examples The following command displays all BCMCS counters:

show bcmcs counters all

Important Output descriptions for commands are available in the Statistics and Counters Reference.
show bcmcs statistics

Displays Broadcast and Multicast Service (BCMCS)-specific statistics for the current PDSN-service.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

**Syntax Description**

`show bcmcs statistics [pdsn-service service_name ]`

`pdsn-service service_name`

Defines a specific PDSN service from which to gather BCMCS-specific statistics.

**Usage Guidelines**

Shows several sets of BCMCS-specific statistics, and may be configured to show statistics only for a certain PDSN service.

**Examples**

The following command displays BCMCS statistics for the PDSN service named `group_1`:

`show bcmcs statistics pdsn-service group_1`

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference.*
show bfd

Displays Bidirectional Forwarding Detection (BFD) neighbors and their current debug settings.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

[local]host_name$

**Syntax Description**

show bfd \{ debugging | neighbors \}

- **show bfd debugging**
  
  Displays current BFD options for peer control messaging.

- **show bfd neighbors**
  
  Displays summary information for BFD-enabled neighbors.

**Usage Guidelines**

Show the configuration of BFD-enabled neighbors and the current debug settings.

**Examples**

The following command displays information for BFD-enabled neighbors:

show bfd neighbors

---

**Important**

Output descriptions for commands are available in the Statistics and Counters Reference.
show boot

Displays information on the current boot image in use.

Product: All

Privilege: Security Administrator, Administrator, Operator, Inspector

Command Modes: Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description:

`show boot [initial-config | {grep grep_options | more}]`

- `initial-config`:
  Identifies the OS image, configuration file, and boot priority used during the initial start up of the system.

| { grep grep_options | more } |

- Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines:

Show the boot information in preparing for maintenance activities by verifying current boot data. The boot image in use may not be the same as the boot image stored on the SPC/SMC due to upgrades and pending reboots. `show boot initial-config` displays the actual boot image and configuration file loaded during boot. This may or may not be the highest priority image and makes this command useful when comparing the loaded image to the priority list.

Important: This command is not supported on all platforms.

Examples:

The following command displays the boot system configuration priority list:

`show boot`
The following command displays the initial configuration after a system boot:

```
show boot initial-config
```
show bssap+ statistics

Displays Base Station system Application Part (BSSAP+) protocol statistics for the Gs interface between the SGSN and the Mobile services Switching Centre, Visitor Location Register (MSC/VLR).

**Product**
SGSN

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show bssap+ statistics [ gs-service gs_svc_name ] [ vlr { isdn-number ISDN_Num| name vlr_name } ] [ verbose ] [ | { grep grep_options | more } ]
```

*gs-service gs_svc_name*
Specifies the name of a specific Gs service to filter the BSSAP+ information as an alphanumeric string of 1 through 63 characters that is case sensitive.

*vlr { isdn-number ISDN_Num| name vlr_name}*
Identifies a specific VLR (by name or ISDN number) to filter BSSAP+ information.

*vlr name* is the configured name of the VLR expressed.

*VLR_num* is the configured E.164-type ISDN number for the VLR. Enter a numerical string of 1 to 15 digits.

*verbose*
Indicates the output should provide as much information as possible. If this option is not specified then the output will be limited to a concise summary.

```
| { grep grep_options | more } |
```

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter.
Usage Guidelines

Use this command to display the BSSAP+ statistics for the SGSN's Gs interface(s). Based on how the command is entered, this command displays collected BSSAP+ protocol statistics for the entire SGSN or for a specified Gs interface. Using the keywords of this command, the interface can be identified by defining a specific VLR connected to the SGSN or by identifying the Gs service to which the interface has been configured.

Examples

The following command displays all BSSAP+ information for the Gs interface configured for the Gs service named gssvc1.

```
show bssap+ statistics gs-service gssvc1 verbose
```

Important

Descriptions for show command outputs are available in the Statistics and Counters Reference.
show bssgp statistics

Displays base station subsystem GPRS protocol statistics for traffic between the base station subsystem (BSS) and the SGSN over the Gb interface.

**Product**
SGSN

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name# 
```

**Syntax Description**

```
show bssgp statistics [ gprs-service gprs_svc_name | nse nse_id | bvc bvc_id | sessmgr | verbose | ] | [ grep grep_options | more ]
```

- **gprs-service gprs_svc_name**
  Specifies the name of an existing GPRS service for which the BSSGP information will be filtered as an alphanumeric string of 1 through 63 characters that is case-sensitive.

- **nsense_ID**
  Enter this keyword to display the BSSGP statistics for the network service entity (NSE) specified as an integer from 0 through 65535.

- **bvc bvc_ID**
  Enter this keyword to display the BSSGP statistics for the BSSGP virtual connection (BVC) specified as an integer from 0 through 6500.

- **sessmgr instance sessmgr_instance_number**
  Enter this keyword to display the BSSGP statistics for a session manager instance specified as an integer from 1 through 4294967295.

- **verbose**
  Indicates the output should provide as much information as possible. If this option is not specified then the output will be the standard level which is the concise mode.
| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter.

Usage Guidelines

Use this command to display the BBSGP statistics for a particular GPRS service or NSEI.

Examples

The following command displays BSSGP statistics for the GPRS service named gprs1.

show bssgp statistics gprs-service gprs1

Important

Descriptions for show command outputs are available in the Statistics and Counters Reference.
show bssgp status

Displays the traffic status through the BSSGP (base station subsystem GPRS protocol) layer between the base station subsystem (BSS) and the SGSN over the Gb interface.

**Product**
SGSN

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

**Syntax Description**

`show bssgp status { bvc-bucket nsei nse_id bvci bvc_id | bvc-stat nsei nse_id bvci bvc_id } | | { grep grep_options | more }`

**bvc-bucket nsei nse_id bvci bvc_id**
Displays traffic status for a specific BVC bucket identified by the NSEI (network service entity ID) and BVCI (BSSGP virtual connection ID).

- `nse_ID` is an integer from 0 through 65535.
- `bvc_ID` is an integer from 0 through 65000.

**bvc-stat nsei nse_id bvci bvc_id**
Displays traffic status for a BVC identified by the NSEI (network service entity ID) and BVCI (BSSGP virtual connection ID).

- `nse_ID` is an integer from 0 through 65535.
- `bvc_ID` is an integer from 0 through 65000.

| { grep grep_options | more }|

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to display BVC status of the BBSGP layer for specified NSEI and BVCI.
Examples

The following command displays BSSGP traffic status for the BVC bucket for NSEI 2556 BVCI 241.
```
show bssgp status bvc-bucket nsei 2556 bvci 241
```

Notes

Important

Descriptions for show command outputs are available in the *Statistics and Counters Reference*. 
show bulkstats

 Displays information on bulk statistics.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:
[local]host_name#

**Syntax Description**
show bulkstats [[data] | [schemas] | [variables [schema_name] | [obsolete] | | [grep grep_options | more] ]]

data
Displays collected bulk statistical data.

schema
Displays the configuration of the statistics to be collected on a per-schema basis.

---

**Important**
For information on available schemas, refer to the *Bulk Statistics Configuration Mode Commands* chapter.

**variables schema_name**
Displays all valid bulkstat schema statistics, or only the statistics for the specified schema.

*schema_name* specifies the name of the schemas available on system. The following is the list of available schemas in this release.

- aal2
- alcap
- apn
- asngw
- asnpc
- bcmcs
- card
- closedrp
- common
- context
- cs-network-ranap
- cs-network-rtp
- cs-network-sccp
- cscf
- cscfintf
- dcca
- dcca-group
- diameter-acct
- diameter-auth
- diameter-acct
- dlci-util
- dpca
- ecs [ rulebase ]
- egtpc
- epdg
- fa
- fng
- gprs
- gtpc
- gtp
- gtpu
- ha
- henbgw-access
- henbgw-network
- hnbw-hnbap
- hnbw-hnbap-access-closed
- hnbw-hnbap-access-hybrid
- hnbw-hnbap-access-open
show bulkstats

- hnbgw-iube-sabp
- hnbgw-iube-tcp
- hnbgw-ranap
- hnbgw-ranap-access-closed
- hnbgw-ranap-access-hybrid
- hnbgw-ranap-access-open
- hnbgw-rtp
- hnbgw-rtp-access-closed
- hnbgw-rtp-access-hybrid
- hnbgw-rtp-access-open
- hnbgw-rua
- hnbgw-rua-access-closed
- hnbgw-rua-access-hybrid
- hnbgw-rua-access-open
- hnbgw-sabp
- hnbgw-sabp-access-closed
- hnbgw-sabp-access-hybrid
- hnbgw-sabp-access-open
- hnbgw-sctp
- hsgw
- hss
- icsr
- imsa
- ippool
- ipsg
- lac
- lcs
- link-aggr
- lma
- lns
- mag
- map
- mipv6ha
• mme
• mvs
• nat-realm
• p2p
• pcc-af
• pcc-policy
• pcc-quota
• pcc-service
• pcc-sp-endpt
• pdg
• pdif
• pgw
• phsgw
• phspc
• port
• ppp
• ps-network-gtpu
• ps-network-ranap
• ps-network-sccp
• radius
• radius-group
• rlf
• rlf-detailed
• rp
• samog
• sbc
• sccp
• sgs
• sgs-vlr
• sgsn
• sgtp
• sgw
• sls
• ss7link
• ss7rd
• system
• tai
• vlan-npu
• vpn
• wsg

obsolete
This keyword shows obsolete (but still available) schema variables. An asterisk (*) is displayed next to schema variables that have been obsoleted.

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For information on usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to display information on bulk statistics supported by the system.
The variable keyword can be used to list statistics supported by the system either for all schemas, or for an individual schema.
The schema keyword can be used to display the configuration of settings for bulk statistics, including the schema.
The data keyword can be used to display bulk statistic data collected up to that point.

Examples
The following command displays bulk statistics data:
show bulkstats data
The following command displays bulk statistics schema configuration:
show bulkstats data schemas

Important
Output descriptions for commands are available in the Statistics and Counters Reference.
show ca-certificate

Displays information for Certificate Authority (CA) digital certificates configured on this system.

Product
All

Privilege
Inspector

Command Modes
Exec
The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description
show ca-certificate { all | name name }

all
Displays information about all the configured CA certificates.

name name
Displays information about an existing configured CA certificate name specified as a alphanumeric string of 1 through 128 characters.

Usage Guidelines
View information for CA certificates configured on this system.

Examples
The following command displays information for a CA certificate named cert-I:

show ca-certificate name cert-I

Important
Output descriptions for some commands are available in the Statistics and Counters Reference.
show ca-crl

Displays information for Certificate Authority (CA) Certificate Revocation List (CRL) configured on this system.

Product
All

Privilege
Inspector

Command Modes
Exec

The following prompt is displayed in the Exec mode:
[local]host_name#

Syntax Description
show ca-crl { all | name name }

all
Displays information about all the configured CA-CRLs.

name name
Displays information about an existing CA-CRL name specified as an alphanumeric string of 1 through 128 characters.

Usage Guidelines
View information for CA-CRLs on this system.

Examples
The following command displays information for a CA-CRL named crl-5:
show ca-crl name crl-5

Important
Output descriptions for some commands are available in the Statistics and Counters Reference.
show cae-group server

Displays configuration information, including the name of the associated CAE group, for all CAEs or for a specific CAE. The CAE (Content Adaptation Engine) is an optional component of the Mobile Videoscape.

**Product**

MVG

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

`show cae-group server { all | name cae_name }`

- **all**
  
  Shows the configuration information, including the associated CAE group, for all CAEs.

- **name cae_name**
  
  Shows the configuration information for a specific CAE.

**Usage Guidelines**

Use this command to display configuration information for all CAEs or for a specific CAE. This command can be issued from either the local context or the context in which the associated CAE group is defined.

**Examples**

The following command displays configuration information for the CAE named `server_1`:

```
show cae-group server name server_1
```
show call-control-profile

Displays information for call control profiles configured on the system.

Product

- MME
- SGSN

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

```
show call-control-profile { all | full { all | name profile_name } | name profile_name } [ | { grep grep_options | more } ]
```

- **all**
  Lists all call-control profiles configured on the system.

- **full { all | name profile_name }**
  - **full**: Displays a full set (all) of available information in the call-control profile.
  - **all**: Displays a full set of available information for all call-control profiles configured on the system.
  - **name profile_name**: Displays full information for an existing call-control profile specified as an alphanumeric string of 1 through 64 characters.

- **name profile_name**
  Displays information for an existing call-control profile specified as an alphanumeric string of 1 through 64 characters.

- **| { grep grep_options | more }**
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.
Usage Guidelines

Use this command to display information for call-control profiles configured on the system. Call-control profiles are configured through the global configuration mode and in the call-control profile configuration mode. For more information regarding call-control profile commands, refer to the Call-Control Profile Configuration Mode Commands chapter.

Examples

The following command displays all available information for a call-control profile named call-prof2:

```
show call-control-profile full name call-prof2
```
show call-home

Displays information for Smart Call Home settings configured on the system.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show call-home [alert-group | detail | mail-server status | profile [all | name profile_name] ] | statistics
   [ | { grep grep_options | more } ]
```

- **alert-group**
  Displays information for all alert groups configured on the system. It also indicates if an alert-group has been disabled by the user.

- **detail**
  Displays general information and alert-group settings for all configured call-home profiles.

- **mail-server status**
  Displays status information for call-home mail servers that are configured on the system.

- **profile { all | name profile_name }**
  Displays all available information for all call-home profiles on the system or a specified call-home profile.
  - **all**: Displays all available information for all call-home profiles configured on the system.
  - **name profile_name**: Displays all available information for an existing call-home profile specified as an alphanumeric string of 1 through 31 characters.

- **name profile_name**
  Displays information for a call-home profile specified as an alphanumeric string of 1 through 31 characters.
statistics
Displays statistical information for call-home statistics configured on the system.

| { grep grep_options | more }
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines
Use this command to display profile and notification policy information associated with the call-home profiles configured on the system. Call-home profiles are configured through the Context Configuration Mode and in the Call-home Configuration Mode. For more information regarding call-home commands, refer to the *Call Control Profile Configuration Mode Commands* chapter.

Examples
The following command displays all available information for a call-home profile named *call-home-prof1*:

```
show call-home profile name call-home-prof1
```
show camel-service

Displays configuration details for Customized Applications for Mobile networks Enhanced Logic (CAMEL) services configured for this SGSN.

**Product**
SGSN

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]\host_name#
```

**Syntax Description**

```
show camel-service { all | name service_name } [ | grep grep_options | more ]
```

- **all**
  Displays the configuration details for all configured CAMEL services.

- **name**
  Displays the configuration details for an existing CAMEL service specified as an alphanumeric string of 1 through 63 characters.

```
| { grep grep_options | more }
```

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

View configuration information for CAMEL services.

**Examples**
The following command displays the configuration information for a CAMEL service identified as `camel4sgsnTO`:

```
show camel-service name camel4sgsnTO
```
Important

Output descriptions for commands are available in the *Statistics and Counters Reference.*
show card

Displays various types of information for a card or all cards in the system.

**Product**  
All

**Privilege**  
Security Administrator, Administrator, Operator

**Command Modes**  
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show card { diag [ slot# ] | hardware [ slot# ] | info [ slot# ] | mappings | table [ all ] } | { grep grep_options | more }
```

- **diag**  
  Displays diagnostic results for a specific card or all cards.

- **hardware**  
  Displays information about installed hardware.

- **info**  
  Displays detailed information for a specific card or all cards

- **mappings**  
  Displays mappings between front-installed application cards and rear-installed interface cards.

**Important**  
This keyword is only supported on the ASR 5000.

- **table [all]**  
  Displays information about each card in tabular output. The **all** option includes empty slots in the output.

- **slot#**  
  Specifies the slot number for a card as an integer from 1 through 48.
| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter.

Usage Guidelines

Use this command to view various types of information for all cards or a specified card.

Examples

The following command displays diagnostic information for the card in slot 1:

```
show card diag 1
```

Important

Output descriptions for commands are available in the Statistics and Counters Reference.
show cbs counters

Displays counters associated with cell broadcasting service (CBS).

**Product**

HNBGW

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show cbs counters [ cbs-service cbs_service_name ] [ | { grep grep_options | more } ]
```

- **cbs-service cbs_service_name**
  
  Displays information for specific CBS service. `cbs_service_name` is a string of size 1 through 63.

- `{ grep grep_options | more }`
  
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Refer to *Regulating a Command’s Output* section of the *Command Line Interface Overview* chapter for details on the usage of `grep` and `more`.

**Usage Guidelines**

Use this command to display the counters for CBS service

**Examples**

The following command displays the counters for the CBS named `my_service`:

```
show cbs counters cbc-service my_service
```
show cbs sessions

This command displays the information for CBS sessions.

**Product**

HNBGW

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show cbs sessions [ all ] [ cbc-address cbc_address | cbs-service cbs_service_name ] [ [ full ] | summary ] [ [ cbc-address cbc_address | cbs-service cbs_service_name ] [ [ [ grep grep_options ] | more ] ]
```

- **all**
  Displays all CBS sessions.

- **cbc-address cbc_address**
  Specifies the IP address of a Cell Broadcast Center (CBC) in IPv4 dotted-decimal notation.

- **cbs-service cbs_service_name**
  Displays information for a named CBS service. *cbs_service_name* is an alphanumeric string of 1 through 63 characters.

- **full**
  Displays all available session information.

- **summary**
  Displays summary information for CBS sessions

  | { grep grep_options | more } |

  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  Refer to *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter for details on the usage of *grep* and *more*. 
Usage Guidelines
Use this command to display the information for CBS sessions.

Examples
The following command displays the full session information for CBS address 101.102.109.211:
show cbs sessions full cbc-address 101.102.109.211
show cbs statistics

Displays CBS statistics.

**Product**
HNBGW

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name>
```

**Syntax Description**

```
show cbs statistics [ cbc-address cbc_address | cbs-service cbs_service_name ] [ sabp-only | tcp-only | verbose ] [ | { grep grep_options | more } ]
```

- **cbc-address cbc_address**
  Designates the IP address of a CBC in IPv4 dotted-decimal notation.

- **cbs-service cbs_service_name**
  Displays information for a named CBS service. *cbs_service_name* is an alphanumeric string of 1 through 63 characters.

- **sabp-only**
  Displays Service Area Broadcast Protocol (SABP) statistics for the selected CBS Service.

- **tcp-only**
  Displays TCP statistics for the selected CBS Service.

- **verbose**
  Displays more detailed CBS statistics.

  ```
  | { grep grep_options | more } 
  ```

  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  Refer to *Regulating a Command's Output* section of the Command Line Interface Overview chapter for details on the usage of *grep* and *more*.
Usage Guidelines
Use this command to display the statistics for CB service.

Examples
The following command displays the SABP statistics for the CBC at 101.102.109.211:
show cbs statistics cbc-address 101.102.109.211 sabp-only
show cbs-service

Displays information for all or a specific CBS service.

Product  HNBGW

Privilege  Security Administrator, Administrator, Operator, Inspector

Command Modes  Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description  

show cbs-service { all | name cbs_service_name } [ status ] [ | { grep grep_options | more } ]

all
Displays all CBS services.

name cbs_service_name
Displays information for named CBS service. cbs_service_name is an alphanumeric string of 1 through 63 characters.

status
Display detailed status.

| { grep grep_options | more }
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
Refer to Regulating a Command’s Output section of the Command Line Interface Overview chapter for details on the usage of grep and more.

Usage Guidelines  Use this command to display the information for all or a specific CBS service.

Examples  The following command displays the detailed status of a CBS service with name my_service:

show cbs-service name my_service status
show cdr

Displays information about Charging Data Records (CDRs).

**Product**

ACS

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show cdr { file-space-usage | statistics } [ | { grep grep_options | more } ]
```

- `file-space-usage`
  
  Displays the amount of file space used by Charging Data Record (CDR) files.

- `statistics`
  
  Displays CDR file statistics.

  ```
  | { grep grep_options | more }
  ```

  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to view CDR flow control information.

**Examples**

The following command displays CDR files statistics:

```
show cdr statistics
```

The following command displays the amount of file space used by the CDR files:

```
show cdr file-space-usage
```
show cdr

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*.
show certificate

Displays information about the certificates configured on this system.

**Product**

All

**Privilege**

Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show certificate { all | name name }
```

- **all**
  
  Displays information about all the configured certificates on this system.

- **name name**
  
  Displays information of a specified certificate configured.
  
  *name* must be the name of an existing certificate specified as an alphanumeric string of 1 through 128 characters.

**Usage Guidelines**

View information for local node certificates on this system.

**Examples**

The following command displays information for a node certificate named *certificate-3*:

```
show certificate name certificate-3
```

**Important**

Output descriptions for some commands are available in the *Statistics and Counters Reference.*
show cgw-service

Displays configuration and/or statistical information for CGW services on this system.

Product
SaMOG

Privilege
Security Administrator, Administrator, Operator, Inspector

Syntax Description

show cgw-service { all | name name | statistics { all | verbose | | { grep grep_options | more } } | name name } { | { grep grep_options | more } }

all
Displays all CGW services.

name name
Displays information for an existing CGW service specified as an alphanumeric string of 1 through 63 characters.

statistics
Displays node level Statistics for CGW.

verbose
Specifies detailed statistics.

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to display configuration and/or statistical information for CGW services on this system.

Examples
The following command displays information for all CGW services:

show cgw-service all
show cli

Displays current or historical information about command line interface (CLI) user session(s).

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```
The following command displays information about all current CLI sessions:

```
show cli
```
show clock

Displays the current system data and time.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

`show clock [universal] [ | { grep grep_options | more } ]`

- **universal**
  
  Displays the date and time in universal coordinated time (UTC/GMT) format.
  
  ```
  | { grep grep_options | more }
  ```
  
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of `grep` and `more`, refer to the Regulating a Command Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Check the current time of a chassis to compare with network wide time or for logging purposes if network accounting and/or event records appear to have inconsistent timestamps.

**Important**

This command is not supported on all platforms.

**Examples**

The following displays the system time in local time and UTC, respectively.

```
show clock
show clock universal
```
show cloud configuration

Displays the contents of the configuration file.

**Product**

VPC

**Privilege**

Security Administrator, Administrator, Inspector, Operator

**Mode**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax**

```
show cloud configuration
```

**Usage**

This command dumps the contents of the configuration file to the screen. It displays the configuration file on the config disk or the local flash. Usually the user does not have direct access to these files. The local param file on the flash is defined during the VPC installation and the config disk is usually created by the orchestrator and then attached to the card.

**Examples**

This command displays the hardware configuration associated with card number 1:

```
show cloud configuration
```
show cloud hardware

Displays information regarding the configuration for each card or a specific card.

Product
VPC

Privilege
Security Administrator, Administrator, Inspector, Operator

Mode
Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax

show cloud hardware [optimum | test] [card_number]

optimum
Displays the optimum configuration of the underlying VM hardware according to the available parameters. It provides information regarding the configured vCPU, memory size, huge page size, crypto hardware and the NIC.

test
Compares the configuration of the underlying VM hardware of a specific card or all cards in the VPC to the optimum configuration. It provides information regarding the configured vCPU, memory size, huge page size, crypto hardware and the NIC and indicates the optimum values for each parameter.

card_number
Specifies the number of the card for which to display information. If no card number is specified, the command displays information for each of the running cards.

Usage
Displays the configuration of the underlying VM hardware for a specific card or all cards in the VPC. When no optional keywords are provided, the command displays information regarding the configured vCPU, memory size, huge page size, crypto hardware and the NIC.

Examples
This command displays the hardware configuration associated with card number 1:

show cloud hardware test 1
This command displays the hardware configuration associated with card number 1:

show cloud hardware 1
This command displays the optimum hardware configuration for the associated VM hardware:

show cloud hardware optimum
show cloud monitor

Displays VPC-DI network latency and packet loss statistics for all cards or a specific card in the VPC.

Product
VPC-DI

Privilege
Security Administrator, Administrator, Inspector, Operator

Command Modes
Exec
The following prompt is displayed in the Exec mode:
[local]host_name#

Syntax Description
show cloud monitor di-network {detail | summary} card_number

detail
Displays detailed information about the VPC-DI network.

summary
Displays summary information about the VPC-DI network.

card_number
Specifies the number of the card for which to display information.

Displays the configuration of the underlying VM hardware for a specific card or all cards in the VPC. It provides information regarding the configured vCPU, memory size, huge page size, crypto hardware and the NIC.

Examples
This command displays summary monitored statistics for VPC-DI network communications from and to the third card in the VPC. The display shows the test packet loss rate for the past five minutes and past 60 minutes. If the rate is larger than 1%, the health status is marked as "Bad".

show cloud monitor di-network summary 3

Card 3 Test Results:

<table>
<thead>
<tr>
<th>ToCard</th>
<th>Health</th>
<th>5MinLoss</th>
<th>60MinLoss</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Good</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>2</td>
<td>Good</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>4</td>
<td>Bad</td>
<td>6.32%</td>
<td>5.36%</td>
</tr>
<tr>
<td>5</td>
<td>Good</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>#</td>
<td>Status</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>---</td>
<td>--------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>6</td>
<td>Good</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>
show cmp history

Displays historical information for the last 100 Certificate Management Protocol v2 transactions.

**Product**
All products supporting IPSec CMPv2 features

---

**Important**
This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

---

**Privilege**
Security Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
show cmp history
```

**Usage Guidelines**
Display historical information for the last 100 Certificate Management Protocol v2 transactions.

**Examples**
The following command displays CMPv2 transaction history:

```
show cmp history
```
show cmp outstanding-req


**Product**

All products supporting IPSec CMPv2 features

**Important**

This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

**Privilege**

Security Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

`show cmp outstanding-req`

**Usage Guidelines**


**Examples**

The following command displays outstanding CMPv2 requests:

```
show cmp outstanding-req
```
show cmp statistics


**Product**
All products supporting IPSec CMPv2 features

**Important**
This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

**Privilege**
Security Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name# 
```

**Syntax Description**
```
show cmp statistics
```

**Usage Guidelines**

**Examples**
The following command displays CMPv2 statistics:
```
show cmp statistics
```
**show configuration**

Displays current configuration information for various subcomponents of the system.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show configuration [ active-charging service { all | name srvc_name } ] [ apn apn_name ]
| brief | card card_num | checksum | context name
| link-aggregation group group_number | obsolete-encryption | port slot/port
| rohc | showsecrets | srp | url url | verbose | [ | { grep grep_options | more } ]
show configuration active-charging service { all | name srvc_name } [ brief | obsolete-encryption ]
| showsecrets | verbose |
show configuration apn apn_name [ obsolete-encryption | showsecrets | verbose ]
show configuration card card_num [ brief | obsolete-encryption | showsecrets | verbose ]
show configuration checksum [ brief | obsolete-encryption | showsecrets | verbose ]
show configuration context name [ brief | obsolete-encryption | radius | showsecrets | verbose ]
show configuration link-aggregation group group_number
show configuration obsolete-encryption
show configuration port slot/port [ brief | obsolete-encryption | showsecrets | verbose ]
show configuration rohc [ all | profile-name name ] [ brief | verbose ]
show configuration showsecrets obsolete-encryption
show configuration srp | brief | checksum | obsolete-encryption | showsecrets | verbose ]
show configuration url url
show configuration verbose obsolete-encryption showsecrets]

active-charging service { all | name srvc_name }

Displays all active charging parameters for all services, or a specified service name expressed as an alphanumeric string of 1 through 15 characters.

**apn apn_name**

Specifies an APN for which to display the configuration information. All contexts are searched for this APN, and if a match found, the StarOS returns the configuration of this APN.
brief
Displays current configuration information in brief form.

| Important | The **brief** keyword is only available in StarOS 20.0 and higher releases. |

**card card_num**
Specifies a card for which configuration information is to be displayed as an integer from 1 through 48 for the ASR 5000 or 1 through 20 for the ASR 5500.

**checksum**
Generates and displays a checksum value for the configuration data.

**context name**
Specifies an existing context for which configuration information is to be displayed as an alphanumeric string of 1 through 79 characters.

**link-aggregation group group_number**
Displays the current configuration of the LAG specified by group number as an integer from 1 through 1023.

**obsolete-encryption**
Shows encrypted values using a weaker, obsolete encryption method (prior to release 12.2).

| Important | The **obsolete-encryption** keyword is only available in StarOS 19.1 and prior releases. |

**port slot/port**
Displays configuration information for a port identified by its slot and port numbers.

**rohc | all | profile-name name**
Specifies that information for all robust header compression (RoHC) profiles or the named profile is to be displayed.

**showsecrets**
Displays encrypted and unencrypted secret keys saved in the configuration. If this keyword is not specified, secret keys are not displayed.

| Important | This keyword is restricted to Administrator privilege or higher. |
The `showsecrets` keyword is only available in StarOS 19.1 and prior releases.

**Important**

**srp**

Shows the Service Redundancy Protocol (SRP) configuration used for Interchassis Session Recovery (ICSR) deployments.

**url url**

Default: configuration which is currently in use.

This keyword is not available to users with Operator level permissions. Specifies the location of the configuration data to use for information display. The `url` may refer to a local or a remote file and must be entered in the following format:

For the ASR 5000:

```
[ file: ] { /flash | /pcmcia1 | /hd } { directory } { file_name }
```

```
tftp:// { host : port# } { directory } { file_name }
```

```
http: | ftp: | sftp: // { username : password } @ { host } : port# { directory } { file_name }
```

For the ASR 5500:

```
[ file: ] { /flash | /usb1 | /hd } { directory } { file_name }
```

```
tftp:// { host : port# } { directory } { file_name }
```

```
http: | ftp: | sftp: // { username : password } @ { host } : port# { directory } { file_name }
```

**Important**

Do not use the following characters when entering a string for the field names below: "/" (forward slash), "." (colon) or "@" (at sign).

`directory` is the directory name.

`filename` is the actual file of interest.

**Configuration files should be named with a .cfg extension.**

**username** is the user to be authenticated.

**password** is the password to use for authentication.

**host** is the IP address or host name of the server.

**port#** is the logical port number that the communication protocol is to use.

**verbose**

Indicates the output should provide as much information as possible. If this option is not specified then the output will be the standard level which is the concise mode.

```
| { grep grep_options | more }
```

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
For details on the usage of grep and more, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**
View the current configuration to analyze recent changes. For additional information, refer to the Administration Guides for products installed on your system.

**Examples**
The following command displays the local in-use port configuration information for port 24/1 in verbose mode.
```
show configuration port 24/1 verbose
```

The following command displays the local in-use port configuration information for port 5/11 in verbose mode.
```
show configuration port 5/11 verbose
```

The following command displays the configuration of all RADIUS server groups configured in context local.
```
show configuration context local radius group all
```

The following command shows the configuration for a context named PGW.
```
show configuration context pgw
```
show configuration errors

Displays current configuration errors and warning information for the target configuration file as specified for a service.

Product

All

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show configuration errors [ section section_name ] [ verbose ] [ [ grep grep_options ] | more ]

section { section_name }

Specifies the services and section for which to display and validate a configuration.

The following services and sections are supported:

- **aaa-config**: Displays configuration errors/warnings for the AAA service(s) configured on the system.
- **active-charging**: Displays configuration errors/warnings for the Enhanced Charging Service(s) and the Personal Stateful Firewall service(s) configured on the system.
- **alcap-service**: Displays configuration errors/warnings for Access Link Control Application Part (ALCAP) on HNB-GW for IuCS-over-ATM support towards CS core network.
- **apn**: Displays configuration errors/warnings for the APN configuration(s) on the system.
- **apn-profile**: Displays configuration errors/warnings for the APN Profile configuration(s) on the system.
- **apn-remap-table**: Displays configuration errors/warnings for the APN Remap Table configuration(s) on the system.
- **asngw-service**: Displays configuration errors/warnings for the Access Service Network Gateway (ASN-GW) Service configured in a specific context for which configuration errors/warnings is to be displayed.
- **asnpc-service**: Displays configuration errors/warnings for the ASN Paging Controller and Location Registry (ASN PC-LR) Service(s) configured on the system.
- **call-control-profile**: Displays configuration errors/warnings for the Call Control Profile configuration(s) on the system.
• **camel-service**: Displays configuration errors/warnings for the Customised Applications for Mobile networks Enhanced Logic (CAMEL) Service configuration(s) on the system.

• **closed-rp-service**: Displays configuration errors/warnings for the closed RP service(s) configured on the system.

• **cs-network**: Displays configuration errors/warnings for the circuit switched (CS) network configuration(s) on the system.

• **diameter**: Displays configuration errors/warnings for the Diameter configuration(s) on the system.

• **dns-client**: Displays configuration errors/warnings for the DNS client configuration(s) on the system.

• **egtp-service**: Displays configuration errors/warnings for the evolved GPRS Tunneling Protocol (eGTP) service configuration(s) on the system.

• **event-notif**: Displays configuration errors/warnings for the event notification (SNMP) interface client.

• **fa-service**: Displays configuration errors/warnings for the Foreign Agent (FA) service(s) configured on the system.

• **fng-service**: Displays configuration errors/warnings for the Femto Network Gateway (FNG) configuration(s) on the system.

• **ggsn-service**: Displays configuration errors/warnings for the Gateway GPRS Support Node (GGSN) service(s) configured on the system.

• **gprs-service**: Displays configuration errors/warnings for the General Packet Radio Service (GPRS) service(s) configured on the system.

• **gs-service**: Displays configuration errors/warnings for the Gs service(s) configured on the system. The Gs interface between the SGSN and the MSC (VLR) uses the BSSAP+ protocol.

• **ha-service**: Displays configuration errors/warnings for the Home Agent (HA) service(s) configured on the system.

• **henbgw-network-service**: Displays configuration errors/warnings for the Home Evolved Node B Gateway (HNB-GW) network service configuration(s) on the system.

• **hnbgw-service**: Displays configuration errors/warnings for the Home Evolved Node B Gateway (HNB-GW) Service configuration(s) on the system.

• **hsgw-service**: Displays configuration errors/warnings for the HRPD Serving Gateway (HSGW) service(s) configured on the system.

• **imei-profile**: Displays configuration errors/warnings for the International Mobile Equipment Identity (IMEI) Profile configuration(s) on the system.

• **imsa-config**: Displays configuration errors/warnings for the IMS Authorization (IMSA) configuration(s) on the system.

---

**Important**  
In 16.0 and later releases, error message will be displayed in the output of **show configuration errors** command when the user tries to configure an endpoint which is already configured in other IMSA service.

---

• **imssh-service**: Displays configuration errors/warnings for the IMS Sh (IMSSh) service(s) configured on the system.
• **imsue-service**: Displays configuration errors/warnings for the IMS UE service(s) configured on the system.

• **ipms**: Displays configuration errors/warnings for the Intelligent Packet Monitoring System (IPMS) service(s) configured on the system.

• **ipne**: Displays configuration errors/warnings for the IP Network Enabler (IPNE) facility configured on the system.

• **ipsg-service**: Displays configuration errors/warnings for the IP Security Gateway (IPSG) service(s) configured on the system.

• **iups-service**: Displays configuration errors/warnings for the IuPS service(s) configured on the system.

• **lac-service**: Displays configuration errors/warnings for the Layer 2 Tunneling Protocol (L2TP) Access Concentrator (LAC) service(s) configured on the system.

• **lns-service**: Displays configuration errors/warnings for the L2TP Network Server (LNS) service(s) configured on the system.

• **local-policy**: Displays configuration errors/warnings for the Local Policy configuration(s) on the system.

• **map-service**: Displays configuration errors/warnings for the SS7 Mobile Application Part (MAP) service(s) configured on the system.

• **mme-service**: Specifies the configuration errors for a Mobility Management Entity (MME) service configured in a specific context for which configuration errors/warnings are to be displayed.

• **operator-policy**: Displays configuration errors/warnings for the Operator Policy configuration(s) on the system.

• **pcc-policy-service**: Displays configuration errors/warnings for the Policy and Charging Control (PCC) Policy Service configuration(s) on the system.

• **pcc-quota-service**: Displays configuration errors/warnings for the Policy and Charging Control (PCC) Quote Service configuration(s) on the system.

• **pcc-service**: Displays configuration errors/warnings for the PCC Service configuration(s) on the system.

• **pdg-service**: Displays configuration errors/warnings for the Packet Data Gateway (PDG) Service configuration(s) on the system.

• **pdif-service**: Displays configuration errors/warnings for the Packet Data Interworking Function (PDIF) service(s) configured on the system.

• **pdsn-service**: Displays configuration errors/warnings for the Packet Data Serving Node (PDSN) service(s) configured on the system.

• **pgw-service**: Displays configuration errors/warnings for the PDN-Gateway (P-GW) service configuration(s) on the system.

• **phsgw-service**: Displays configuration errors/warnings for the Payload Header Suppression (PHS) Gateway service(s) configured on the system.

• **policy-grp-config**: Displays configuration errors/warnings for the Policy Group configuration(s) on the system.

• **ps-network**: Displays configuration errors/warnings for the packet switched (PS) network configuration(s) on the system.
- **saegw-service**: Displays configuration errors/warnings for the System Architecture Evolution Gateway (SAE-GW) Service configuration(s) on the system.

- **sccp-network**: Displays configuration errors/warnings for the Signaling Connection Control Part (SCCP) network configuration(s) on the system.

- **sgs-service**: Displays configuration errors/warnings for the SGs Service configuration(s) on the system. The SGs interface connects the databases in the VLR and the MME.

- **sgsn-mode**: Displays configuration errors/warnings for the Serving GPRS Support Node (SGSN) mode configuration(s) on the system.

- **sgsn-service**: Displays configuration errors/warnings for the SGSN service(s) configured on the system.

- **sgtp-service**: Displays configuration errors/warnings for the SGSN GPRS Tunneling Protocol (SGTP) service(s) configured on the system.

- **sgw-service**: Displays configuration errors/warnings for the Serving Gateway (S-GW) service configuration(s) on the system.

- **subscriber-config**: Displays configuration errors/warnings for the subscriber configuration(s) on the system.

- **subscriber-map**: Displays configuration errors/warnings for the Subscriber Map configuration(s) on the system.

**Verbose**

Indicates the output should provide as much information as possible. If this option is not specified then the output will be the standard level which is the concise mode.

```
| { grep grep_options | more }
```

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For more information on the usage of `grep` and `more`, refer to the `Regulating a Command's Output` section of the `Command Line Interface Overview` chapter.

**Usage Guidelines**

Use this command to view the current configuration errors and warning to review recent changes. For additional information, refer to the Administration Guides for products installed on your ASR 5x00 system.

**Examples**

The following command displays configuration errors and warnings for all services configured in a context/system:

`show configuration errors verbose | more`

The following command displays configuration errors and warnings for Active Charging service and Personal Stateful Firewall service configured in a context:

`show configuration errors section active-charging verbose`

The following command displays configuration errors and warnings for QoS-configuration in a context:

`show configuration errors section qos-marking verbose`
**show congestion-control**

Displays information pertaining to congestion control functionality on the system

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show congestion-control { configuration | statistics { manager [ all | instance task_instance ] } } | { grep grep_options | more }
show congestion-control statistics mme { critical | full | major | minor } | { grep grep_options | more }
```

**configuration**
Displays congestion control configuration information including threshold parameters and policy settings for the configured services.

**statistics**
Displays congestion control statistics for manager services.

**manager**
Specifies the name of the service/session manager for which statistics are displayed. The following types of manager services are supported:

- **a11mgr**: Specifies that statistics are displayed for PDSN services.
- **asngwmg**: Specifies that statistics are displayed for ASN-GW services.
- **asnpcmgr**: Specifies that statistics are displayed for ASN PC-LR services.
- **bindmux**: Specifies that statistics are displayed for Bindmux Manager used by PCC service.
- **egtpinmgr**: Specifies that statistics are displayed for EGTP ingress demuxmgr.
- **gtpcmgr**: Specifies that statistics are displayed for GGSN services.
- **hamgr**: Specifies that statistics are displayed for HA services.
• **hnbmgr**: Specifies that statistics are displayed for HNB Manager used by HNB-GW service.

• **imsimgr**: Specifies that statistics are displayed for IMSI managers.

• **ipsecmgr**: Specifies that statistics are displayed for IPSec managers.

• **ipsgmgr**: Specifies that statistics are displayed for IPSG managers.

• **l2tpmgr**: Specifies that statistics are displayed for L2TP managers.

```
statistic mme { critical | full | major | minor }
```

Displays the statistics based on the current state of all instances of the specified task.

- **critical**: Specifies that statistics are displayed for the critical congestion policy for MME services.
- **full**: Specifies that statistics are displayed for all congestion policies for MME services.
- **major**: Specifies that statistics are displayed for the major congestion policy for MME services.
- **minor**: Specifies that statistics are displayed for the minor congestion policy for MME services.

```
all
```

Displays the statistics based on the current state of all instances of the specified task.

```
instance task_instance
```

Displays statistics for a specified software task instance. `task_instance` can be configured to an integer from 1 to 128.

---

**Important**

The **inst** column of the `show task table` command output displays the instance of a particular task.

```
| { grep grep_options | more }
```

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

---

**Usage Guidelines**

This command displays congestion control configuration information or statistics for a particular service type. When the all keyword is used, the system compares the current state of all instances of the specified task. The state is based on whether or not any congestion control thresholds have been exceeded. If one or more instances are experiencing congestion, the state is displayed as "Applied", and the various thresholds that have been crossed are indicated.

---

**Examples**

The following command displays congestion control statistics for a PDSN service using an `a11mgr` task with an instance of 2:

```
show congestion-control statistics a11mgr instance 2
```
The following command displays congestion control statistics for an ASN-GW service using an `asngwmgr` task with an instance of 2:

```
show congestion-control statistics asngwmgr instance 2
```

The following command displays congestion control statistics for an ASN PC-LR service using an `asnpcmgr` task with an instance of 2:

```
show congestion-control statistics asnpcmgr instance 2
```

| Important | Output descriptions for commands are available in the *Statistics and Counters Reference*. |
show connectedapps

Displays information about the current Connected Apps (CA) configuration.

**Product**
SecGW (WSG)

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
show connectedapps

**Usage Guidelines**
Displays information about the current Connected Apps (CA) configuration between the CA client on the ASR 9000 VSM and IOS-XR.

**Examples**
This command displays Connected Apps configuration information:

```
show connected apps
```
show content-filtering category database

Displays details of the specified category based content filtering database for content filtering application configured in a system/service.

Product
CF

Privilege
Security Administrator, Administrator, Operator, Inspector

Command Modes
Exec

The following prompt is displayed in the Exec mode:
[local] host_name#

Syntax Description

show content-filtering category database [active | all | facility srdbmgr { all | instance instance_number } | url url_string | verbose | [ | [grep grep_options | more ]]

active
Displays the information about all active databases, for example databases in memory. This is the default setting for category database information.

all
Displays the information about all active databases, for example, databases in memory and all saved databases on a system.

facility
Displays logged events for a specific facility.

srdbmgr { all | instance instance_number }
Displays logged events for all static rating database managers or for all or for a specific instance.

- all: Displays the logged events for all Static Rating Database (SRDB) Manager instances.
- instance instance_number: Displays events logged for a specific SRDB Manager instance specified as an integer from 1 through 8.
url url_string
Displays the information of the database located at the URL that specifies the name/location of the category database from which to retrieve information as an alphanumeric string of 1 through 512 characters.

verbose
This option enables the detailed mode for additional information display for specific database.

| { grep grep_options | more }
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.
For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to display information of database for category based content filtering application in a service.

Examples
The following command displays a detailed information for all active databases in memory.
show content-filtering category database active all
The following command displays the CF database status of all running SRDB managers.
show content-filtering category database facility srdbmgr all

Important
Output descriptions for commands are available in the Statistics and Counters Reference.
show content-filtering category policy-id

Displays Content Filtering category policy definitions.

Important

| In StarOS 8.1 and later releases this command is replaced by the show active-charging content-filtering category policy-id command. |

Product

CF

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

show content-filtering category policy-id { all | id cf_policy_id } | { grep grep_options | more } |

all

Displays definitions of all Content Filtering category policies.

id cf_policy_id

Displays definitions of an existing Content Filtering category policy ID specified as an integer from 1 through 4294967295.

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines

Use this command to view Content-Filtering Category definitions for a specific/all Policy IDs.

Examples

The following command displays Content Filtering category definitions for policy ID 3:

show content-filtering category policy-id id 3
show content-filtering category policy-id

Important

Output descriptions for commands are available in the *Statistics and Counters Reference.*
show content-filtering category statistics

Displays statistics for the category-based Content Filtering application configured in a system/service.

Product

CF

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

show content-filtering category statistics [ facility srdbmgr { all | instance instance_number } ] [ | { grep grep_options | more } ]

facility
Displays logged events for a specific facility.

srdbmgr { all | instance instance_number } Displays logged events for all Static Rating Database (SRDB) Manager instances or for the specified instance.

• all: Displays events logged for all SRDB Manager instances.

• instance instance_number: Displays events logged for the SRDB Manager instance specified as an integer from 1 through 8.

| { grep grep_options | more } Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines

Use this command to view the statistics of Category Based Content Filtering application in a service. This command's output also indicates capability of the system to perform Content Filtering and Dynamic Content Filtering if configured.
show content-filtering category statistics

Important
Content filtering cannot be performed if less than two PSCs are activated. Dynamic Content Filtering cannot be performed if less than three PSCs are activated.

Examples
The following command displays the detailed statistics of configured category based content filtering application:

`show content-filtering category statistics`

The following command displays the detailed statistics of configured category based content filtering application based on running SRDB Manager `instance1`:

`show content-filtering category statistics facility srdbmgr instance instance1`

Important
Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show content-filtering category url

Displays the information about the categories of the database at the specific URL configured for the category-based content filtering application in a system/service.

**Product**
CF

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name# 
```

**Syntax Description**

```
show content-filtering category url url_string [policy-id cf_policy_id] [rulebase rulebase_name] [verbose]
| [ | { grep grep_options | more } ]
```

- `url url_string`
  Displays the category information of the URL specified as an alphanumeric string of 1 through 512 characters.

- `policy-id cf_policy_id`
  Displays the category information of a URL configured with an existing content filtering category policy ID specified as a integer from 0 through 65535.

- `rulebase rulebase_name`
  Displays the category information of a URL configured in ACS Configuration Mode for category-based content filtering in specific rulebase.

  - `rulebase_name` must be the name of an existing rulebase, and must be an alphanumeric string of 1 through 15 characters.

- `verbose`
  Enables the detailed mode for additional information display for a specific database.

  | { grep grep_options | more } |
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.
show content-filtering category url

For details on the usage of **grep** and **more**, refer to the *Regulating a Command’s Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to display information of a database URL for category based content filtering application in a service.

**Examples**

The following command displays a detailed information for all active databases in memory.

```
show content-filtering category url /cf_server/cf/optcmd.bin verbose
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show content-filtering server-group

Displays information for Content Filtering Server Group (CFSG) configured in the service.

**Product**
CF

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:

[llocal]host_name#

**Syntax Description**
```
show content-filtering server-group [name cfsg_name | statistics] | | {grep grep_options | more }
```

- **name cfsg_name**
  Displays information for an existing CFSG specified as an alphanumeric string of 1 through 63 characters.

- **statistics**
  Displays statistical information for all configured CFSGs.

  | {grep grep_options | more }
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output will be sent.

  For details on the usage of **grep** and **more**, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to display information for Content Filtering Server Group configured in a service.

**Examples**
The following command displays a detailed information for all charging actions:
```
show content-filtering server-group statistics
```

The following command displays a details of a specific charging action:
```
show content-filtering server-group name test123
```
show content-filtering server-group

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show context

Displays information for currently configured contexts.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show context [ all | name context_name ] | | { grep grep_options | more } |

all | name context_name

all: Displays information for all currently configured contexts.

name context_name: Displays information for an existing context specified as an alphanumeric string of 1 through 79 characters.

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines

View configured contexts. This may be useful in verifying configuration or troubleshooting the system.

Examples

The following command displays information for the configured context named sampleContext:

show context name sampleContext

The following command displays information for all contexts:

show context all

Important

Output descriptions for commands are available in the Statistics and Counters Reference.
show cpu

Displays information on system CPUs.

Product
All

Privilege
Security Administrator, Administrator, Operator, Inspector

Command Modes
Exec
The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description
show cpu { info | card card_num [ cpu cpu_num ] | [ graphs | [ verbose | table ] ] | { grep grep_options | more } }

info | card card_num | cpu cpu_num | [ graphs | [ verbose ]
Displays information for an entire card or a specific CPU.

card card_num: Specifies the card for which to display associated information. card_num must be a value in the range 1 through 48 on the ASR 5000 or 1 through 20 on the ASR 5500 and must refer to an installed card.

cpu cpu_num: Optionally selects a specific CPU on the card of interest to display specific information.

cpu_num must be a value in the range 0 through 3 and must refer to an installed CPU.

The output of show cpu info card n verbose also includes usage details for individual cores within each CPU.

graphs: In addition to textual CPU information display CPU utilization information in graphs.

verbose: Output is to display all information available.

| table
Display, in tabular format, all cards and CPUs.

| { grep grep_options | more }
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
View CPU statistics to aid in diagnosing service problems for the case of overload conditions.
This command is not supported on all platforms.

Examples

The following command displays the CPU information in tabular format for all CPUs on all installed cards:
```
show cpu table
```

The following command displays CPU information for card 8 in verbose mode:
```
show cpu info card 8 verbose
```

The following command displays information for CPU 0 on card 1:
```
show cpu info card 1 cpu 0
```

Output descriptions for commands are available in the Statistics and Counters Reference.
show crash

Displays software crash events records and associated dump files (minicore, NPU or kernel) for all crashes or a specified crash event.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

`show crash`  

`all | list | number crash_num`

- **all**: Displays the dump files for all crash event records in the crash log.
- **list**: Displays a list of recent crash event records. This is the contents of the crashlog2 file.
- **number crash_num**: Displays the dump file for an existing crash number. The crash number can be displayed using the `list` keyword.

`| { grep grep_options | more }`

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the Command Line Interface Overview chapter.

**Usage Guidelines**

View the crash list to determine frequency of crashes or if crashes occur at some specific time of day. To aid in troubleshooting, this command may also be used to view the dump file for a specific crash.

For additional information refer to the *System Logs* section of the System Administration Guide.

**Examples**

The following displays the list of crash event records on the active management card.

```
show crash list
```

The following command will display the dump file for crash number 11.

```
show crash number 11
```
show credit-control sessions

Displays credit control sessions information.

<table>
<thead>
<tr>
<th>Product</th>
<th>PDSN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Privilege</td>
<td>Security Administrator, Administrator, Operator, Inspector</td>
</tr>
</tbody>
</table>

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name# 
```

**Syntax Description**

```
show credit-control session | all | callid | full | mdn | nai | summary | | | grep grep_options | more |
```

*session* | *all | callid | full | mdn | nai | summary |
*all*: Displays all available information for Credit Control sessions  
*callid*: Displays the Credit Control Session Call ID  
*full*: Displays All available information for the associated display or the filter keyword  
*mdn*: Displays the Credit Control Message Delivery Notification (MDN) information.  
*nai*: Displays the Credit Control NI  
*summary*: Displays the summary of Credit Control session information

| { grep grep_options | more |
|-------------------|

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter for details on the usage of *grep* and *more*.

**Usage Guidelines**

Use this command to show active credit control application for service sessions.

**Examples**

The following command shows the configured Credit Control application sessions:

```
show credit-control sessions
```
show credit-control statistics

Displays credit control statistics.

**Product**
PDSN

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name# 
```

**Syntax Description**

```
show credit-control statistics cc-service name | { grep grep_options | more } 
```

- **cc-service**
  - Specifies the Credit Control Service.
  - `name` must be the name of a Credit Control Service, and must be an alphanumeric string of 1 through 63 characters.

| { grep grep_options | more } |
- Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
- Refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter for details on the usage of `grep` and `more`.

**Usage Guidelines**

Use this command to show active credit control statistics.

**Examples**

The following command shows the configured credit control statistics for a service named `service1`:

```
show credit-control statistics cc-service service1 
```
show crypto blacklist file

Displays the contents of the blacklist (access denied) file.

**Product**
All products supporting IPSec blacklisting

**Privilege**
Security Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
show crypto blacklist file

**Usage Guidelines**
Use this command to display the current contents of the blacklist file.

**Examples**
The following command displays the contents of the blacklist file:
```
show crypto blacklist file
```
show crypto group

Displays information pertaining to configured crypto groups.

**Product**
- ePDG
- FA
- GGSN
- HA
- HeNBGW
- HNBGW
- HSGW
- MME
- P-GW
- PDSN
- S-GW
- SAEGW
- SCM
- SecGW
- SGSN

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show crypto group [ name group_name | summary ]
```

- `name group_name`

  Displays information for an existing crypto group specified as an alphanumeric string of 1 through 127 characters.
**summary**
Displays state and statistical information for configured crypto groups in this context.

**Usage Guidelines**
Use this command to display information and statistics pertaining to one or all configured crypto groups within the current context.
If the **summary** keyword is not used, detailed information is displayed.

**Examples**
The following command displays detailed information for a crypto group called *group1*:
```
show crypto group name group1
```
show crypto ikev1

Displays pre-shared key information for peer security gateways configured within the context.

**Product**
- ePDG
- FA
- GGSN
- HA
- HeNBGW
- HNBGW
- HSGW
- MME
- P-GW
- PDSN
- S-GW
- SAEGW
- SCM
- SecGW
- SGSN

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show crypto ikev1 { keys | policy [ preference ] | security-associations | summary } }
```

**keys**
Displays the IKE pre-shared key information based on the peer security gateway.
policy [ preference ]
Displays configuration information for the Internet Exchange Key (IKE) policy priority specified as an integer from 1 through 100. If no preference is specified, information will be displayed for all configured policies.

security-associations [ summary ]
Displays information for established IPSec security associations (SAs).

Usage Guidelines
Use this command to:

• Display pre-shared key information. This information can be used to verify configuration and/or for troubleshooting.
• Verify the configuration of IKE policies within the context.
• Display established IPSec SA information. This information can be used for troubleshooting.

Examples
The following command lists the pre-shared keys received from peer security gateways as part of the Diffie-Hellman exchange:

```
show crypto ikev1 keys
```
The following command displays information for an IKE policy with a preference of 1:

```
show crypto ikev1 policy 1
```
The following command displays the currently established SAs:

```
show crypto ikev1 security-associations summary
```
show crypto ikev2-ikesa security-associations

Displays a summary view of Internet Key Exchange v2 (IKEv2) IKE Security Associations (IKE SAs).

**Product**
- ePDG
- FA
- GGSN
- HA
- HeNBGW
- HNBGW
- HSGW
- MME
- P-GW
- PDSN
- S-GW
- SAEGW
- SCM
- SecGW
- SGSN

**Privilege**
Administrator, Security Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show crypto ikev2-ikesa security-associations peer ipv4/v6_address [ | { grep grep_options | more } ]
show crypto ikev2-ikesa security-associations summary [ cookies ] [ distribution ] [ | { ipsecmgr instance instance_value | natt | remote-gw ipv4/v6_address | spi } | { grep grep_options | more } ]
show crypto ikev2-ikesa security-associations tag crypto_map [ | { grep grep_options | more } ]
```
summary
Displays SA summary information only.
This information can be one of the following:

- **cookies**: Display IKE cookies for connections.
  
  **Important** The `cookies` keyword has been deprecated for release 17.0 and above.

- **distribution**: Display summary distribution.

- **dpd**: Display DPD (Dead Peer Detection) information for connections.

- **ipsecmgr instance instance_value**: Display ipsecmgr instance information. `instance_value` is an integer from 177 through 352.

- **natt [remote-gw ipv4/ipv6_address]**: Display NAT-T information for connections or a specified remote gateway.

- **spi**: Display IKE Security Parameter Index.

tag **tag_name**
Specifies a crypto map name as an alphanumeric string of 1 through 127 characters.

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Refer to `Regulating a Command's Output` section of the Command Line Interface Overview chapter for details on the usage of `grep` and `more`.

Usage Guidelines
Shows the information of the SA's configured for a crypto template. It shows the total configured SA lifetime in seconds and the number of seconds left on the timer.

Examples
Use this command to display the SA summary:
```
show crypto ikev2-ikesa security-associations summary
```

**Important** Output descriptions for commands are available in the Statistics and Counters Reference.
**show crypto ikev2-ikesa transform-set**

Displays IKEv2/IKSA (Internet Key Exchange v2/IKE Security Association) transform set configuration information.

**Product**
- ePDG
- FA
- GGSN
- HA
- HeNBGW
- HNBGW
- HSGW
- MME
- P-GW
- PDSN
- S-GW
- SAEGW
- SCM
- SecGW
- SGSN

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show crypto ikev2-ikesa transform-set transform_set_name | [grep grep_options | more ]
```

- `show crypto ikev2-ikesa transform-set transform_set_name`
  Specifies the name of an existing IKEv2/IKEA transform set for which to display information as an alphanumeric string of 1 through 127 characters that is case sensitive.
| grep grep_options | more |

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Refer to *Regulating a Command’s Output* section of the *Command Line Interface Overview* chapter for details on the usage of `grep` and `more`.

**Usage Guidelines**

Use this command to verify the configuration of IKEv2/IKESA transform sets within the context.

If no keyword is specified, information will be displayed for all IKEv2/IKESA transform sets configured within the context.

**Examples**

The following command displays information for an IKEv2/IKESA transform set named *test1*:

```
show crypto ikev2-ikesa transform-set test1
```
show crypto ipsec security-associations

Displays IPSec security associations (SAs) configured within or facilitated by the context and can optionally display statistics for them.

**Product**
- ePDG
- FA
- GGSN
- HA
- HeNBGW
- HNBGW
- HSGW
- MME
- P-GW
- PDSN
- S-GW
- SAEGW
- SCM
- SecGW
- SGSN

**Privilege**
- Security Administrator, Administrator, Operator, Inspector

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show crypto ipsec security-associations | map-type {ikev2-ipv4-cfg | ikev2-ipv4-node | ikev2-ipv6-cfg | ikev2-ipv6-node | ipsec-dynamic | ipsec-ikev1 | ipsec-ikev2-subscriber | ipsec-l2tp | ipsec-manual | ipsec-mobile-ip } | summary {distribution | ipsecmgr | map-type} | [ | {grep grep_options | more} | {tag tag_name} | [ | {grep grep_options | more} ]
```
map-type { ikev2-ipv4-cfg | ikev2-ipv4-node | ikev2-ipv6-cfg | ikev2-ipv6-node | ipsec-dynamic | ipsec-ikev1 | ipsec-ikev2-subscriber | ipsec-l2tp | ipsec-manual | ipsec-mobile-ip }

Specifies that information for all crypto maps of a specific type configured within the context will be displayed. The following types can be specified:

- **ikev2-ipv4-cfg**: IKEv2 IPv4 IPSec configured (ACL) Tunnel
- **ikev2-ipv4-node**: IKEv2 IPv4 IPSec spawned node Tunnel
- **ikev2-ipv6-cfg**: IKEv2 IPv6 IPSec configured (ACL) Tunnel
- **ikev2-ipv6-node**: IKEv2 IPv6 IPSec spawned node Tunnel
- **ipsec-dynamic**: Dynamic IPSec Tunnel
- **ipsec-ikev1**: IKEv1 IPSec Tunnel
- **ipsec-ikev2-subscriber**: IKEv2 Subscriber Tunnel
- **ipsec-l2tp**: L2TP IPSec Tunnel
- **ipsec-manual**: Manual (Static) IPSec Tunnel
- **ipsec-mobile-ip**: Mobile IP IPSec Tunnel

**summary [ distribution | ipsecmgr | map-type ]**

Displays only security association summary information.

**distribution**: Show IPSec Manager SA distribution information.

**ipsecmgr ipsec_mgr_id**: Displays summary SA information for the IPSec manager instance ID specified as an integer from 1 through 200.

**map-type map_type**: Displays summary SA information for the specified type of crypto map. The following types can be specified:

- **ikev2-ipv4-cfg**: IKEv2 IPv4 IPSec configured (ACL) Tunnel
- **ikev2-ipv4-node**: IKEv2 IPv4 IPSec spawned node Tunnel
- **ikev2-ipv6-cfg**: IKEv2 IPv6 IPSec configured (ACL) Tunnel
- **ikev2-ipv6-node**: IKEv2 IPv6 IPSec spawned node Tunnel
- **ipsec-dynamic**: Dynamic IPSec Tunnel
- **ipsec-ikev1**: IKEv1 IPSec Tunnel
- **ipsec-ikev2-subscriber**: IKEv2 Subscriber Tunnel
- **ipsec-l2tp**: L2TP IPSec Tunnel
- **ipsec-manual**: Manual (Static) IPSec Tunnel
- **ipsec-mobile-ip**: Mobile IP IPSec Tunnel

**tag tag_name**

Displays the SAs for an existing crypto map specified as an alphanumeric string of 1 through 127 characters that is case sensitive.
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Refer to *Regulating a Command’s Output* section of the *Command Line Interface Overview* chapter for details on the usage of **grep** and **more**.

**Usage Guidelines**

Use this command to display IPSec SA information and statistics. This information can be used for performance monitoring and/or troubleshooting.

The displayed information categorizes control signal and data statistics. Data statistics are further categorized according to the encapsulation method, either GRE or IP-in-IP.

**Examples**

The following command displays summary SA statistics for all IPSec managers.

```
show crypto ipsec security-associations summary
```

---

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show crypto ipsec transform-set

Displays IPSec transform set configuration information.

<table>
<thead>
<tr>
<th>Product</th>
<th>ePDG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FA</td>
</tr>
<tr>
<td></td>
<td>GGSN</td>
</tr>
<tr>
<td></td>
<td>HA</td>
</tr>
<tr>
<td></td>
<td>HeNBGW</td>
</tr>
<tr>
<td></td>
<td>HNBGW</td>
</tr>
<tr>
<td></td>
<td>HSGW</td>
</tr>
<tr>
<td></td>
<td>MME</td>
</tr>
<tr>
<td></td>
<td>P-GW</td>
</tr>
<tr>
<td></td>
<td>PDSN</td>
</tr>
<tr>
<td></td>
<td>S-GW</td>
</tr>
<tr>
<td></td>
<td>SAEGW</td>
</tr>
<tr>
<td></td>
<td>SCM</td>
</tr>
<tr>
<td></td>
<td>SecGW</td>
</tr>
<tr>
<td></td>
<td>SGSN</td>
</tr>
</tbody>
</table>

| Privilege    | Security Administrator, Administrator, Operator, Inspector |

| Command Modes| Exec |

The following prompt is displayed in the Exec mode:

[local]host_name#

| Syntax Description | show crypto ipsec transform-set [ transform_name ] |

*transform_name*

Displays information for the IPSec transform set specified as an alphanumeric string of 1 through 127 characters that is case sensitive.

| Usage Guidelines | Use this command to verify the configuration of IPSec transform sets within the context. |
If no keyword is specified, information will be displayed for all IPSec transform sets configured within the context.

**Important**

This command is supported in PDIF Release 8.3 only.

**Examples**

The following command displays information for an IPSec transform set named *test1*:

```
show crypto ipsec transform-set test1
```
**show crypto isakmp keys**

Displays pre-shared key information (Internet Security Association and Key Management Protocol, ISAKMP) for peer security gateways configured within the context.

**Product**
- PDSN
- GGSN

**Privilege**
- Security Administrator, Administrator, Operator, Inspector

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
- `show crypto isakmp keys`

**Usage Guidelines**
Use this command to display pre-shared key information based on the peer security gateway. This information can be used to verify configuration and/or for troubleshooting.

**Examples**
The following command lists the pre-shared keys received from peer security gateways as part of the Diffie-Hellman exchange:

```
show crypto isakmp keys
```

---

**Important**
Output descriptions for commands are available in the *Statistics and Counters Reference.*
show crypto isakmp policy

Displays Internet Security Association and Key Management Protocol (ISAKMP) policy configuration information.

**Product**

- PDSN
- GGSN

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name>
```

**Syntax Description**

`show crypto isakmp policy [preference ]`

`preference`

Displays configuration information for the ISAKMP policy priority specified as an integer from 1 through 100.

**Usage Guidelines**

Use this command to verify the configuration of ISAKMP policies within the context.

If no `preference` is specified, information will be displayed for all configured policies.

**Examples**

The following command displays information for an ISAKMP policy with a preference of 1:

`show crypto isakmp policy 1`
**show crypto isakmp security-associations**

Displays currently established Internet key Exchange (IKE) security associations (SAs) facilitated by the context.

**Product**
- PDSN
- GGSN

**Privilege**
- Security Administrator, Administrator, Operator, Inspector

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show crypto isakmp security-associations [cookies]
```

**cookies**
Specifies that cookies should be displayed.

**Usage Guidelines**
Use this command to display established IPSec SA information. This information can be used for troubleshooting.

**Examples**
The following command displays the currently established SAs:
```
show crypto isakmp security-associations
```

**Important**
Output descriptions for commands are available in the Statistics and Counters Reference.
show crypto managers

Displays statistics per IPSec Manager.

**Product**
- ePDG
- FA
- GGSN
- HA
- HeNBGW
- HNBGW
- HSGW
- MME
- P-GW
- PDSN
- S-GW
- SAEGW
- SCM
- SecGW
- SGSN

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
show crypto managers [ context context_id | crypto-map map_name | instance instance_num | summary |
| distribution | ike-stats | ikev2-stats | ipsec-sa-stats | npu-stats ] | | 
| { grep grep_options | more } |
```

- **context context_id**
  Displays IPSec manager statistics for an existing context specified as an alphanumeric string of 1 through 80 characters.
crypto-map map_name
Displays IPSec Managers for an existing crypto map specified as an alphanumeric string of 1 through 128 characters.

instance instance_num
Displays statistics for the IPSec manager instance specified as an integer from 1 through 366.

summary | distribution | ike-stats | ikev2-stats | demux-stats | ipsec-sa-stats | npu-stats |
Shows statistics per service IP address for each manager.
distribution: Displays a summary list of IPSec manager distribution.
ike-stats: Displays a summary list of IPSec IKE statistics for each IPSec manager.
ikev2-stats: Displays IKEv2 Statistics on each IPSec Manager.
  • demux-stats: Displays session demux statistics on each IPSec Manager.
ipsec-sa-stats: Displays a summary list of IPSec Security Association (SA) statistics for each IPSec Manager.
npu-stats: Displays NPU statistics on each IPSec Manager.

| { grep grep_options | more }
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
Refer to Regulating a Command's Output section of the Command Line Interface Overview chapter for details on the usage of grep and more.

Usage Guidelines
Use this command to view statistics relating to IPSec managers.

Examples
The following command displays summary information for all IPSec managers:

show crypto managers summary

Important
Output descriptions for commands are available in the Statistics and Counters Reference.
show crypto map

Displays crypto map configuration information.

**Product**
- ePDG
- FA
- GGSN
- HA
- HeNBGW
- HNBGW
- HSGW
- MME
- P-GW
- PDSN
- S-GW
- SAEGW
- SCM
- SecGW
- SGSN

**Privilege**
- Security Administrator, Administrator, Operator, Inspector

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
- `show crypto map [ map-type | ikev2-ipv4-cfg | ikev2-ipv4-node | ikev2-ipv6-cfg | ikev2-ipv6-node | ipsec-ikev1 | ipsec-ikev2-subscriber | ipsec-l2tp | ipsec-manual | ipsec-mobile-ip | [ grep grep_options | more ] [ summary ] [ tag tag_name ] [ [ grep grep_options | more ] ]
```
map-type [ ikev2-ipv4-cfg | ikev2-ipv4-node | ikev2-ipv6-cfg | ikev2-ipv6-node | ipsec-ikev1 | ipsec-l2tp | ipsec-manual | ipsec-mobile-ip ] | { grep grep_options | more }

Specifies that information for all crypto maps of a specific type configured within the context will be displayed. The following types can be specified:

- **ikev2-ipv4-cfg**: IKEv2 IPv4 IPSec configured (ACL) Tunnel
- **ikev2-ipv4-node**: IKEv2 IPv4 IPSec spawned node Tunnel
- **ikev2-ipv6-cfg**: IKEv2 IPv6 IPSec configured (ACL) Tunnel
- **ikev2-ipv6-node**: IKEv2 IPv6 IPSec spawned node Tunnel
- **ipsec-ikev1**: IKEv1 IPSec Tunnel
- **ipsec-ikev2-subscriber**: IKEv2 Subscriber Tunnel
- **ipsec-l2tp**: L2TP IPSec Tunnel
- **ipsec-manual**: Manual (Static) IPSec Tunnel
- **ipsec-mobile-ip**: Mobile IP IPSec Tunnel

**summary**

Displays summary information for all crypto maps configured in the context.

**tag map_name**

Specifies the name of an existing crypto map in the current context for which to display configuration information as an alphanumeric string of 1 through 127 characters that is case sensitive.

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Refer to *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter for details on the usage of *grep* and *more*.

**Usage Guidelines**

Use this command to verify the configuration of crypto maps within the context.

If no keyword is specified, information will be displayed for all maps configured within the context regardless of type.

**Examples**

The following command displays configuration information for a dynamic crypto map named *test_map3*:

```
show crypto map tag test_map3
```
show crypto statistics

Displays Internet Protocol Security (IPSec) statistics.

**Product**
- ePDG
- FA
- GGSN
- HA
- HeNBGW
- HNBGW
- HSGW
- MME
- P-GW
- PDSN
- S-GW
- SAEGW
- SCM
- SecGW
- SGSN

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```show crypto statistics [ ikev1 | ikev2 [ service-ip-address ip-address ] [ service-name name ] ]
[ [ | grep grep_options | more ] ]```

**ikev1**
Displays global ikev1 statistics for this context.
ikev2 [ service-ip-address ip-address ] [ service-name name ]

Displays global ikev2 statistics for this context.

service-ip-address ip-address: Specifies the Packet Data Interworking Function (PDIF) service IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

service-name name: Specified PDIF service name, a string of size 1 through 63.

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Refer to Regulating a Command's Output section of the Command Line Interface Overview chapter for details on the usage of grep and more.

Usage Guidelines

Use this command to display statistics for IPSec tunnels facilitated by the context. This information can be used for performance monitoring and/or troubleshooting.

Examples

The following command displays cumulative IPSec statistics for the current context:

show crypto statistics

Important

Output descriptions for commands are available in the Statistics and Counters Reference.
show crypto template

Displays information about crypto templates.

**Product**
- cPDG
- FA
- GGSN
- HA
- HeNBGW
- HNBGW
- HSGW
- MME
- P-GW
- PDSN
- S-GW
- SAEGW
- SCM
- SecGW
- SGSN

**Privilege**
- Security Administrator, Administrator, Operator, Inspector

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show crypto template [ map-type [ ikev2-dynamic | ipsec-dynamic ] | summary | tag map_name ]
```

- map-type [ ikev2-dynamic | ipsec-dynamic ]
  - Specifies a specific map type.
summary
Displays summary information for all templates.

tag map_name
Specifies a crypto map name as an alphanumeric string of 1 through 127 characters.

| { grep grep_options | more |
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
Refer to Regulating a Command's Output section of the Command Line Interface Overview chapter for details on the usage of grep and more.

Usage Guidelines
Use this command to display statistics for crypto templates. This information can be used for performance monitoring and/or troubleshooting.

Examples
The following command displays summary information for all crypto templates:
show crypto template summary
show crypto whitelist file

Displays the contents of the whitelist (access granted) file.

**Product**
All products supporting IPSec whitelisting

**Important**
This command appears in the CLI for this release. However, it has not been qualified for use with any current Cisco StarOS gateway products.

**Privilege**
Security Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
show crypto blacklist file

**Usage Guidelines**
Use this command to display the current contents of the whitelist file.

**Examples**
The following command displays the contents of the whitelist file:

```
show crypto whitelist file
```
show cs-network

Displays statistics for the Circuit Switched (CS)-network(s) instance configured on a chassis for HNB-GW service sessions.

**Product**
HNB-GW

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show cs-network { all | name cs_name } [ status ] [ | { grep grep_options | more }]
```

- `all`
  Displays status counters for all CS (circuit switched) networks configured for HNB-GW service sessions on a chassis.

- `name cs_name`
  Displays status counters for a CS network configured for HNB-GW service specified as an alphanumeric string of 1 through 127 characters that is case sensitive

  ```
  | { grep grep_options | more }
  ```

  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  Refer to *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter for details on the usage of `grep` and `more`.

**Usage Guidelines**

Use this command to display the status of any or all CS-network(s) instance configured on a chassis for HNB-GW service sessions.

**Examples**

The following command displays the output for CS network instance status named `cs_1_hnb`:

```
show cs-network name cs_1_hnb status
```
| **Important** | Output descriptions for commands are available in the *Statistics and Counters Reference*. |
show cs-network counters

Displays the session counter information for an HNB-CS Network associated with Home-NodeB Gateway (HNB-GW) services configured and running on a system.

Product

HNB-GW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]\host_name#

Syntax Description

show cs-network counters [ name cs_svc_name ] [ msc msc_point_code ] | | | { grep grep_options | more }

name cs_svc_name

Filters the counter display based on an existing HNB-CS Network service name associated with an HNB-GW service running on system. cs_svc_name is an alphanumeric string of 1 through 63 characters.

msc msc_point_code

Filters the counter display filtered on the basis of MSC address provided in the SS7 point code that is connected to a particular HNB-CS Network service. msc_point_code must be the address of an MSC in SS7 point code notation.

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the grep and more commands, refer to the Regulating a Command's Output section in Command Line Interface Overview chapter.

Usage Guidelines

Use this command to view the session counter information for HNB-CS Network services configured and MSCs connected on a system.

Examples

The following command displays the counters for the HNB-CS Network service named hnb_cs_svc1:

show cs-network counters name hnb_cs_svc1
Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show cs-network statistics

Displays the Circuit Switched session statistics for Home-NodeB Gateway (HNB-GW) services configured and running on this system.

**Product**

HNB-GW

**Privilege**

Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name# 
```

**Syntax Description**

```
show cs-network statistics [name cs_svc_name [msc msc_point_code]] [ranap-only | rtp-only | sccp-only] [ | {grep grep_options | more} ]
```

**name cs_svc_name**

Filters the session statistics display based on an existing HNB-CS Network service name that is associated with an HNB-GW service running on this system. *cs_svc_name* is an alphanumeric string of 1 through 63 characters.

**msc msc_point_code**

Filters the counter display filtered on the basis of MSC address provided in the SS7 point code that is connected to a particular HNB-CS Network service. *msc_point_code* must be the address of an MSC in SS7 point code notation.

**ranap-only**

Filters the session statistics to display only Radio Access Network Application Protocol (RANAP) traffic for an HNB-CS Network service which is configured and associated with an HNB-GW service running on this system.

**rtp-only**

Filters the session statistics to display only Realtime Streaming Protocol (RTP) and Realtime Streaming Control Protocol (RTCP) traffic for the specified HNB-CS Network service which is configured and associated with an HNB-GW service running on this system.
**show cs-network statistics**

**sccp-only**
Filters the session statistics to display only Signaling Connection Control Part (SCCP) traffic for the specified HNB-CS Network service which is configured and associated with an HNB-GW service running on this system.

```bash
| { grep grep_options | more }
```
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command’s Output* section in *Command Line Interface Overview* chapter of the *Command Line Interface Reference*.

**Usage Guidelines**
Use this command to view the session statistics for overall session or in selected part of user session for HNB-GW services configured and running on this system.

**Examples**
The following command displays the session statistics for RTP and RTCP part of session for the HNB-CS Network service named `hnb_cs1`:
```
show cs-network statistics name hnb_cs1 rtp-only
```

**Important**
Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show css delivery-sequence

In StarOS 9.0 and later releases, this command is deprecated.
show css server

In StarOS 9.0 and later releases, this command is deprecated.
show css service

In StarOS 9.0 and later releases, this command is deprecated.
show css service
**Exec Mode show Commands (D-G)**

The Exec Mode is the initial entry point into the command line interface system. Exec mode `show` commands are useful in troubleshooting and basic system monitoring.

This section includes the commands `show dhcp` through `show gtpu-service`.

---

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#`
```

**Important**

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

- `show dhcp`, page 1030
- `show dhcp-service`, page 1033
- `show dhcpv6`, page 1035
- `show dhcpv6-client-profile`, page 1038
- `show dhcpv6-server-profile`, page 1039
- `show dhcpv6-service`, page 1040
- `show diameter-hdd-module`, page 1041
- `show diameter aaa-statistics`, page 1042
- `show diameter accounting servers aaa-group`, page 1044
- `show diameter authentication servers aaa-group`, page 1045
- `show diameter dynamic-dictionary`, page 1046
- `show diameter endpoint`, page 1048
- `show diameter endpoints`, page 1049
- `show diameter message-queue`, page 1051
• show diameter peers, page 1053
• show diameter proclet-map-memcache, page 1055
• show diameter proclet-map-table, page 1057
• show diameter route status, page 1058
• show diameter route table, page 1060
• show diameter statistics, page 1062
• show diameter-service, page 1064
• show dns-client, page 1066
• show dynamic-policy statistics, page 1068
• show egtpc peers, page 1070
• show egtpc sessions, page 1073
• show egtpc statistics, page 1075
• show egtp-service, page 1078
• show epdg-service, page 1080
• show event-record, page 1083
• show external-inline-servers, page 1084
• show fa-service, page 1085
• show fa-spi-list, page 1086
• show fans, page 1087
• show file, page 1088
• show fng-service, page 1090
• show fng-service session, page 1092
• show fng-service statistics, page 1094
• show freeze-ptmsi imsi, page 1096
• show ggsn sessmgr, page 1097
• show ggsn-service, page 1098
• show ggsn-service sgsn-table, page 1099
• show global-title-translation, page 1100
• show gmb statistics, page 1101
• show gmm-sm statistics, page 1102
• show gprsns statistics, page 1105
• show gprsns status, page 1107
• show gprs-service, page 1109
• show gprssf, page 1111
• show gs-service, page 1113
• show gtpc, page 1115
• show gtpc statistics, page 1117
• show gtp, page 1119
• show gtp accounting, page 1120
• show gtp counters, page 1122
• show gtp group, page 1124
• show gtp statistics, page 1126
• show gtp storage-server, page 1128
• show gtpu, page 1130
• show gtpu-service, page 1132
show dhcp

Displays counter information pertaining to Dynamic Host Configuration Protocol IPv4 (DHCP) functionality based on specific criteria.

**Product**

- GGSN
- ASN-GW
- P-GW
- SAEGW

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show dhcp [ counters | full | summary | all | apn apn_name | callid id | chaddr mac_address |
dhcp-service svc_name | imsi imsi | msid msid | server server_address | statistics | dhcp-service |
svc_name | server server_address | status | dhcp-service svc_name | server server_address | |
user-address address | username name | [wf1] | | {grep grep_options | more }
```

- **counters**
  Displays DHCP counter information.

- **full**
  Displays all available information pertaining to the criteria specified.

- **summary**
  Displays a summary of the DHCP statistics.

- **all**
  Displays counter information for each active PDP context.

- **apn apn_name**
  Displays information based on an existing Access Point Name (APN) specified as an alphanumeric string of 1 through 63 characters that is case sensitive.
callid id
Displays information for an existing call identification number specified as a 4-digit hexadecimal number.

chaddr mac_address
Displays information for a mobile node specified by its MAC address.

dhcp-service svc_name
Displays information for an existing DHCP service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

imsi imsi
Displays information for an International Mobile Subscriber Identity (IMSI) specified as a string of 1 to 15 digits.

msid msid
Displays information for a Mobile Subscriber Identity (MSID) specified as a string of 1 to 15 digits.

server server_address
Displays information for a DHCP server specified by its IP address in IPv4 dotted-decimal notation.

statistics | dhcp-service svc_name | server server_address
Displays DHCP statistics for either a specific or for all DHCP services and servers configured.

dhcp-service svc_name: Displays statistics for a DHCP service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

server server_address: Displays statistics for a DHCP server specified by its IP address in IPv4 dotted-decimal notation.

status | dhcp-service svc_name | server server_address
Displays configuration information for either a specific or for all DHCP services and servers configured.

dhcp-service svc_name: Displays statistics for a DHCP service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

server server_address: Displays statistics for a DHCP server specified by its IP address in IPv4 dotted-decimal notation.

user-address address
Displays information for a DHCP-assigned user IP address specified in IPv4 dotted-decimal notation.

username name
Displays information for a subscriber specified as an alphanumeric string of 1 through 127 characters (including wildcards "$" and "**") that is case sensitive.
Displays all available information for associated filter keyword in wide-format number 1.

| { grep grep_options | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter in the Command Line Interface Reference.

**Usage Guidelines**

Counters pertaining to DHCP functionality can be displayed as cumulative values or for specific APNs, PDP contexts, servers, or DHCP services.

**Examples**

The following command displays DHCP counter information for a DHCP service called DHCP-Gi:

```bash
show dhcp dhcp-service DHCP-Gi
```

The following command displays DHCP counter information for a DHCP Call ID 01ca11a2:

```bash
show dhcp call-id DHCP-Gi
```

The following command displays DHCP information for the specified mobile node:

```bash
show dhcp chaddr 00:05:47:00:37:44
```

**Important**

Output descriptions for commands are available in the Statistics and Counters Reference.
show dhcp-service

Displays information for either a specific or for all Dynamic Host Configuration Protocol IPv4 (DHCP) services.

**Product**
- GGSN
- ASN-GW
- P-GW
- SAEGW

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show dhcp-service { all | name svc_name } | | { grep grep_options | more }
```

- **all**
  Displays information for all configured DHCP services.

- **name svc_name**
  Displays information for a DHCP service name specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

  | { grep grep_options | more }
  Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

**Usage Guidelines**
This command is used to verify the configuration of one or all DHCP services for monitoring or troubleshooting purposes. The output is a concise listing of DHCP service parameter settings.

If this command is executed from within the local context with the all keyword, information for all DHCP services configured on the system will be displayed.
Examples
The following command displays configuration information for a DHCP service called dhcp1:
```
show dhcp-service name dhcp1
```

Important
Output descriptions for commands are available in the *Statistics and Counters Reference.*
show dhcpv6

Displays counter information pertaining to Dynamic Host Configuration Protocol IPv6 (DHCPv6) functionality based on specific criteria.

**Product**
- GGSN
- ASN-GW
- P-GW
- SAEGW

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
show dhcpv6 [ counters | full | summary ] | all | callid id | server server_address | service svc_name |
statistics | dhcp-service svc_name | server server_address | status | dhcp-service svc_name | server
server_address | grep grep_options | more
```  

- **counters**
  Displays DHCPv6 counter information.

- **full**
  Displays all available information pertaining to the criteria specified.

- **summary**
  Displays a summary of the DHCPv6 statistics.

- **all**
  Displays counter information for each active PDP context.

- **callid id**
  Displays information for an existing call identification number specified as an 8-digit hexadecimal number.
**server server_address**
Displays information for a DHCPv6 server specified by its IP address in IPv6 colon-separated-hexadecimal notation.

---

**Important**
In StarOS 15.0 and later releases, this option is deprecated.

---

**statistics | dhcp-service svc_name**
Displays DHCPv6 statistics for either a specific or for all DHCPv6 services.

**dhcp-service svc_name:** Displays statistics for a DHCPv6 service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

**server server_address:** Displays statistics for a DHCPv6 server specified by its IP address in IPv6 colon-separated-hexadecimal notation.

---

**Important**
In StarOS 15.0 and later releases, this option is deprecated.

---

**status | dhcp-service svc_name**
Displays configuration information for either a specific or for all DHCPv6 services and servers configured.

**dhcp-service svc_name:** Displays statistics for a DHCPv6 service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

**server server_address:** Displays statistics for a DHCPv6 server specified by its IP address in IPv6 colon-separated-hexadecimal notation.

---

**Important**
In StarOS 15.0 and later releases, this option is deprecated.

---

```bash
| { grep grep_options | more }
```
Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

---

**Usage Guidelines**
Counters pertaining to DHCP IPv6 functionality can be displayed as cumulative values or for specific APNs, PDP contexts or DHCPv6 services.

---

**Examples**
The following command displays DHCPv6 status information for a DHCPv6 service called *DHCPv6-Gi*:

```
show dhcpv6 status service DHCPv6-Gi
```
Important

Output descriptions for commands are available in the Statistics and Counters Reference.
show dhcpv6-client-profile

Displays configuration information for a specific or all Dynamic Host Configuration Protocol IPv6 (DHCPv6) client profiles.

Product
- GGSN
- ASN-GW
- P-GW
- SAEGW

Privilege
Security Administrator, Administrator, Operator, Inspector

Command Modes
Exec
The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description
show dhcpv6-client-profile [ all | name profile_name ] | { grep grep_options | more }

all
Displays configuration information for all DHCPv6 client profiles.

name profile_name
Displays profile configuration information for an existing DHCPv6 client profile specified as an alphanumeric string of 1 through 63 characters.

| { grep grep_options | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter in the Command Line Interface Reference.

Usage Guidelines
Use this command to display configuration information for one or all DHCPv6 client profiles.

Examples
The following command displays all DHCPv6 client profiles:

show dhcpv6-client-profile all
show dhcpv6-server-profile

Displays configuration information for a specific or all Dynamic Host Configuration Protocol IPv6 (DHCPv6) server profiles.

**Product**

- GGSN
- ASN-GW
- P-GW
- SAEGW

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]\host_name#
```

**Syntax Description**

```
show dhcpv6-server-profile [all | name profile_name] | {grep grep_options | more}
```

**all**

Displays configuration information for all DHCPv6 server profiles.

**name profile_name**

Displays profile configuration information for an existing DHCPv6 server profile specified as an alphanumeric string of 1 through 63 characters.

```
| {grep grep_options | more}
```

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter in the Command Line Interface Reference.

**Usage Guidelines**

Use this command to display configuration information for one or all DHCPv6 server profiles.

**Examples**

The following command displays all DHCPv6 server profiles:

```
show dhcpv6-server-profile all
```


**show dhcpv6-service**

Displays service information and configuration counters for a specific or all Dynamic Host Configuration Protocol IPv6 (DHCPv6) services.

**Product**

GGSN
ASN-GW
P-GW
SAEGW

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show dhcpv6-service [ all | name svc_name ] | { grep grep_options | more }
```

- **all**
  Displays configuration information and counters for all DHCPv6 services.

- **name svc_name**
  Displays configuration information and counters for an existing DHCPv6 service specified as an alphanumeric string of 1 through 63 characters.

  ```
  | { grep grep_options | more }
  ```

  Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of **grep** and **more**, refer to the *Regulating a Command’s Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

**Usage Guidelines**
Use this command to display configuration information and counters for one or all DHCPv6 services.

**Examples**
The following command displays all DHCPv6 services:

```
show dhcpv6-service all
```
show diameter-hdd-module

Displays the HDD module configuration information.

**Important**
This command is license dependent. For more information, contact your Cisco account representative.

**Product**
HA
P-GW

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show diameter-hdd-module { file-space-usage | statistics } | { grep grep_options | more } ] ]
```

- **file-space-usage**
  Displays the limit and usage of hard-disk space for the credit-control-event module.

- **statistics**
  Displays statistics for the credit-control-event module.

  | { grep grep_options | more } |
  Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

**Usage Guidelines**
Use this command to view the HDD module configuration information.

**Examples**
The following command displays the hard-disk space utilization for the credit-control-event module:

```
show diameter-hdd-module file-space-usage
```
show diameter aaa-statistics

Displays Diameter Authentication, Authorization and Accounting (AAA) statistics.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show diameter aaa-statistics [ all | group group_name [ server server_name ] | misc-data [ instance instance_number ] | server server_name ] [ | { grep grep_options | more } ]
```

- **all**
  Displays all available Diameter server statistics.

- **group group_name [ server server_name ]**
  Displays all Diameter server statistics within an existing AAA group specified as an alphanumeric string of 1 through 64 characters.
  
  `server_name` must be the name of a Diameter server, expressed as an alphanumeric string of 1 through 64 characters.

- **misc-data instance instance_number**
  Displays Diameter specific miscellaneous statistics among all AAA manager instances. This display also includes the maximum backpressure statistics and the time at which it was seen.
  
  `instance instance_number`: Displays the maximum backpressure statistics at a specified AAA manager instance. The instance number must be an integer from 1 through 385 characters.

- **server server_name**
  Displays Diameter server statistics for the Diameter server name specified as an alphanumeric string of 1 through 64 characters.
| { grep grep_options | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

**Usage Guidelines**

Use this command to view Diameter AAA statistics.

**Examples**

The following command displays all available Diameter server statistics:

```
show diameter aaa-statistics all
```
show diameter accounting servers aaa-group

Displays Diameter accounting server information for an Authentication, Authorization and Accounting (AAA) group.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show diameter accounting servers [aaa-group group_name] | [ | grep grep_options | more ]
```

- **aaa-group group_name**
  Specifies the name of an existing AAA group as an alphanumeric string of 0 through 64 characters.

  ```
  | [ | grep grep_options | more ]
  ```
  Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of *grep* and *more*, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter in the Command Line Interface Reference.

**Usage Guidelines**
Use this command to view Diameter accounting server information for an AAA group.

**Examples**
The following command displays Diameter accounting server information for an AAA group named in *group12*:

```
show diameter accounting servers aaa-group group12
```
show diameter authentication servers aaa-group

Displays Diameter Authentication server information for a specified AAA group.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:
[local]host_name#

**Syntax Description**
show diameter authentication servers [ aaa-group group_name ]

aaa-group group_name
Specifies the name of an existing AAA group as an alphanumeric string of 0 through 64 characters.

**Usage Guidelines**
Use this command to view Diameter authentication server information for an AAA group.

**Examples**
The following command displays Diameter authentication server information for an AAA group named group12:
show diameter authentication servers aaa-group group12
show diameter dynamic-dictionary

Displays the contents of Diameter dictionary that is loaded dynamically at run time.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name$ 
```

**Syntax Description**

```bash
show diameter dynamic-dictionary { { all [ contents ] } | { name dict_name [ contents ] | { full facility { aaamgr | diamproxy | sessmgr } instance instance_no } } | | { grep grep_options | more } } 
```

- **all**
  Displays, in text format, the information for all dynamically loaded dictionaries configured in the Global Configuration mode. Displays up to 10KB buffered text from each dictionary file.

- **name dict_name**
  Displays detailed information for an existing dynamically loaded dictionary specified as an alphanumeric string of 1 through 15 characters. Displays up to 10KB buffered text from the specified dictionary file.

- **full facility { aaamgr | diamproxy | sessmgr }**
  Displays all available information for the specified instance associated with one of the following facilities:
  - aaamgr — Accounting and authentication Manager
  - diamproxy — Diameter Proxy
  - sessmgr — Session Manager

- **instance instance_no**
  Specifies the instance number from which dynamic dictionary details to be fetched, is an integer value between 0 through 4294967295.
| { grep grep_options | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter in the Command Line Interface Reference.

**Usage Guidelines**

Use this command to view the contents of dynamically loaded Diameter dictionaries.

For more details on the dynamic configuration of Diameter dictionary, refer to the diameter dynamic-dictionary command in the Global Configuration Mode Commands chapter.

**Examples**

The following command displays the contents of dynamically loaded Diameter dictionary file named dyn1:

```
show diameter dynamic-dictionary name dyn1
```
show diameter endpoint

This command has been deprecated, and is replaced by the show diameter endpoints, on page 1049 command.
show diameter endpoints

This command displays the status of Diameter client endpoint(s).

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

**Syntax Description**

`show diameter endpoints { all | endpoint endpoint_name } [ | { grep grep_options | more } ]`

- **all**
  Displays status of all Diameter client endpoints.

- **endpoint endpoint_name**
  Displays status of an existing Diameter client endpoint specified as an alphanumeric string of 1 through 63 characters.

  | { grep grep_options | more }

  Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the Command Line Interface Overview chapter in the Command Line Interface Reference.

**Usage Guidelines**

Use this command to view the status of Diameter client endpoints.

If you are in the local context, then all contexts are searched for the specified endpoint(s). Specify **all** to see all endpoints; otherwise, just the named endpoint will be displayed. If no argument is provided, a summary of all endpoints is displayed.

Default value: N/A

**Examples**

The following command displays status of all Diameter client endpoints.

`show diameter endpoints all`
show diameter endpoints

Important

Output descriptions for commands are available in the Statistics and Counters Reference.
show diameter message-queue

Displays Diameter message queue statistics.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show diameter message-queue counters { inbound | outbound } [ endpoint endpoint_name ] [ peer-host peer_id ] [ peer-realm realm_id ] [ session-id session_id ] | { grep grep_options | more } |
```

- **counters { inbound | outbound }**
  Specifies the message counters:
  - **inbound**: Specifies Diameter inbound messages
  - **outbound**: Specifies Diameter outbound messages

- **endpoint endpoint_name**
  Specifies the Diameter endpoint as an alphanumeric string of 1 through 63 characters.

- **peer-host peer_id**
  Specifies the Diameter peer host as an alphanumeric string of 1 through 63 characters.

- **peer-realm realm_id**
  Specifies the Diameter peer realm as an alphanumeric string of 1 through 127 characters.

- **session-id session_id**
  Specifies the session ID as an alphanumeric string of 1 through 127 characters.

| { grep grep_options | more } |
Pipe (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.
For details on the usage of `grep` and `more`, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter in the Command Line Interface Reference.

**Usage Guidelines**

Use this command to view the count of the messages in the Diameter message queue for specific counter type, session ID, or endpoint, peer host, and peer realm.

**Examples**

The following command displays message queue statistics for outbound messages specific to the Diameter endpoint named `asr5k.testnetwork.com`:

```
show diameter message-queue counters outbound endpoint asr5k.testnetwork.com
```

**Important**

Output descriptions for commands are available in the Statistics and Counters Reference.
show diameter peers

Displays Diameter peer information.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show diameter peers [full | summary | all | [endpoint endpoint_name] | [peer-host peer_id] | [peer-realm realm_id] | [grep grep_options | more]]
```

- **full**
  Displays full details of all or specified Diameter peers.

- **summary**
  Displays summary details of all or specified Diameter peer(s).

- **all**
  Displays details of all Diameter peers.

- **endpoint endpoint_name**
  Displays details of the origin Diameter endpoint specified as an alphanumeric string of 1 through 255 characters.

- **peer-host peer_id**
  Displays details of the Diameter peer host specified as an alphanumeric string of 1 through to 63 characters.

- **peer-realm realm_id**
  Displays details of the Diameter peer realm ID specified as an alphanumeric string of 1 through 127 characters.
| { grep grep_options | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter in the Command Line Interface Reference.

**Usage Guidelines**

Use this command to view the details of Diameter peers.

If you are in the local context, then all contexts are searched for the specified peer(s).

This is similar to the `show subscribers` CLI command and supports multiple filter options specified at the same time.

If filter options are specified (e.g., all, endpoint, etc.), the default is for one line of output to be displayed per peer. Use full to get detailed information per peer, or summary to get summarized information about all matching peers.

If no filter options are specified, a summary output for all peers is displayed. Use the full option to get detailed information about every peer.

Default value: N/A

**Examples**

The following command details of the Diameter endpoint named endpoint12:

```bash
show diameter peers endpoint endpoint12
```

**Important**

Output descriptions for commands are available in the Statistics and Counters Reference.
show diameter proclet-map-memcache

Displays DIAMPROXY proclet cached memory information for aaamgr, diactrl or sessmgr.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
show diameter proclet-map-memcache { aaamgr integer | diactrl | sessmgr integer } | { grep grep_options | more } |
```

- **aaamgr integer**
  Selects memcache information for the aaamgr (AAA manager) instance specified as an integer from 1 to 1152.

- **diactrl**
  Selects memcache information for the diactrl (Diameter controller).

- **sessmgr integer**
  Selects memcache information for the sessmgr (Session manager) instance specified as an integer from 1 to 1152.

- { grep grep_options | more }
  Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.
  For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter in the Command Line Interface Reference.

**Usage Guidelines**
Use this command to selectively display the memcache information for specified Diameter-related StarOS proclets.
show diameter proclet-map-memcache

**Examples**

The following command displays the diactrl memcache:

```
show diameter proclet-map-memcache diactrl
```
show diameter proclet-map-table

Displays DIAMPROXY procet mapping table information for aaamgr, diactrl or sessmgr.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show diameter proclet-map-table { aaamgr integer | diactrl | sessmgr integer } | | { grep grep_options | more }
```

- **aaamgr integer**
  Selects map table information for the aaamgr (AAA manager) instance specified as an integer from 1 to 1152.

- **diactrl**
  Selects map table information for the diactrl (Diameter controller).

- **sessmgr integer**
  Selects map table information for the sessmgr (Session manager) instance specified as an integer from 1 to 1152.

| | { grep grep_options | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

**Usage Guidelines**

Use this command to selectively display the table information for specified Diameter-related StarOS proclets.

**Examples**

The following command displays the diactrl map table information:

```
show diameter proclet-map-table diactrl
```
show diameter route status

Displays Diameter route health status information.

Important

In 17.0 and later releases, this command has been deprecated.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]\host_name#

Syntax Description

show diameter route status [ endpoint endpoint_name | full [ endpoint endpoint_name ] ] [ host host_name [ peer peer_id ] ] [ grep grep_options | more ]

full
Displays information about which Diameter clients are using which peer/host combinations.

diameter endpoint endpoint_name
Displays detailed information for the Diameter client endpoint specified as an alphanumeric string of 1 through 63 characters.

diameter host host_name
Displays information for the Diameter host specified as an alphanumeric string of 1 through 63 characters.

diameter peer peer_id
Displays information for the Diameter peer host specified as an alphanumeric string of 1 through 63 characters.

| { grep grep_options | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter in the Command Line Interface Reference.
Usage Guidelines

Use this command to view the Diameter route health status.

If you are in the local context, then the route information used by Diameter endpoints in all contexts will be used in the display.

The route status displays status of peer/host combinations. Refer to the route-failure CLI command in Diameter Endpoint Configuration mode. When no options are specified, the display will give one line per peer/host combination, indicating how many Diameter clients are using each combination, and for how many clients the combination is available or failed. Specify full to see which Diameter clients are using which peer/host combinations. Specify host or peer to see just combinations with the named host or peer. Specify endpoint to see detailed information about the named Diameter client.

Default value: N/A

Examples

The following command displays route health status details of the Diameter client endpoint named endpoint12:

```
show diameter route status endpoint endpoint12
```
show diameter route table

Displays the Diameter routing table.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name# 
```

**Syntax Description**

```
show diameter route table [ wide ] [ endpoint endpoint_name ] [ [ grep grep_options ] | more ]
```

**wide**

Displays the route table information in wide-format.

**endpoint endpoint_name**

Displays the Diameter routing table for the Diameter endpoint specified as an alphanumeric string of 1 through 63 characters.

```
[ [ grep grep_options ] | more ]
```

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to view the status of Diameter client endpoints.

If you are in the local context, then the route information used by Diameter endpoints in all chassis contexts will be used in the display.

The route table displays all static and dynamic routes. Refer to the route-entry CLI command in Diameter Endpoint Configuration Mode.

Default value: N/A
Examples

The following command displays status of the Diameter client endpoint named endpoint12.

```
show diameter route table endpoint endpoint12
```
show diameter statistics

Displays Diameter peer statistics.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name>
```

**Syntax Description**

```
show diameter statistics [ proxy ] endpoint endpoint_name [ peer-host peer_id | peer-realm realm_id ] | { grep grep_options | more }
```

- **endpoint endpoint_name**
  Displays statistics for the Diameter endpoint specified as an alphanumeric string of 1 through 63 characters.

- **peer-host peer_id**
  Displays statistics for the Diameter host peer specified as an alphanumeric string of 1 through 255 characters.

- **peer-realm realm_id**
  Displays statistics for the Diameter peer realm specified as an alphanumeric string of 1 through 127 characters.

- **proxy**
  Displays proxy related statistics.

  ```
  | { grep grep_options | more }
  ```

  Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

**Usage Guidelines**

Use this command to view Diameter statistics for the specified endpoint or proxy.
The following command displays Diameter peer statistics for the endpoint named `endpoint12`:
```
show diameter statistics endpoint endpoint12
```
show diameter-service

Displays information about configured Diameter services.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name>
```

**Syntax Description**

```
show diameter-service { all | lte-s6a trace-id { all | user-name user_name } | name service_name | statistics name service_name [ vpn-name vpn_context_name ] } | { grep grep_options | more }
```

- **all**
  Displays full information for all configured Diameter services.

- **lte-s6a trace-id { all | user-name user_name }**
  Displays user trace ID information for an LTE/S6a application.
  - **all**: Displays full information.
  - **user-name user_name**: Displays information for the user specified an alphanumeric string of 1 through 79 characters.

- **name service_name**
  Displays information for the Diameter service name specified as an alphanumeric string of 1 through 79 characters.

- **statistics name service_name [ vpn-name vpn_context_name ]**
  Displays statistics for the Diameter service name specified as an alphanumeric string of 1 through 79 characters.
  - **vpn-name vpn_context_name**: Specifies the name of VPN context as an alphanumeric string of 1 through 79 characters.

- **| { grep grep_options | more }**
  Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.
For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.

**Usage Guidelines**

Use this command to view information on configured Diameter services.

**Examples**

The following command displays statistics for the Diameter service named `ggsn12`:

```
show diameter-service name ggsn12
```
**show dns-client**

Displays cache and/or statistics for a specified Domain Name System (DNS) client.

**Product**
- ePDG
- SGSN
- HSGW
- MME
- P-GW
- SAEGW

**Privilege**
- Security Administrator
- Administrator
- Operator
- Inspector

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show dns-client { cache client name [ query-name name | query-type { A | AAAA | NAPTR | SRV } ] | statistics client name } [ | { grep grep_options | more } ]
```

- `cache client name [ query-name name | query-type { A | AAAA | NAPTR | SRV } ]` displays statistics for the cache of an existing DNS client specified as an alphanumeric string of 1 through 255 characters.

- `query-name name`: Filters DNS results based on the domain name specified as an alphanumeric string of 1 through 255 characters. `name` is the domain name used to perform the DNS query. It is different from the actual domain name which is resolved. For example, to resolve the SIP server for service.com, the query name is `_sip._udp.service.com` and the query type is `SRV`.

- `query-type`:
  - `A`: Filters DNS results based on 32-bit domain IPv4 address records (A records).
  - `AAAA`: Filters DNS results based on 128-bit domain IPv6 address records (AAAA resource records).
  - `NAPTR`: Filters DNS results based on Naming Authority Pointer records.
  - `SRV`: Filters DNS results based on service locator records (SRV records).
**statistics client name**
Displays statistics for an existing DNS client specified as an alphanumeric string of 1 through 255 characters.

```
| { grep grep_options | more }
```
Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**
Use this command to display DNS cache and/or statistics for a specified DNS client.

**Examples**
The following command displays statistics for a DNS client named `domain1.com`:
```
show dns-client statistics client domain1.com
```

---

**Important**
Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show dynamic-policy statistics

Displays policy control and charging (PCC) statistics from the interface communicating with the Policy and Charging Rules Function (PCRF) via Gx(x).

Product

- HSGW
- PDSN
- SAEGW
- S-GW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show dynamic-policy statistics { hsgw-service name | pdsn-service name | sgw-service name }

hsgw-service name
Displays policy control and charging statistics from the Gxa interface communicating with the PCRF. *name* must be an existing HSGW service name and be from 1 to 63 alphanumeric characters.

pdsn-service name
Displays policy control and charging statistics from the Gx interface communicating with the PCRF. *name* must be an existing PDSN service name and be from 1 to 63 alphanumeric characters.

sgw-service name
Displays policy control and charging statistics from the Gxc interface communicating with the PCRF. *name* must be an existing S-GW service name and be from 1 to 63 alphanumeric characters.

Usage Guidelines

Use this command to display PCC statistics for the specified service and its Gx interface communicating with the PCRF.

Examples

The following command displays HSGW statistics for an HSGW service named hsgw4:

show dynamic-policy statistics hsgw-service hsgw4
The following command displays PCC statistics for a PDSN service named *cdma4*:

```
show dynamic-policy statistics pdsn-service cdma4
```

The following command displays S-GW statistics for an S-GW service named *sgw4*:

```
show dynamic-policy statistics sgw-service sgw4
```
show egtpc peers

Displays information about eGTP-C peers.

**Product**
- ePDG
- MME
- P-GW
- SAEGW
- S-GW

**Privilege**
- Inspector

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name# 
```

**Syntax Description**

```
show egtpc peers [ address ip_address | egtp-service name [ address ip_address ] | interface { epdg-egress | mme | pgw-ingress | sgsn | sgw-egress | sgw-ingress } [ address ip_address ] [ wfl ] ] ] | grep grep_options | more ] )
```

**address ip_address**
Displays information about an eGTP-C peer specified by its IP address in IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation.

**egtp-service name [ address ip_address ]**
Displays information about eGTP-C peers associated with an existing egtp-service name specified as an alphanumeric string of 1 through 63 characters.

**address ip_address**: Additionally, the results can be filtered based on the IP address associated with an existing eGTP-C peer service specified in IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation.

**interface { epdg-egress | mme | pgw-ingress | sgsn | sgw-egress | sgw-ingress } [ address ip_address ] [ wfl ]**
Displays information about eGTP-C peers associated with the service interface configured on this system.

**epdg-egress**: Displays ePDG's egress EGTP interface.

**mme**: Displays information about eGTP-C MME peers associated with the service interface configured on this system. Additionally, the results can be filtered based on the IP address associated with the MME peer.
**pgw-ingress**: Displays information about eGTP-C P-GW ingress peers associated with the service interface configured on this system. Additionally, the results can be filtered based on the IP address associated with the P-GW ingress peer.

**sgsn**: Displays information about eGTP-C SGSN peers associated with the S4 service interface configured on this system. Additionally, the results can be filtered based on the IP address associated with the SGSN peer.

**sgw-egress**: Displays information about eGTP-C S-GW egress peers associated with the service interface configured on this system. Additionally, the results can be filtered based on the IP address associated with the S-GW egress peer.

**sgw-ingress**: Displays information about eGTP-C S-GW ingress peers associated with the service interface configured on this system. Additionally, the results can be filtered based on the IP address associated with the S-GW ingress peer.

**address ip_address**: Specifies the IP address of the selected peer in IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation.

**wfl**: Specifies that the output is to be displayed in wide format number 1.

```bash
| { grep grep_options | more }
```

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on using the `grep` and `more` commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to display information about eGTP-C peers associated with the service interface configured on this system. The output contains the following information about the peer:

- Status of the peer
- Echo status
- Restart counter status
- Peer restart counter knowledge
- Service ID
- Peer IP address
- Current sessions
- Maximum sessions

**Important**

The primary command, `show egtpc peers`, when entered without additional keywords, displays information for all peers associated with the service operating on this system.

**Examples**

The following command returns an output for an eGTP-C S-GW egress peers associated with the service interface configured on this system with an IP address of 10.2.3.4:

```bash
show egtpc peers interface sgw-egress address 10.2.3.4
```
The following command returns an output for an eGTP-C MME peer associated with the service interface configured on this system with an IP address of 10.2.3.4:

```
show egtpc peers interface mme address 10.2.3.4
```
show egtpc sessions

Displays eGTP-C session information.

Product
- ePDG
- MME
- P-GW
- SAEGW
- S-GW

Privilege
Inspector

Command Modes
Exec
The following prompt is displayed in the Exec mode:
[
local
host_name
]

Syntax Description

```
show egtpc sessions [ egtp-service name ] [ interface { epdg-egress | mme | pgw-ingress | sgsn | sgw-egress | sgw-ingress } ] [ [ | { grep grep_options | more } ] ]
```

egtp-service name
Displays information about eGTP-C sessions associated with an existing egtp-service specified as an alphanumeric string of 1 through 63 characters.

interface { epdg-egress | mme | pgw-ingress | sgsn | sgw-egress | sgw-ingress }
Displays information about eGTP-C sessions associated with the service interface configured on this system.

epdg-egress: Displays information about ePDG egress associated with EGTP interface.

mme: Displays information about eGTP-C sessions associated with the MME interface configured on this system.

pgw-ingress: Displays information about eGTP-C sessions associated with the P-GW ingress interface configured on this system.

sgsn: Displays information about eGTP-C sessions associated with the SGSN eGTP-C S4 interface configured on this system.

sgw-egress: Displays information about eGTP-C sessions associated with the S-GW egress interface configured on this system.
**sgw-ingress**: Displays information about eGTP-C sessions associated with the S-GW ingress interface configured on this system.

`| { grep grep_options | more }`

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on using the `grep` and `more` commands, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to display session information for a specific eGTP service or for sessions associated with an interface type configured on this system.

**Examples**

The following command displays eGTP-C session information for sessions associated with all P-GW ingress interfaces configured on this system:

```
show egtpc sessions interface pgw-ingress
```

The following command displays eGTP-C session information for sessions associated with all MME interfaces configured on this system:

```
show egtpc sessions interface mme
```
show egtpc statistics

Displays evolved GPRS Tunneling Protocol Control (eGTP-C) plane statistics for a specific service name or interface type.

Product
- ePDG
- MME
- P-GW
- SAEGW
- S-GW

Privilege
Inspector

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description
show egtpc statistics [ demux-only | egtp-service name | interface-type { s2a | s2b | s5s8 } | epdg-address ip_address | event-statistics | header-decoder-errors | interface { epdg-egress | mme | pgw-ingress | interface-type { s2a | s2b | s5s8 } | sgsn | sgw-egress | sgw-ingress | mme-address ip_address | path-failure-reasons | pgw-address ip_address | piggybacking-statistics | sessmgr-only | sgsn-address ip_address | sgw-address ip_address | verbose | grep grep_options | more ]

demux-only
Displays entry point statistics at demux manager.

egtp-service name [ interface-type { s2a | s2b | s5s8 } ]
Displays statistics for an existing eGTP service specified as an alphanumeric string of 1 through 63 characters.

interface-type: Displays the eGTP-C sub-interface statistics only for the specified eGTP-C service. Possible interfaces are:

- s2a: Interface type Sa
- s2b: Interface type Sb
- s5s8: Interface type S5/S8
show egtpc statistics

The keywords **s2a** and **s2b** are only visible if WiFi Integration functionality is enabled. WiFi Integration requires that a valid license key be installed. Contact your local Sales or Support representative for information on how to obtain a license.

**Important**

**epdg-address ip_address**
Displays eGTP-C statistics for an existing ePDG IP address expressed in IPv6 colon-separated-hexadecimal notation.

**event-statistics**
Displays total eGTP-C events sent/received.

**header-decoder-errors**
Displays header decoding errors of incoming packets at eGTP-C stack/demux manager.

**interface { epdg-egress | mme | pgw-ingress | interface-type {s2a | s2b | s5s8} } | sgw-egress | sgw-ingress**

- **epdg-egress**: Displays eGTP-C statistics for all ePDG egress interfaces.
- **mme**: Displays eGTP-C statistics for all MME interfaces.
- **pgw-ingress**: Displays eGTP-C statistics for all eGTP P-GW ingress interfaces.
- **interface-type**: Displays the eGTP-C interface statistics of a particular sub-interface of P-GW ingress. Possible interfaces are:
  - **s2a**: Interface type Sa
  - **s2b**: Interface type Sb
  - **s5s8**: Interface type S5/S8

**Important**

**sgsn**: Displays eGTP-C statistics for all eGTP S4 SGSN interfaces.

**sgw-egress**: Displays eGTP-C statistics for all eGTP S-GW egress interfaces.

**sgw-ingress**: Displays eGTP-C statistics for all eGTP S-GW ingress interfaces.

**mme-address ip_address**
Displays eGTP-C statistics for an existing MME IP address expressed in IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation.

**path-failure-reasons**
Displays breakup of reasons for path failure.
**pgw-address ip_address**
Displays eGTP-C statistics for an existing P-GW IP address expressed in IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation.

**piggybacking-statistics**
Displays total piggybacked messages sent/received at eGTP-C stack.

**sessmgr-only**
Displays entry point statistics at sessmgr.

**sgsn-address ip_address**
Displays eGTP-C statistics for an existing SGSN S4 IP address expressed in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

**sgw-address ip_address**
Displays eGTP-C statistics for an existing S-GW IP address expressed in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

**verbose**
Displays the maximum amount of detail available for this command's output. If this option is not specified, the output is truncated to a more concise level.

All of the cause codes supported for GTPv2 are displayed as part of this option. All the cause code values are shown for each of the messages.

```bash
| { grep grep_options | more }
```
Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on using the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**
Use this command to display evolved GPRS Tunneling Protocol Control (eGTP-C) plane statistics for a specific service name or interface type.

**Examples**
The following command displays eGTP-C statistics for interfaces configured as S-GW ingress interfaces:

```
show egtpc statistics interface sgw-ingress
```

The following command displays eGTP-C session information for sessions associated with all MME interfaces configured on this system:

```
show egtpc sessions interface mme
```
show egtp-service

Displays configuration information for evolved GPRS Tunneling Protocol (eGTP) services on this system.

**Product**
- ePDG
- MME
- P-GW
- SAEGW
- S-GW

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show egtp-service { all | name service_name } [ | { grep grep_options | more } ]
```

- **all**
  Displays configuration information for all eGTP services configured on this system.

- **name service_name**
  Displays configuration information for an existing eGTP service specified as an alphanumeric string of 1 through 63 characters.

- | { grep grep_options | more }
  Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command's Output* section of the Command Line Interface Reference Guide.

**Usage Guidelines**
Use this command to view configuration information for eGTP services on this system.
Examples

The following command displays service statistics for the eGTP service named *egtp1*:

```
show egtp-service name egtp1
```
show epdg-service

Displays information about selected EPDG calls/services.

Product: ePDG

Privilege: Inspector

Command Modes: Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description:

show epdg-service { all [ counters [ | { grep grep_options | more } ] ] | name epdg_service_name [ counters [ | { grep grep_options | more } ] ] | statistics [ apn-name apn_name | dns-stats | name name | session [ all | callid call_id | counters [ | full ] | ip-address { < ip_address | > ip_address | IP-ADDRESS | greater-than ip_address | less-than ip_address } | peer-address peer_address | summary ] | username user_name [ | { grep grep_options | more } ] | statistics [ dns-stats ] [ name service_name ] [ peer-address peer_address ] [ | { grep grep_options | more } ] }

all
Displays information for all configured services.

counters
Displays counters associated with EPDG service.

name epdg_service_name
Displays specific service. This must be followed by service name epdg_service_name, which is a string of size between 1 and 63.

statistics
Displays information about total of collected information for specific protocol since last restart or clear command.

apn-name apn-name
Displays statistics for specific APN. Must be followed by apn name.
**dns-stats**
Displays information related to DNS PGW selection.

**name name**
Displays specific service. Must be followed by service name.

**session**
Displays information about configured EPDG sessions.

**callid call_id**
Specifies a Call Identification Number as an eight-digit hexadecimal number.

**full**
Displays all available information for associated display or filter keyword (previous keyword).

**ip-address**
Displays IP address of the subscriber. Must be followed by IPv4 address in dotted-decimal notation.

< **ip_address** | less-than **ip_address**
Specifies Less Than. Must be followed by an IP address specified in IPv4 dotted-decimal or IPV6 colon-separated-hexadecimal notation.

> **ip_address** | greater-than **ip_address**
Specifies Greater Than. Must be followed by an IP address specified in IPv4 dotted-decimal or IPV6 colon-separated-hexadecimal notation.

**peer-address peer_address**
Specifies the IP address of an IP Peer in IPv4 address dotted-decimal or IPV6 address colon-separated-hexadecimal notation.

**summary**
Displays the summary of available information for associated display or filter keyword (previous keyword).

**username user_name**
Displays the name of specific user within current context. *user_name* is an alphanumeric string of 1 through 127 characters.

**statistics**
Displays the total of collected information for specific protocol since last **reload** or **clear** command.

**dns-stats**
Displays information related to DNS PGW selection.
**name service_name**
Displays specific service. *service_name* is an alphanumeric string of 1 through 63 characters.

| { grep grep_options | more } |
Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.
For details on using the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**
Use this command to display information about selected EPDG calls/services.

**Examples**
The following command displays ePDG counter information:
```
show epdg-service all counters | grep 21
```
**show event-record**

Displays event record statistics for a P-GW node.

**Product**
P-GW
ePDG

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show event-record statistics { epdg | pgw } [ | grep grep_options | more ]
```

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on using the `grep` and `more` commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to display all event record statistics for a P-GW node.

**Examples**

The following command displays all P-GW event level statistics:

```
show event-record statistics pgw
```
show external-inline-servers

This command is obsolete.
show fa-service

Displays information on configured foreign agent (FA) services.

**Product**
- PDSN
- GGSN
- ASN-GW

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show fa-service { all | name fa_name } [ | { grep grep_options | more } ]
```

- **all | name fa_name**
  - all: indicates information on all foreign agent services is to be displayed.
  - name fa_name: indicates only the information for the named FA service is to be displayed.

- **| { grep grep_options | more }**
  - Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.
  - For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter in the Command Line Interface Reference.

**Usage Guidelines**
Display foreign agent service configuration information.

**Examples**
The following commands display information on the FA service sampleService and all services, respectively.

```
show fa-service name sampleService
show fa-service all
```

---

**Important**
Output descriptions for commands are available in the Statistics and Counters Reference.
show fa-spi-list

Displays Security Parameter Indices (FA-SPIs) for configured foreign agent (FA) services.

Product

- PDSN
- GGSN
- ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show fa-spi-list { all | name fa_name } [ | { grep grep_options | more } ]

all | name fa_name

- all: indicates information on all foreign agent services is to be displayed.
- name fa_name: indicates only the information for the named FA service is to be displayed.

| { grep grep_options | more } |

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter in the Command Line Interface Reference.

Usage Guidelines

Display foreign agent SPI information.

Examples

The following command displays SPI information for the FA service sampleService.

show fa-spi-list name sampleService

Important

Output descriptions for commands are available in the Statistics and Counters Reference.
show fans

Displays the current control status, speed, and temperature for the upper and lower fans in an ASR 5x00 chassis.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
show fans [ verbose ] | | { grep grep_options | more }
```

- **verbose**
  
  *ASR 5500 only*: Displays additional information regarding the state of the fan trays.

  ```
  | { grep grep_options | more }
  ```

  Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of **grep** and **more**, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter in the Command Line Interface Reference.

**Usage Guidelines**
View the fan information to verify system hardware status as necessary.

**Examples**
The following command displays information regarding the cooling fans in the ASR 5x00 chassis:
```
show fans
```

**Important**
Output descriptions for commands are available in the Statistics and Counters Reference.
show file

Displays the contents of the file specified. The contents are paginated as if it were normal ASCII output.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show file url url [ | { grep grep_options | more } ]
```

**url**
Specifies the location of a file to display. *url* may refer to a local or a remote file. *url* must be entered using the following format:

For the ASR 5500:
```
```

```
tftp:// | | host:port | | /directory | | file_name
```

```
```

---

**Important**
Use of the SMC hard drive is not supported in this release.

---

**Important**
Do not use the following characters when entering a string for the field names below: "/" (forward slash), "." (colon) or ":@" (at sign).

`directory` is the directory name.

`filename` is the actual file of interest.

`username` is the user to be authenticated.

`password` is the password to use for authentication.
host is the IP address or host name of the server.

port# is the logical port number that the communication protocol is to use.

| { grep grep_options | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Display the contents of files to view such information as log data, trace information, etc.

**Examples**

The following will display the contents of the local file `/pub/log.txt`.

```bash
show file //pcmcia1/pub/log.txt
```

The following command will display the contents of the file `/pub/log.txt` on remote host `remoteABC`.

```bash
show file ftp://remoteABC/pub/log.txt
```
show fng-service

Displays information about specified Femto Network Gateway (FNG) service configuration, status, and counters, and includes information about all the sessions currently maintained by the FNG.

Product

FNG

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show fng-service { all [ counters ] | name service_name | session | statistics }

all
Displays information for all configured FNG services.

counters
Displays counters associated with the FNG service.

name service_name
Displays information only for an existing FNG service specified as an alphanumeric string of 1 through 63 characters.

session
Displays information about configured FNG sessions.

See show fng-service session for detailed options.

statistics service_name
Total of collected information for specific protocol since the last restart or clear command.
Important  See show fng-service statistics for detailed options.

| { grep grep_options | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the section Regulating a Command's Output in the chapter Command Line Interface Overview in the Command Line Interface Reference.

Usage Guidelines  Use this command to view information for selected configured FNG services.

Examples  The following command displays available information for all active FNG services.

```
show fng-service all
```

Important  Command output descriptions are available in the Statistics and Counters Reference.
show fng-service session

Displays statistics for specific Femto Network Gateway (FNG) sessions.

Product  FNG

Privilege  Security Administrator, Administrator, Operator, Inspector

Command Modes  Exec

The following prompt is displayed in the Exec mode:
[local] host_name#

Syntax Description  
show fng-service session [ all | callid call_id | counters | full | all | callid call_id | ip-address ip-address | peer-address ip_address | username name | | ip-address ip-address | peer-address ip-address | summary | [ all | callid call_id | ip-address ip-address | peer-address ip-address | username name ]

all  Displays all related information for all active FNG sessions.

callid  Displays PPP information for the call ID specified as a 4-digit hexadecimal number.

counters  Displays counters for the configured FNG sessions.

full  Displays all available information for the associated display or filter keyword.

ip-address ipv4_address  Displays information for the subscriber IP address specified in IPv4 dotted-decimal notation.

peer-address ipv4_address  Displays information for the IP peer specified by its IP address in IPv4 dotted-decimal notation.
summary
Displays summary information for FNG sessions.

username user_name
Displays information for a username within the current context specified as an alphanumerical string of 1 through 127 characters.

| { grep grep_options | more }
Pipe (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.
For details on the usage of grep and more, refer to the section Regulating a Command's Output in the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to view configuration information for an FNG session.

Examples
The following command displays all available FNG sessions.

```bash
show fng-service session all
```

Important
Command output descriptions are available in the Statistics and Counters Reference.
show fng-service statistics

Displays statistics for the FNG since the last restart or clear command. The output includes the number of each type of protocol message. For example, the output includes the various types of EAP messages.

Product
FNG

Privilege
Security Administrator, Administrator, Operator, Inspector

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description
show fng-service statistics [name service_name | peer-address ipv4_address ]

name service_name
Displays statistics for an existing service name specified as an alphanumeric string of 1 through 63 characters.

peer-address ipv4_address
Displays statistics for an IP peer specified by its IP address in IPv4 dotted-decimal notation.

| { grep grep_options | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the section Regulating a Command's Output in the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to display FNG statistics.

Important
You may use more than one keyword per command line.

Examples
The following command displays information about the FNG service.

show fng-service statistics
Command output descriptions are available in the *Statistics and Counters Reference.*
show freeze-ptmsi imsi

Displays the P-TMSI (packet-temporary mobile subscriber identify) corresponding to the IMSI (international mobile subscriber identity) that has entered a frozen state after the purge timeout timer expires.

**Product**
SGSN

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
`show freeze-ptmsi imsi imsi_num`

`imsi imsi_num`

Specifies the IMSI that has been frozen as a sequence of up to 15 digits. The first three digits are the MCC (mobile country code). The next two or three digits are the MNC (mobile network code). The remaining digits are the MSIN (mobile station identification number).

**Usage Guidelines**
This command enables the operator to know whether a frozen IMSI has an associated P-TMSI.

**Examples**
The following command displays the P-TMSI corresponding to a frozen IMSI:

```
show freeze-ptmsi imsi 262090426000194
```
**show ggsn sessmgr**

Displays session manager (SessMGR) statistics specific to the gGSN service.

**Product**

GGSN

**Privilege**

Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show ggsn sessmgr { all | instance smgr_inst }
```

- **all**
  Displays all SessMGR statistics specific to the system's GGSN services.

- **instance smgr_inst**
  Displays the statistics for a session manager instance of the GGSN service specified as an integer between 1 and 10000000.

**Usage Guidelines**

Use this command to display information for GGSN services.

**Examples**

The following command displays GGSN SessMGR statistics for all GGSN services on the system:

```
show ggsn sessmgr all
```
show ggsn-service

Displays configuration information for Gateway GPRS Support Node (GGSN) services on the system.

Product
GGSN

Privilege
Security Administrator, Administrator, Operator, Inspector

Command Modes
Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

Syntax Description

`show ggsn-service { all | name ggsn_svc_name } [ | { grep grep_options | more }]`

all
Displays information for all GGSN services configured with the given context.

`name ggsn_svc_name`
Displays information for an existing GGSN service name specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

`| { grep grep_options | more }`
Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For more information on the usage of `grep` and `more`, refer to the `Regulating a Command's Output` section of the Command Line Interface Reference.

Usage Guidelines
This command is used to verify the configuration of one or all GGSN services for monitoring or troubleshooting purposes. The output is a concise listing of GGSN service parameter settings.

If this command is executed from within the local context with the all keyword, information for all GGSN services configured on the system will be displayed.

Examples
The following command displays configuration information for a GGSN service called `ggsn1`:

`show ggsn-service name ggsn1`
show ggsn-service sgsn-table

Lists all Serving GPRS Support Nodes (SGSNs) by IP addresses and shows the current number of subscribers to each SGSN.

**Product**

GGSN

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show ggsn-service sgsn-table
```

**Usage Guidelines**

While there are existing commands to show SGSN subscriber information, this command is the only way to list all SGSNs by IP address and show the current number of subscribers to each SGSN.

**Examples**

The following command will bring up a table showing the current active/inactive status, IP address, reboots/restarts and SGSN users.

```
show ggsn-service sgsn-table
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show global-title-translation

Displays configuration information for Global Title Translation (GTT).

Product
SGSN

Privilege
Inspector

Command Modes
Exec

The following prompt is displayed in the Exec mode:
[local] host_name#

Syntax Description
show global-title-translation { address-map { all | instance instance } | association { all | instance instance } }

address-map { all | instance }
Displays configuration information for either the entire GTT address map database or for a specific instance of an address map. instance is an integer from 1 to 4096 which uniquely identifies the address map configuration.

association { all | instance }
Displays configuration information for either the entire database of GTT association lists for for a specific instance of GTT association configuration. instance is an integer from 1 to 16 which uniquely identifies the GTT association configuration.

Usage Guidelines
This command displays the configuration for the GTT address maps and associations.

Examples
The following command displays the address map 2047.
show global-title-translation address-map 2047
show gmb statistics

Displays the collected statistics for the Gmb reference point. Gmb handles broadcast multicast service center (BM-SC) related signaling, which includes the user specific and bearer service messages for Multimedia Broadcast/Multicast Service (MBMS) service.

**Product**
GGSN

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show gmb statistics [apn name | bmsc-profile profile_name | {grep grep_options | more}]
```

**apn name**
Displays only the Gmb information for the specified Access Point Name (APN) specified as an alphanumeric string of 1 through 62 characters.

**bmsc-profile profile_name**
Displays only the Gmb information for the specified BM-SC profile specified as an alphanumeric string of 1 through 79 characters.

```
| {grep grep_options | more}
```

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For more information on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Reference*.

**Usage Guidelines**
Use this command to display usage statistics for the Gmb reference point.

**Examples**
The following command displays all Gmb statistics:

```
show gmb statistics
```
show gmm-sm statistics

Displays statistics for the GPRS Mobility Management and Session Management (GMM/SM) configuration of the system's SGSN service. GMM/SM supports mobility to allow the SGSN to know the location of a Mobile Station (MS) at any time and to activate, modify and deactivate the PDP sessions required by the MS for user data transfer.

Product

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show gmm-sm statistics [gmm-only | gprs-service srvc_name | iups-service srvc_name | plmn-id mcc mcc mnc mnc | access-type { gprs | umts } ] | recovered-values | sgsn-service srvc_name | sm-only | [verbose ] [ | { grep grep_options | more } ]

Keywords are presented below. Primary keywords are listed in the order of selection as shown in the syntax. Secondary or filtering keywords are presented alphabetically after the description of the primary keywords.

**gmm-only**
Displays only GPRS mobility management (GMM) information for other specified keyword parameters for the current context.

**gprs-service srvc_name**
Displays the statistics for an existing 2.5G GPRS service name specified as an alphanumeric string of 1 through 63 characters.

The display request can be narrowed by adding either the **nsei** or **routing-area** filter keywords.

**iups-service srvc_name**
Displays the statistics for an existing IuPS service specified as an alphanumeric string of 1 through 63 characters.

The display request can be narrowed by adding either the **rnc** or **routing-area** filter keywords.

**plmn-id mcc mcc mnc mnc | access-type { gprs | umts }**
Filters the statistics display per PLMN.
Enter the **access-type** keyword to fine-tune the display of the GMM/SM statistics to an aggregate of the IuPS (select access-type UMTS) and/or the GPRS (select access-type GPRS) services belonging to the PLMN.

**recovered-values**

Only displays recovered values for key KPI counters that were backed-up.

**sgsn-service srvc_name**

Displays the statistics for an existing 3G SGSN service specified as an alphanumeric string of 1 through 63 characters.

The display request can be narrowed by adding either the **rnc** or **routing-area** filter keywords.

**sm-only**

Displays only session management (SM) information for other specified keyword parameters for the current context.

**access-type type**

Filters the display of service statistics by 2.5G GPRS services or 3G IuPS services for UMTS:

- **gprs**
- **umts**

If this keyword is not included, then statistics for both access types are displayed.

**lac lac_id**

Specifies the location area code (LAC) as part of the identification of the RNC or RA as an integer from 1 through 65535.

**mcc mcc_id**

Specifies the mobile country code (MCC) as part of the identification of the RNC or RA an integer from 100 through 999.

**mnc mnc_id**

Specifies the mobile network code (MNC) as part of the identification of the RNC or RA as a 2- or 3-digit integer from 00 through 999.

**nsei nse_id**

Displays the GMM/SM session statistics for an existing network service entity (NSEI) specified as an integer from 0 to 65535.

**rac rac_id**

Specifies the routing area code (RAC) as part of the identification of the RNC or RA as an integer from 1 through 255.
**rnc rnc_id**
Enter this keyword to fine-tune the display of the GMM/SM session statistics just for the radio network controller (RNC) specified as an integer from 0 through 4095.

**routing-area mcc mcc_id mnc mnc_id lac lac_id rac rac_id**
Enter the **routing-area** keyword to fine-tune the display of the GMM/SM statistics for a specified routing area (RA) identified by the MCC, MNC, LAC and RAC.

**verbose**
Displays all possible statistics for specified command or keyword.

| { grep grep_options | more }
Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For more information on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**
Use this command to display usage statistics for the GMM/SM session configurations for SGSN services, including a BSC attaches, activations, and throughput.

**Examples**
The following command displays GMM/SM statistics for a specific routing area defined for the 2.5G SGSN's GPRS service:
```
show gmm-sm statistics gprs-service gprs1 routing-area mcc 123 mcc 131 lac 24 rac 11
```
The following command displays all possible information for GMM/SM statistics:
```
show gmm-sm statistics verbose
```

**Important**
Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show gprsns statistics

Displays the statistics for the 2.5G SGSN's GPRS NS layer (link level).

**Product**
SGSN

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show gprsns statistics { msg-stats { consolidated nse nse_id | nse nse_id } | sns-msg-stats } | { grep grep_options | more }
```

- **msg-stats**
  Displays the transmit (Tx) and receive (Rx) message statistics (except for SNS messages) in the statistics output.

- **consolidated nse nse_id**
  
  *nse_id*: Enter an integer from 0 to 65535.

- **nse nse_id**
  Display statistics for a NSE specified as an integer from 0 to 65535.

- **sns-msg-stats**
  Display subnetwork service (SNS) sublayer message statistics.

```
| { grep grep_options | more }
```

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*. 
show gprsns statistics

Usage Guidelines
This command is used to display Frame Relay statistics configured for the NSE/NSVC with the commands documented in the Network Service Entity - Peer NSEI Configuration Mode Commands chapter.

Collected statistics are cleared (deleted) with the clear gprsns statistics described in the Exec Mode Commands (A-C) chapter.

Examples
Use the following command to display the collected message statistics for NSEI 1422:

```
show gprsns statistics msg-stats nse 1422
```

Important
Output descriptions for commands are available in the Statistics and Counters Reference.
show gprsns status

Displays the status of the network service virtual circuits (NSVC) for the GPRS NS layer (link level).

Product
SGSN

Privilege
Inspector

Command Modes
Exec
The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show gprsns status \{ nsvc-status-all nse nse_id | nsvc-status-consolidated nse nse_id | nsvc-status-per-bvci bvci bvc_id nse nse_id \} | \{ grep grep_options | more \}

nsvc-status-all nse \{ all | nsense_id \}
Displays status information for all NSVCs included in the NSE specified as an integer from 0 to 65535.

nsvc-status-consolidated nse nse_id

nsvc-status-per-bvci bvci bvc_id nse nse_id
bvc_id is an integer from 0 to 65535.
nse_id is an integer from 0 to 65535.

| \{ grep grep_options | more \}

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter in the Command Line Interface Reference.

Usage Guidelines
This command is used to display the status of the NSVC.

Examples
Use the following command to display status of all NSVC for NSE 1422:

show gprsns status nsvc-status-all nse 1422
Important

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
**show gprs-service**

Displays the statistics for GPRS services.

**Product**

SGSN

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show gprs-service { all | name gprs_srvc_name } [ nsei { all | id nse_id } ] [ { grep grep_options | more } ]
```

- `all`
  Instructs the SGSN to display information for all GPRS services configured with this context.

- `name gprs_srvc_name`
  Instructs the SGSN to display information for the specified GPRS service.
  
  `gprs_srvc_name` is a case-sensitive string of 1 to 63 characters, any combination of letters, digits, dots (.) and dashes (-) that identifies a specific GPRS service.

- `nsei { all | id nse_id }`
  Instructs the SGSN to display network service entity information for either a specific NSEI or for all NSEI configured for the specified GRPS service(s).
  
  `nse_id` is an integer from 0 to 65535.

- `| { grep grep_options | more }`
  Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.
  
  For more information on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Reference.

**Usage Guidelines**

This command is used to verify the configuration of one or all GPRS services for monitoring or troubleshooting purposes. The output is a concise listing of GPRS service parameter settings.
If this command is executed from within the local context with the all keyword, information for all GPRS services configured on the system will be displayed.

**Examples**

The following command displays configuration information for all GPRS services configured in this context:

`show gprs-service all`

Use a command similar to the following to display statistics for NSEI 4257 for the GPRS service named *London2*:

`show gprs-service name London2 nsei id 4257`

---

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show gprsssf

Displays statistics for various 3GPP Customised Applications for Mobile network Enhanced Logic (CAMEL) service GPRS Service Switching Function (gprsSSF) entities.

Product
SGSN

Privilege
Inspector

Command Modes
Exec

The following prompt is displayed in the Exec mode:
[local]host_name#

Syntax Description

show gprsssf { counters | statistics } [ camel-service srvc_name | gprs [ 2g-sgsn-app | 3g-sgsn-app ] | gmscsf-address { address | all } | sms | | { grep | more } ]

counters
Displays collected status counter information for CAMEL service entities.

statistics
Displays collected statistics for CAMEL service entities.

camel-service srvc_name
Filters the display of counters and statistics for an existing CAMEL service name in the SGSN configuration specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

gprs [ 2g-sgsn-app | 3g-sgsn-app ]
Filters the counter/statistic output to display GPRS protocol information specific to either the 2.5G or 3G SGSN.

gmscsf-address { address | all }
The GSM service control function (gsmSCF) address is the ISDN address of the SCP where the CAMEL service resides. It is possible to display information for one or all of the configured CAMEL services.

address is a standard ISDN E.164 address of 1 to 15 digits.
sms
Filters the display of counters and statistics for SMS protocol information.

\[
| \{ grep \texttt{grep	extunderscore options} | \texttt{more} | \}
\]
Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of \texttt{grep} and \texttt{more}, refer to the \textit{Regulating a Command's Output} section of the \textit{Command Line Interface Overview} chapter in the \textit{Command Line Interface Reference}.

**Usage Guidelines**

Use this command to display CAMEL service status counter information and statistics collected since the last restart or clear command. If filters are not included with the command, then all statistics or counters are displayed for all CAMEL services in all contexts in which CAMEL services have been defined.

Collected statistics are cleared (deleted) with the \texttt{clear gprssf statistics} command described in the chapter \textit{Exec Mode Commands (A-C)}.

**Examples**

Use the following command to display the status counter totals of the GPRS Dialogue parameters for a 3G SGSN:

\[
\texttt{show gprssf counter gprs 3g	extunderscore sgsn	extunderscore app}
\]

**Important**

Output descriptions for commands are available in the \textit{Statistics and Counters Reference}.
show gs-service

Displays configuration information and statistics for Gs services configured on system.

**Product**
SGSN

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show gs-service { all | name svc_name } | { grep grep_options | more }
```

**all**
Displays information for all Gs services configured with in the given context.

**name svc_name**
Displays information for an existing Gs service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

**Usage Guidelines**
This command is used to verify the configuration of one or all Gs services for monitoring or troubleshooting purposes.

If this command is executed from within the local context with the all keyword, information for all Gs services configured on the system will be displayed.

**Examples**
The following command displays configuration information for all Gs services configured on a system:

```
show gs-service all
```
show gs-service

Important

Output descriptions for commands are available in the Statistics and Counters Reference.
show gtpc

Displays GPRS Tunneling Protocol-Control (GTPC) information for GTPv0, GTPv1-C, GTPv1-U with filtering options.

Product

GGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

show gtpc [full | counters | summary] {all | apn apn_name | imsi imsi_value | nsapi nsapi_value | callid callid | ggsn-address ip_address | ggsn-service ggsn_name | user-address ip_address | username username}

[full | counters | summary]

Specifies the level of information to be displayed. The following levels can be used:

• full: Indicates detailed information is to be displayed.
• counters: Indicates the output is to include the statistical counters.
• summary: Indicates only summary information is to be displayed.

{all | apn apn_name | imsi imsi_value | nsapi nsapi_value | callid callid | ggsn-address ip_address | ggsn-service ggsn_name | user-address ip_address | username username}

Specifies the filter criteria used when displaying GTP information. The following filters can be used:

• all: Specifies that all available information is to be displayed.
• apn apn_name: Specifies that GTP information for an APN specified as an alphanumeric string of 1 through 63 characters that is case sensitive.
• imsi imsi_value | nsapi nsapi_value: Displays GTP information for an International Mobile Subscriber Identity (IMSI) specified as an integer from 1 through 15 characters. Optionally, the IMSI could be further filtered by specifying a particular PDP context using the Network Service Access Point Identifier (NSAPI) expressed as an integer from 5 through 15.
In release 18.2 and later, this command option has been deprecated.

- **callid callid**: Displays GTP information for a call identification number specified as a 4-digit hexadecimal number.

In release 18.2 and later, this command option has been deprecated.

- **sgsn-address ip_address**: Displays GTP information for an SGSN specified by its IP address in IPv4 dotted-decimal notation.

- **ggsn-service ggsn_name**: Displays GTP information for an existing GGSN service specified an alphanumeric string of 1 through 63 characters that is case sensitive.

- **user-address ip_address**: Displays GTP information for a user PDP context specified as an IP address in IPv4 dotted-decimal notation.

In release 18.2 and later, this command option has been deprecated.

- **username username**: Displays GTP information for a username specified as an alphanumeric string of 1 through 127 characters (including wildcards '$' and '*') that is case sensitive.

In release 18.2 and later, this command option has been deprecated.

**Usage Guidelines**

This command displays statistics for every GTP message type based on the filter criteria. This information is useful for system monitoring or troubleshooting.

**Examples**

The following command displays GTPC counters for a GGSN service named **ggsn1**:

```
show gtpc counters ggsn-service ggsn1
```

The following command displays GTPC full information:

```
show gtpc full
```

The following command displays GTPC summary information for a specific call identification number of **05f62f34**:

```
show gtpc summary callid 05f62f34
```

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show gtpc statistics

Displays GTPv0, GTPv1-C, GTPv1-U statistics with filtering options.

**Product**

GGSN

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show gtpc statistics [ [ custom1 | custom2 ] [ apn apn_name | ggsn-service ggsn_service_name | mseg-service mseg_service_name | sgsn-address ipv4_address ] [ [ verbose ] format1 ] [ [ grep grep_options | more ]] ]
```

**custom1**

Displays statistics of GTP-C messages for preservation mode and free of charge service.

This keyword is customer specific and license enabled. For more information, contact your Cisco sales representative.

**custom2**

Displays statistics for GTP-C messages related to overcharging protection on loss of radio coverage for a GGSN service.

This keyword is feature specific and license enabled. For more information, contact your Cisco sales representative.

**apn apn_name**

Displays GTP-C statistics for an existing APN specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

**ggsn-service ggsn_service_name**

Displays GTP-C statistics for an existing GGSN service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.
mseg-service mseg_service_name

Important This keyword is not supported in this release.

sgsn-address ipv4_address
Displays GTP statistics for an SGSN specified by its IP address in IPv4 dotted-decimal notation.

verbose
Displays detailed instead of concise statistics.

formatI
Displays more detailed statistical breakouts.

| { grep grep_options | more }
Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.
For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
The information displayed by this command consists of session statistics such as the number of currently active sessions categorized by PDP context type, and statistics for every GTP message type. The statistics are cumulative.
If the verbose keyword is used, additional information will be displayed such as statistics for every type of error code.

Examples
The following command displays verbose GTP statistics:
show gtpc statistics verbose

Important Output descriptions for commands are available in the Statistics and Counters Reference.
show gtpp

Displays information on the GPRS Tunneling Protocol Prime (GTPP) for the selected charging gateway function (CGF) or GCDR storage server.

**Product**
- GGSN
- P-GW
- SAEGW
- SGSN

**Privilege**
- Security Administrator, Administrator, Operator, Inspector

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show gtpp { accounting | counters { all | cgf-address | group } | group { all | name } | statistics { cgf-address | group } | storage server { counters | group | local | statistics | status | streaming } | | | { grep grep_options | more } }
```

**Usage Guidelines**
This command displays the GTPP related information for the selected CGF or the G-CDRs storage server. If this command is issued from within the local context, information for all GTPP accounting servers configured on the system is displayed regardless of context.

**Examples**
The following command displays the GTPP counters for all the servers:

```
show gtpp counters all
```

**Important**
Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show gtp accounting

Displays information on the GPRS Tunneling Protocol Prime (GTPP) accounting server configuration.

**Product**
- GGSN
- P-GW
- SAEGW
- SGSN

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
show gtpp accounting servers { group name group_name } [ | { grep grep_options | more } ]
```

- **group name group_name**
  Displays information and CDR statistics for an existing GTPP server group name specified as an alphanumeric string of 1 through 63 characters.

- | { grep grep_options | more } | Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For more information on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**
This command is used to view the status of GTPP accounting servers configured within a context for monitoring or troubleshooting purposes.

If this command is issued from within the local context, information for all GTPP accounting servers configured on the system is displayed regardless of context.

**Examples**
The following command displays the status of and information on configured GTPP accounting servers:
```
show gtpp accounting servers
```
Important  Output descriptions for commands are available in the *Statistics and Counters Reference.*
show gtpp counters

Displays GTPP counters for configured Charging Gateway Functions (CGFs) within the given context.

<table>
<thead>
<tr>
<th>Product</th>
<th>ePDG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GGSN</td>
</tr>
<tr>
<td></td>
<td>P-GW</td>
</tr>
<tr>
<td></td>
<td>SAEGW</td>
</tr>
<tr>
<td></td>
<td>SGSN</td>
</tr>
</tbody>
</table>

| Privilege      | Security Administrator, Administrator, Operator, Inspector |

<table>
<thead>
<tr>
<th>Command Modes</th>
<th>Exec</th>
</tr>
</thead>
<tbody>
<tr>
<td>The following prompt is displayed in the Exec mode:</td>
<td></td>
</tr>
<tr>
<td>[local]host_name#</td>
<td></td>
</tr>
</tbody>
</table>

| Syntax Description | show gtpp counters { all | cgf-address ipv4/ipv6_address | gcds | group name group_name } |
|--------------------|----------------------------------|
|                    | { grep grep_options | more } |

<table>
<thead>
<tr>
<th>Syntax Description</th>
<th>all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displays counters for all CGFs configured within the context.</td>
<td></td>
</tr>
</tbody>
</table>

| Syntax Description | cgf-address ipv4/ipv6_address | gcds |
|--------------------|--------------------------------|
| Displays counters for a CGF specified by its IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation. |

<table>
<thead>
<tr>
<th>Syntax Description</th>
<th>gcds: Displays G-CDR specific GTPP counters only.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Syntax Description</th>
<th>group name group_name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displays counters for a GTPP server group name specified as an alphanumeric string of 1 through 63 characters.</td>
<td></td>
</tr>
</tbody>
</table>

| Syntax Description | { grep grep_options | more } |
|--------------------|----------------------------------|
| Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent. |

For more information on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter in the Command Line Interface Reference.
**Usage Guidelines**

Counters for a single CGF can be viewed using the `cgf-address` keyword. Counters for all CGFs in the context can be viewed by entering the command with the `all` keyword.

If this command is issued from within the local context and no CGF-address is specified, the counters displayed will be cumulative for all CGFs configured on the system regardless of context.

**Examples**

The following command displays counters for all CGF servers:

```
show gtpp counters all
```

---

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show gtpp group

Displays information pertaining to the configured GTPP storage server group.

Product

- GGSN
- P-GW
- SAEGW
- SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

show gtpp group { name gtpp_group_name | all } \| \{ grep grep_options | more \}

name gtpp_group_name
Displays information and CDR statistics for an existing GTPP server group name specified as an alphanumeric string of 1 through 63 characters.

all
Displays statistics for all configured GTPP storage server groups, including default group.

\| \{ grep grep_options | more \}
Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For more information on the usage of grep and more, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter.

Usage Guidelines

Use this command to display the CDR statistics on the basis of GTPP server groups. It shows the information for all or specific GTPP server group configured in the context from which this command is issued.
The following command displays the status of the GTPP server group backup server configured in a context called *GTPP_Group1*:

```
show gtpp group name GTPP_Group1
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show gtpp statistics

Displays GTPP statistics for configured Charging Gateway Functions (CGFs) within the context.

<table>
<thead>
<tr>
<th>Product</th>
<th>ePDG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GGSN</td>
</tr>
<tr>
<td></td>
<td>P-GW</td>
</tr>
<tr>
<td></td>
<td>SAEGW</td>
</tr>
<tr>
<td></td>
<td>SGSN</td>
</tr>
</tbody>
</table>

| Privilege | Security Administrator, Administrator, Operator, Inspector |

| Command Modes | Exec |

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

<table>
<thead>
<tr>
<th>Syntax Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>`show gtpp statistics { cgf-address ipv4/ipv6_address</td>
</tr>
</tbody>
</table>

- **cgf-address ipv4/ipv6_address**
  - Displays statistics for a CGF specified by its IP address expressed in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

- **group name group_name**
  - Displays server statistics information of an existing GTPP server group name specified as an alphanumeric string of 1 through 63 characters.

  `| | { grep grep_options | more }`

- Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

  For more information on the usage of `grep` and `more`, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter in the Command Line Interface Reference.

<table>
<thead>
<tr>
<th>Usage Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statistics for a single CGF can be viewed by specifying its IP address. Statistics for all CGFs in the context can be viewed by not specifying an IP address.</td>
</tr>
</tbody>
</table>
If this command is issued from within the local context, the statistics displayed will be cumulative for all CGFs configured on the system regardless of context.

**Examples**

The following command displays statistics for a CGF with an IP address of 192.168.1.14:

```plaintext
show gtpp statistics cgf-address 192.168.1.14
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference.*
show gtpp storage-server

Displays information pertaining to the configured GTPP storage server (GSS).

**Product**
- GGSN
- P-GW
- SAEGW
- SGSN

**Privilege**
- Security Administrator, Administrator, Operator, Inspector

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local]\host_name#
```

**Syntax Description**

```
show gtpp storage-server [ counters { all | group name group_name } | group name group_name | local
file { counters { all | group name group_name } | statistics { group name group_name } } | status { group
name group_name | verbose } | streaming file { counters { all | group name group_name } | statistics { group
name group_name } } ] | [ grep grep_options | more ]
```

counters
Displays counters for the external GTPP storage server.

group name group_name
Displays GTPP backup server information for the group name specified as an alphanumeric string of 1 through 63 characters.

local file
Displays statistics and counters for the local storage-server. This is the hard disk if hard disk support has been enabled with the `gtpp storage-server mode` command in the GTPP Group Configuration Mode.

statistics
Displays statistics for the GTPP storage server.

status [ verbose ]
Displays status of the GTPP storage server. `verbose` enables the detailed view.
**streaming**
Displays the status of Charging Data Record (CDR) backup on HDD while streaming mode is enabled.

```bash
| { grep grep_options | more }
```
Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*.**

### Usage Guidelines
Executing this command with no keywords displays status information for the GTPP backup server configured in the context from which this command is issued.

### Examples
The following command displays the GTPP CDR file statistics stored on the local SMC hard disk.
```
show gtpp storage-server local file counters all
```
The following command displays the status of the GTPP backup server configured in a context called ggsn1:
```
show gtpp storage-server
```
The following command displays statistics for the GTPP backup server configured in a context called ggsn1:
```
show gtpp storage-server statistics
```
The following command displays GCDR storage server counters:
```
show gtpp storage-server counters
```
The following command displays GCDR storage server status:
```
show gtpp storage-server status
```

---

**Important**
Output descriptions for commands are available in the *Statistics and Counters Reference*.**
show gtpu

Displays GPRS Tunneling Protocol user plane (GTP-U) statistics and counters on this system.

Product
- ePDG
- P-GW
- SAEGW
- SGSN
- S-GW

Privilege
- Inspector

Command Modes
- Exec
  - The following prompt is displayed in the Exec mode:
    
    [local] host_name#

Syntax Description

show gtpu { local-addresses | statistics | [ gtpu-service gtpu_service_name ] | [ gtpumgr-instance gtpumgr_instance | local-address ipv4/ipv6_address | msg-service msg_service_name | peer-address ipv4/ipv6_address | | | [ grep grep_options | more ] | }

local-addresses
Displays the number of sessions on all GTPU local addresses in all GTPU services.

statistics
Displays all GTP-U statistics on all GTP-U services. Refine the display by including one of the filters listed below.

gtpu-service gtpu_service_name
Displays GTP-U statistics for an existing GTP-U service specified as an alphanumeric string of 1 through 63 characters.

gtpumgr-instance instance_number
Displays information for an existing GTP-U manager instance specified as an integer from 1 through 4294967295.
local-address ipv4/ipv6_address
Displays subscriber statistics and counters in the current active session per local GTP-U IP address specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation in a GTP-U service.

mseg-service mseg_service_name

| grep grep_options | more |
Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the grep and more commands, refer to the Regulating a Command's Output section of the Command Line Interface Reference Guide.

Usage Guidelines
Use this command to view statistics and counters for GTP-U traffic on this system. Refine the statistics display by including a filter with the command.

Important
The show gtpu statistics command should be given from the local context only; issuing the command from any other context will result in an error message.

Examples
The following command displays statistics for the GTP-U service named gtp1:

```
show gtpu statistics gtpu-service gtp1
```

The following command displays active sessions on all local-addresses categorised by GTP-U service:

```
show gtpu local-addresses
```

The following command displays statistics for local GTP-U address 168.123.123.1:

```
show gtpu statistics local-address 168.123.123.1
```
show gtpu-service

Displays configuration information for GPRS Tunneling Protocol user plane (GTP-U) services on this system.

**Product**
- ePDG
- P-GW
- SAEGW
- S-GW

**Privilege**
Inspector

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:

```
[local] host_name# 
```

**Syntax Description**
```
show gtpu-service { all | name service_name } | | { grep grep_options | more } 
```

- **all**
  Displays configuration information for all GTP-U services configured on this system.

- **name service_name**
  Displays configuration information for an existing GTP-U service specified an alphanumeric string of 1 through 63 characters.

  | { grep grep_options | more }
  Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the Command Line Interface Reference Guide.

**Usage Guidelines**
Use this command to view configuration information for GTP-U services on this system.

**Examples**
The following command displays service statistics for the GTP-U service named gtpu1:

```
show gtpu-service name gtpu1
```
Exec Mode show Commands (H-L)

The Exec Mode is the initial entry point into the command line interface system. Exec mode show commands are useful in troubleshooting and basic system monitoring.

This section includes the commands show ha-service through show lte-policy.

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Important

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

- show ha-service, page 1137
- show ha-spi-list, page 1138
- show hardware, page 1139
- show hd raid, page 1141
- show hd-storage-policy, page 1142
- show henbgw, page 1144
- show henbgw-access-service, page 1146
- show henbgw-network-service, page 1148
- show hnbgw access-control-db, page 1150
- show hnbgw counters, page 1152
- show hnbgw-global, page 1154
- show hnbgw sessions, page 1155
- show hnbgw statistics hnbgw-service, page 1158
- show hnbgw statistics hnbid, page 1161
- show hngw-service, page 1163
- show hsgw-service, page 1164
- show hss-peer-service, page 1166
- show imei-profile, page 1168
- show ims-authorization policy-control, page 1170
- show ims-authorization policy-control misc-info, page 1172
- show ims-authorization policy-gate, page 1174
- show ims-authorization servers, page 1176
- show ims-authorization service, page 1178
- show ims-authorization sessions, page 1180
- show inventory, page 1183
- show ip access-group statistics, page 1184
- show ip access-list, page 1185
- show ip arp, page 1186
- show ip as-path-access-list, page 1188
- show ip bgp, page 1189
- show ip framed-prefixes, page 1192
- show ip igmp group, page 1193
- show ip interface, page 1194
- show ip ipsp, page 1196
- show ip localhosts, page 1198
- show ip ospf, page 1199
- show ip policy-forward, page 1201
- show ip pool, page 1202
- show ip prefix-list, page 1205
- show ip route, page 1207
- show ip route-access-list, page 1209
- show ip static-route, page 1210
- show ip vrf, page 1211
- show ip vrf-list, page 1212
- show ipms status, page 1213
- show ipne peers, page 1214
- show ipsg service, page 1215
- show ipsg sessions, page 1217
- show ipsg statistics, page 1219
- show ipv6 access-group statistics, page 1221
- show ipv6 access-list, page 1222
- show ipv6 interface, page 1223
- show ipv6 neighbors, page 1225
- show ipv6 ospf, page 1227
- show ipv6 pool, page 1229
- show ipv6 prefix-list, page 1231
- show ipv6 route, page 1233
- show ipv6 route-access-list, page 1234
- show iups-service, page 1235
- show l2tp sessions, page 1237
- show l2tp statistics, page 1240
- show l2tp tunnels, page 1242
- show lac-service, page 1244
- show lawful-intercept, page 1245
- show lawful-intercept ssdf statistics, page 1246
- show ldap connection all, page 1247
- show leds, page 1248
- show license information, page 1250
- show linecard, page 1252
- show link-aggregation, page 1254
- show linkmgr, page 1256
- show llc statistics, page 1257
- show llc status, page 1258
- show lma-service, page 1260
- show lns-service, page 1263
- show local-policy, page 1264
- show local-user, page 1265
- show location-service, page 1267
- show logging, page 1269
- show logical-port utilization table, page 1270
- show logs, page 1271
- show lte-policy, page 1282
show ha-service

Displays information on configured Home Agent (HA) services.

**Product**  
HA

**Privilege**  
Security Administrator Operator, Inspector

**Command Modes**  
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#  
```

**Syntax Description**

```
show ha-service { all | name ha_name } [ | { grep grep_options | more } ]
```

- **all | name ha_name**
  - all: Displays information on all Home Agent services.
  - name ha_name: Displays information for an existing HA service specified as an alphanumeric string of 1 through 63 characters.

- `{ grep grep_options | more }`
  - Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
  - For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Display home agent service configuration information.

**Examples**

The following commands displays information on the HA service *sampleService* and all services, respectively.

- `show ha-service name sampleService`
- `show ha-service all`
show ha-spi-list

Displays all or a specific Home Agent-Security Parameters Index (HA-SPI) remote address list(s).

**Product**

HA

**Privilege**

Security Administrator Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

**Syntax Description**

show ha-spi-list { all | name ha_name } [ | { grep grep_options | more } ]

- **all | name ha_name**
  - all: Displays information on all HA-SPI lists.
  - name ha_name: Displays information for an existing HA-SPI list specified as an alphanumeric string of 1 through 63 characters.

- **| { grep grep_options | more }**
  - Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
  - For details on the usage of **grep** and **more**, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Display a single or all HA-SPI lists.

**Examples**

The following commands displays information on the HA-SPI list named spi012 and all lists, respectively.

```plaintext
show ha-spi-list name spi012
show ha-spi-list all
```
show hardware

Displays information on the system hardware.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show hardware { card [ card_num ] | inventory | version [ board | diags | fans ] } | | { grep grep_options | more } |
```

- **card [ card_num ]**
  Provides the hardware information for all ASR 5x00 cards or the card specified by `card_num`. `card_num` must be a value in the range 1 through 48 for the ASR 5000 or 1 through 20 for the ASR 5500 and must refer to an installed card.

- **inventory**
  Displays the ASR 5x00 hardware information for all slots in tabular format.

- **version [ board | diags | fans ]**
  Displays the CPU information for all ASR 5x00 application cards and fan controller version for the upper and lower fan trays.
  - `board`: Only include the CPLD and FPGA version information.
  - `diags`: Only include the CFE diagnostics version information.
  - `fans`: Show the fan controller versions for the upper and lower fan trays.

- `| | { grep grep_options | more }`
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.
Usage Guidelines

Show the hardware information and hardware component versions.

Examples

The following displays the hardware information for a card installed in slot 1.

```
show hardware card 1
```

The following command displays the hardware inventory for the entire chassis.

```
show hardware inventory
```

The following command results in the display of the CPU version for all application cards displaying only the CPLD and FPGA information.

```
show hardware version board
```

The following command displays VPC virtual card information:

```
show hardware
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
**show hd raid**

Shows the output of the Redundant Array of Independent Disks (RAID) established on the ASR 5000 SMCs or ASR 5500 FSCs.

**Product**
All

**Privilege**
Security Administrator, Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
`show hd raid [verbose]`

**Examples**
The following command displays HD RAID configuration information:

```
show hd raid verbose
```

**Important**
Output descriptions for commands are available in the *Statistics and Counters Reference.*
show hd-storage-policy

Displays Array Configuration Replicator (ACR) counter and statistical information.

Product

HSGW
P-GW
SAEGW
S-GW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

show hd-storage-policy { all | counters [ all ] | name name | verbose | name name | statistics [ all ] | name name | verbose | }

all
Displays ACR information for all HD storage policies configured on the system.

counters [ all ] | name name | verbose |
all: Displays ACR counter information for all HD storage policies configured on the system.
name name: Displays ACR counter information for an existing HD storage policy specified as an alphanumeric string of 0 through 63 characters.

statistics [ all ] | name name | verbose |
all: Displays ACR statistical information for all HD storage policies configured on the system.
name name: Displays ACR statistical information for an existing HD storage policy specified as an alphanumeric string of 0 through 63 characters.

verbose
Displays HD storage statistics based on instance.
Usage Guidelines

Use this command to display ACR counter and statistic information.

Examples

The following command displays ACR statistical information for an HD storage policy named pgwsgw:

```
show hd-storage-policy statistics name pgwsgw
```
**show henbgw**

This command displays Home evolved NodeB Gateway (HeNBGW) service related information.

**Product**
HeNBGW

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name# 
```

**Syntax Description**

```
show henbgw { henb-association | all | full | henbgw-access-service henbgw_acc_svc_name | peer-address peer_ip_address | peer-id peer_id_value | summary | session | all | callid call_id | full | all | callid call_id | qci qci_value | s1-peer s1_peer_address | summary | all | callid call_id | qci qci_value | s1-peer s1_peer_address | summary | all | callid call_id | qci qci_value | s1-peer s1_peer_address | summary | all | callid call_id | qci qci_value | s1-peer s1_peer_address | summary | all | callid call_id | qci qci_value | s1-peer s1_peer_address | summary | all | callid call_id | qci qci_value | s1-peer s1_peer_address | summary | all | callid call_id | qci qci_value | s1-peer s1_peer_address | summary | all | callid call_id | qci qci_value | s1-peer s1_peer_address | summary
```

- **henb-association**: Displays information about HENB associations.
- **all**: Displays information for all HeNB associations.
- **full**: Displays all available information for associated display or filter keyword (previous keyword).
- **henbgw-access-service**: Displays information about HeNB associations with the specified HeNBGW access service.
  - **henbgw_acc_svc_name** is an alphanumeric string of 1 through 63 characters.
- **peer-address**: Displays information about HeNB associations with the specified peer.
  - **peer_ip_address** is an IPv4 address in dotted-decimal notation or an IPv6 address in colon-separated-hexadecimal notation.
- **peer-id**: Displays information about HeNB associations for the specified peer.
  - **peer_id_value** is an integer from 0 to 4294967295.
- **summary**: Displays a summary of available information for the associated keyword (previous keyword).
- **session**: Displays HeNBGW sessions.
all
Displays information for all HeNB sessions.

call-id

call-id: Specifies a Call Identification Number. call_id is an eight-digit hexadecimal number.

full
Displays information on session state for matching sessions.

qci

call-id: Displays information for the HeNB associated with a specific QCI value. qci_value is an integer between 1 and 9.

s1-peer

s1-peer: a specific S1 peer identified by the IP address of a peer eNodeB.
s1_peer_address is an IPv4 address in dotted-decimal notation or an IPv6 address in colon-separated-hexadecimal notation.

summary
This command displays summary information covering matching sessions.

ue
Displays UE information.

| {grep grep_options | more }
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to displays HeNBGW service related information.

Examples
The following command displays information for all HeNB associations:
show henbgw henb-association all
show henbgw-access-service

This command displays HeNBGW Access service related information.

Product
HeNBGW

Privilege
Inspector

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show henbgw-access-service { all | henb-association | all | csg-id csg_id_value | full | henbgw-access-service henbgw_acc_svc_name | peer-address peer_ip_address | peer-id peer_id_value | summary | tai mcc mcc_val mnc mnc_val tac | | name name | statistics | henbgw-access-service henbgw_acc_svc_name | miscellaneous | verbose | | peer-id peer_id_values1ap cause | | verbose | | sctp buffer | sessmgr sessmgr_value | | verbose | } | { grep grep_options | more }

henb-association: Displays information about HeNB associations.
all: Displays information about all HeNBGW Access services.
csg-id: Displays information about HeNB associations for the specified CSG ID.
csg_id_value is an integer between 0 and 4294967295.
full: Displays all available information for associated display or filter keyword (previous keyword).
henbgw-access-service: Displays information about HeNB associations with the specified HeNBGW Access service.
henbgw_acc_svc_name is an alphanumeric string of 1 through 63 characters.
peer-address: Displays information about HeNB associations with the specified peer.
peer_ip_address is an IPv4 address in dotted-decimal notation or an IPv6 address in colon-separated-hexadecimal notation.
peer-id: Displays information about HeNB associations for the specified peer.
peer_id_value is an integer from 0 to 4294967295.
**summary**: Displays a summary of available information for associated display or filter keyword (previous keyword).

**tai**: Displays information about HeNB associations for the specified TAI.

**mcc**: Specifies a Mobile Country Code (MCC) as a three-digit number between 100 to 999.

**mnc**: Specifies the Mobile National Code (MNC).

**tac**: Displays information about HeNB associations for the specified Type Allocation Code (TAC).

**miscellaneous**: Displays all available information for associated display or filter keyword (previous keyword).

**name** statistics [ henbgw-access-service henbgw_acc_svc_name | miscellaneous | verbose ] | peer-id peer_id_value | s1ap [ cause | verbose | setp | buffer | sessmgr sessmgr_value

**name**: Displays information for specific HeNBGW Access service name.

**statistics**: Displays HeNBGW Access service statistics

**miscellaneous**: Displays Miscellaneous statistics.

**s1ap**: Displays S1AP statistics.

**cause**: Displays S1AP cause statistics.

**sctp**: Displays SCTP statistics.

**buffer**: Displays SCTP TX/RX buffer statistics.

**sessmgr**: Displays SCTP TX/RX buffer statistics on a specific sessmgr.

**verbose**: Specifies the verbosity.

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the **Regulating a Command's Output** section of the **Command Line Interface Overview** chapter.

**Usage Guidelines**

Use this command to display HeNBGW Access service related information.

**Examples**

The following command displays S1AP statistics:

```
show henbgw-access-service statistics s1ap
```
show henbgw-network-service

This command displays configuration for HeNBGW Network service.

Product    HeNBGW

Privilege   Inspector

Command Modes  Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show henbgw-network-service { all | mme-association | all | full | henbgw-network-service
henbgw_net_svc_name | peer-address peer_ip_address | peer-id peer_id_value | summary | name name
| statistics | henbgw-network-service henbgw_net_svc_name | peer-id peer_id_value | s1ap | cause | verbose ] ] | sctp buffer | henbgwmgr henbgwmgr_value ] ] [ verbose ] ] || { grep grep_options | more }

henb-association: all | csg-id csg_id_value | full | henbgw-access-service henbgw_acc_svc_name |
peer-address peer_ip_address | peer-id peer_id_value | summary | name name

mme-association: Displays information about MME associations.

all: Displays all HeNBGW Network services.

full: Displays all available information for associated display or filter keyword (previous keyword).

henbgw-network-service: Displays information about HeNB associations with the specified HeNBGW Network service.

henbgw_net_svc_name is an alphanumeric string of 1 through 63 characters.

peer-address: Displays information about HeNB associations with the specified peer.

ter_ip_address is an IPv4 address in dotted-decimal notation or an IPv6 address in colon-separated-hexadecimal notation.

peer-id: Displays information about HeNB associations for the specified peer.

peer_id_value is an integer from 0 to 4294967295.

summary: Displays a summary of available information for the associated display or filter keyword (previous keyword).
name statistics | henbgw-network-service henbgw_net_svc_name | peer-id peer_id_values1ap | cause |
\| verbose | \| sctp | buffer | henbgwmgm sessmgr_value
name: Displays information for specific HeNBGW Network service name.
name: is an alphanumeric string of 1 through 63 characters.
statistics: Displays statistics for specified object.
s1ap: Displays S1AP statistics.
cause: Displays S1AP cause statistics.
sctp: Displays SCTP statistics.
buffer Displays SCTP TX/RX buffer statistics.
henbgwmgm: Displays SCTP TX/RX buffer statistics on a specific henbgwmgm.
verbose: Specifies the verbosity.

\| \{ grep grep_options \| more \}
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
For details on the usage of \texttt{grep} and \texttt{more}, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to display HeNBGW Network service related information.

**Examples**
The following command displays S1AP Cause statistics:
\texttt{show henbgw-network-service statistics s1ap cause}
show hnbgw access-control-db

Displays the white list of IMSI records in the Access Control database residing on Home NodeB Gateway (HNB-GW) service instances that control HNB and UE access to HNB-GW sessions.

**Product**
HNBGW

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show hnbgw access-control-db { hnbgw-service hnbgw_svc_name | imsi imsi_value}
```

**hnbgw-service hnbgw_svc_name**
Displays Access Control database records for an existing HNB-GW service specified as an alphanumeric string of 1 through 63 characters.

**Note**
This keyword is not supported in StarOS 14.0 and higher releases.

**imsi imsi_value**
Specifies the International Mobile Subscriber Identification (IMSI) number which is found on the Access Control database for he HNB-GW service.

**Usage Guidelines**
This command displays the white list IMSI records in an Access Control database residing on a system support all Home-NodeB Gateway (HNB-GW) service instances. The white list controls HNB and UE access to HNB-GW sessions. Access Control database records can be filtered by IMSI value.
Examples

The following command displays the information for registered IMSIs and their status in the HNB-GW database:

```
show hnbgw access-control-db imsi
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference.*
**show hnbgw counters**

Displays the session counter information for Home-NodeB Gateway (HNB-GW) services connected on this system.

**Product**

HNBGW

**Privilege**

Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show hnbgw counters [ hnbgw-service hnbgw_svc_name | hnbid hnb_identifier ] [ | { grep grep_options | more } ]
```

**hnbgw-service hnbgw_svc_name**

Filters the counter display based on an existing HNB-GW service name specified as an alphanumeric string of 1 through 63 characters.

**hnbid hnb_identifier**

Filters the counter display based on a Home-NodeB identifier specified as an alphanumeric string of 1 through 255 characters.

```
[ | { grep grep_options | more } ]
```

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the `grep` and `more` commands, refer to the Regulating a Command’s Output section in Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to view the session counter information for HNB-GW services configured and HNBs connected on this system.

**Examples**

The following command displays the counters for the HNB-GW service named `hnbgw1`:

```
show hnbgw counter hnbgw-service hnbgw1
```
Important

Output descriptions for commands are available in the *Statistics and Counters Reference.*
show hnbgw-global

Displays the global configuration parameters for configured HNBGW service(s) on this system.

**Product**

HNBGW

**Privilege**

Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

**Syntax Description**

`show hnbgw-global`

**Usage Guidelines**

Use this command to view the global configuration parameters set for all HNBGW service(s) on this system.

**Examples**

The following command displays the global configuration parameters applicable for all HNBGW services configured on this system:

```
show hnbgw-global
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show hnbgw sessions

Displays the active/dormant session information about registered HNB(s) on Home-NodeB Gateway (HNB-GW) service instances configured and running on this system based on different filter criteria.

Product
HNBGW

Privilege
Inspector

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show hnbgw sessions full summary all [address hnb_ip_address | cell-id cell_id | hnb-access-mode {closed hybrid open} | hnb-local-id hnb_id | hnbgw-service hnbgw_svc_name | hnb-access-mode {closed hybrid open} | hnbid hnb_glbl_id | mcc mcc | mnc mnc | lac lac | rac rac | rnc rnc} | \| {grep grep_options | more})

full
Displays the full information for a specific registered HNB session(s) on an HNB-GW service instance running on the system. The display can be filtered based on given filtering criteria.

summary
Displays summarized information for a specific registered HNB session(s) on an HNB-GW service instance running on the system. The display can be filtered based on given filtering criteria.

all
Displays summarized information for all registered HNB sessions on an HNB-GW service instance running on the system. The display can be filtered based on given filtering criteria.

address hnb_ip_address
Filters the display of full or summarized session statistics to show only HNB session(s) based on the registered HNB IP address expressed in IPv4 dotted-decimal notation.
**cell-id cell_id**
Filters the display of full or summarized session statistics to show only HNB session(s) based on the registered Femto cell ID where the user/subscriber is geographically located, and must be an integer from 0 through 268435455. `cell_id` is an integer from 0 through 268435455.

**hnb-access-mode {closed | open | hybrid}**
Filters the display of full or summarized session statistics to show only HNB session(s) based on the HNB access mode in an HNB-GW service instance.

- **closed** filters the session statistics for closed HNBs connected with HNB-GW service instance in Closed Access mode.
- **hybrid** filters the session statistics for hybrid HNBs connected with HNB-GW service instance in Hybrid Access mode.
- **open** filters the session statistics for open HNBs connected with HNB-GW service instance in Open Access mode.

**hnb-local-id hnb_id**
Filters the display of full or summarized session statistics to show only HNB session(s) based on the registered local ID of HNB specified as an integer from 1 through 25.

**hnbgw-service hnbgw_svc_name**
Filters the display of session statistics to show only registered HNB session(s) based on an existing HNB-GW service name specified as an alphanumeric string of 1 through 63 characters.

This can be further filtered by using access-mode criteria: Closed, Hybrid, or Open.

**hnbid hnb_glbl_id**
Displays summarized or full information of HNB session(s) based on the registered global ID of HNB specified as an integer between 1 through 255.

**mcc mcc**
Displays summary information of HNB session(s) based on the registered Mobile Country Code (MCC) identification number of the UE specified as an integer between 101 through 999.

**mnc mnc**
Displays summarized or full information of HNB session(s) based on the registered Mobile Network Code (MCC) identification number of the UE specified as a 2- or 3-digit integer between 00 through 999.

**lac lac**
Displays summarized or full information for HNB session(s) based on the registered Location Area Code (LAC) identification number of the UE specified as an integer between 1 through 65535.

**rac rac**
Displays summarized or full information for HNB session(s) based on the registered Radio Access Code (RAC) identification number of the UE specified as an integer between 1 through 255.
rnc rnc
Displays summarized or full information for HNB session(s) based on the registered Radio Network Code (RAC) identification number of the HNB specified as an integer between 1 through 65535.

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the grep and more commands, refer to the Regulating a Command's Output section in Command Line Interface Overview chapter.

Usage Guidelines
Use this command to view the session statistics of all or specific registered HNB session(s) or in selected part of user session for HNB-GW services configured and running on this system.

Examples
The following command displays summarized session statistics for all registered HNBs on the HNB-GW service named hnbgw1:

show hnbgw sessions summary hnbgw-service hnbgw1

Important
Output descriptions for commands are available in the Statistics and Counters Reference.
**show hnbgw statistics hnbgw-service**

Displays the session statistics for Home-NodeB Gateway (HNB-GW) services configured and running on this system.

**Product**

HNB-GW

**Privilege**

Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show hnbgw statistics [ gtpu-only ] [ hnb-access-mode { closed | hybrid | open } ] [ hnbgw-service
hnbgw_svc_name ] [ gtpu-only ] [ hnb-access-mode { closed | hybrid | open } ] [ hnbap-only ] [ ipne-only |
paging-only ] [ ranap-only ] [ rtp-only ] [ rua-only ] [ saba-only ] [ sctp-only ] ] [ hnbid hnb_identifier ] [ ]
hnbpap-only ] [ ipne-only ] [ paging-only ] [ ranap-only ] [ rua-only ] [ sccp-only ] [ sctp-only ] ] [ verbose ] [ ]
{ grep grep_options | more } ]
```

**gtpu-only**

Displays Forwarded GTPU Pkt statistics for selected HNB/HNDBGW Service.

**hnbgw-service**

Displays the session statistics of an existing HNB-GW service based on access mode filters. Other supported filters are:

- **closed**: shows the statistics of only those UEs which are connected through Closed HNBs to the HNB-GW services on a chassis. This command applies to all Closed HNB sessions on a chassis. If any other criteria specified it will filter the statistics based on given criteria.

- **hybrid**: shows the statistics of only those UEs which are connected through Hybrid HNBs to the HNB-GW services on a chassis. This command applies to all Closed HNB sessions on a chassis. If any other criteria specified it will filter the statistics based on given criteria.

- **open**: shows the statistics of only those UEs which are connected through Open HNBs to the HNB-GW services on a chassis. This command applies to all Closed HNB sessions on a chassis. If any other criteria specified it will filter the statistics based on given criteria.
**hnbgw-service hnbgw_svc_name**
Filters the display of session statistics for an existing HNB-GW service name specified as an alphanumeric string of 1 through 63 characters.

**hnbpap-only**
Filters the display of session statistics to show only Home NodeB Application Part (HNBAP) traffic for the selected HNB-GW service which is configured and running on this system.

**ipne-only**
Filters the display of session statistics to show only IPNE for selected HNBGW Service which is configured and running on this system.

**paging-only**
Filters the display of Paging statistics for selected HNBGW Service.

**ranap-only**
Filters the display of session statistics to show only Radio Access Network Application Protocol (RANAP) traffic for the selected HNB-GW service which is configured and running on this system.

**rua-only**
Filters the display of session statistics to show only RANAP User Adaptation (RUA) traffic for the selected HNB-GW service which is configured and running on this system.

**sccp-only**
Filters the display of session statistics to show only Signaling Connection Control Part (SCCP) traffic for the selected HNB-GW service which is configured and running on this system.

**sctp-only**
Filters the display of session statistics to show only Stream Control Transmission Protocol (SCTP) traffic for selected HNB-GW service which is configured and running on this system.

**verbose**
Displays detailed statistics for all sessions on HNB-GW services or for a selected filtered and named HNB-GW service which is configured and running on this system.

```
| { grep grep_options | more }
```
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the **grep** and **more** commands, refer to the Regulating a Command's Output section in Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to view the session statistics for overall session or in selected part of user session for HNB-GW services configured and running on this system.
Examples

The following command displays session statistics for the HNBAP part of session details for the HNB-GW service named *hnbgw1*:

```
show hnbgw statistics hnbgw-service hnbgw1 hnbap-only
```

The following command displays session statistics for the RANAP part of session with maximum details for the HNB-GW service named *hnbgw1*:

```
show hnbgw statistics hnbgw-service hnbgw1 ranap-only verbose
```
show hnbgw statistics hnbid

Displays the session statistics for Home-NodeB (HNB) connected to an HNB-GW service on this system.

**Product**
HNBGW

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
show hnbgw statistics hnbid hnb_identifier [ hnbap-only | ranap-only | rua-only ] [ verbose ] [ | { grep grep_options | more } ]
```

- **hnbid hnb_identifier**
  Filters the display of session statistics based on an existing Home-NodeB identifier specified as an alphanumeric string of 1 through 255 characters.

- **hnbap-only**
  Filters the display of session statistics display to show only Home NodeB Application Part (HNBAP) traffic for the selected HNB which is connected to this system through HNB-GW service.

- **ranap-only**
  Filters the display of session statistics display to show only Radio Access Network Application Protocol (RANAP) traffic for the selected HNB which is connected to this system through HNB-GW service.

- **rua-only**
  Filters the display of session statistics display to show only RANAP User Adaptation (RUA) traffic for the selected HNB which is connected to this system through HNB-GW service.

- **verbose**
  Displays detailed statistics for all HNB sessions or for the selected filter and HNB which is connected to this system through HNB-GW service.
\{ grep grep_options | more \}

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to view the session statistics for overall session or in selected part of user session for selected HNB which is connected to this system through HNB-GW service.

**Examples**

The following command displays session statistics for the HNBAP part of session details for the HNB identified as `hnb112234` on this system:

```
show hnbgw statistics hnbid hnb112234 hnbap-only
```

The following command displays detailed session statistics for the RANAP part of session details for the HNB identified as `hnb112234` on this system:

```
show hnbgw statistics hnbid hnb112234 ranap-only verbose
```
**show hnbgw-service**

Displays the configuration details for configured HNBGW service(s) on this system.

**Product**
HNBGW

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show hnbgw-service { all | hnbgw-service hnbgw_svc_name }
```

- **all**
  Displays configuration and other default parameters for all HNB-GW service configured on this system.

- **hnbgw-service hnbgw_svc_name**
  Displays configuration and default parameters for an existing HNB-GW service name specified as an alphanumeric string of 1 through 63 characters.

**Usage Guidelines**
Use this command to view the configuration and service parameters set for all or any specific HNB-GW service(s) on this system.

**Examples**
The following command displays configuration parameters for all HNB-GW services configured on this system:

```
show hnbgw-service all
```

**Important**
Output descriptions for commands are available in the Statistics and Counters Reference.
show hsgw-service

Displays information for HRPD Serving Gateway (HSGW) services on this system.

**Product**  
HSGW

**Privilege**  
Inspector

**Command Modes**  
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show hsgw-service { all | name service_name | statistics { all | name service_name } } [ dns-stats | pcf-status
  [ address IPv4_address | filter { all | icmp-monitored | no-calls | summary | up } ] ] | [ grep grep_options
  | more ]
```

- **all**  
  Displays configuration information for all HSGW services configured on this system.

- **name service_name**  
  Displays configuration information for an existing HSGW service specified as an alphanumeric string of 1 through 63 characters.

- **statistics**  
  Displays node-level statistics for the HSGW.

- **dns-stats**  
  Displays information related to DNS P-GW selection for load balancing using DNS SRV lookup.

- **pcf-status**  
  Displays information about the status of Packet Control Functions (PCFs) being monitored.

- **address IPv4_address**  
  Displays status information for the specified PCF.  
  *IPv4_address* must be specified using IPv4 dotted-decimal notation.
filter { all | icmp-monitored | no-calls | summary | up }
Filters the PCF status information. Must be followed by the filter to be applied.

all: Shows all the PCFs.

icmp-monitored: Shows only PCFs which are ICMP monitored.

no-calls: Shows only PCFs which has no active sessions.

summary: Shows only a summary of the status of the PCFs.

up: Shows only PCFs which are alive.

| { grep grep_options | more }
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the grep and more commands, refer to the Regulating a Command's Output section in the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to view configuration information for HSGW services on this system.

Examples
The following command displays service statistics for the HSGW service named hsgw1:

show hsgw-service name hsgw1
show hss-peer-service

Displays service, session, and statistics information for Home Subscriber Server (HSS) peer services configured on this system.

**Product**
MME

**Privilege**
Inspector

**Syntax Description**
```
show hss-peer-service { service { all | name name } | session { all | callid id | full | mdn mdn | nai nai | summary } | statistics { all | service name | summary } } [ | { grep grep_options | more } ]
```

- **service { all | name name }**
  Displays HSS peer service statistics for HSS peer services configured on this system.
  - **all**: Displays HSS peer service statistics for all configured HSS peer services on this system.
  - **name name**: Displays HSS peer service statistics for an existing HSS peer service specified as an alphanumeric string of 1 through 63 characters.

- **session { all | callid id | full | mdn mdn | nai nai | summary }**
  Displays HSS peer service statistics for sessions on this system.
  - **all**: Displays HSS peer service statistics for all sessions on this system.
  - **callid id**: Displays summarized or detailed statistics of HSS peer service sessions running and filtered on the basis of the call identifier specified as an 8-digit hexadecimal number.
  - **mdn mdn**: Displays summarized or detailed statistics of MME sessions running and filtered on the basis of an existing Mobile Directory Number (MDN) expressed as an alphanumeric string of 1 through 100 characters.
  - **nai nai**: Displays summarized or detailed statistics of MME-HSS sessions running and filtered on the basis of an existing Network Access Identifier (NAI) expressed as an alphanumeric string of 1 through 128 characters.
  - **summary**: Displays a summarized output of session information. This keyword can be further filtered by adding the following options:
    - **full**
    - **callid id**
statistics { all | service name | summary }

Displays statistics for HSS peer services configured on this system.

- **all**: Displays statistics for all HSS peer services configured on this system.
- **service name**: Displays statistics for an existing HSS peer service expressed as an alphanumeric string of 1 through 63 characters.
- **summary**: Displays summarized statistics for all HSS peer services configured on this system.

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in *CLI Overview* chapter of the *Command Line Interface Reference*.

**Usage Guidelines**

Use this command to display service, session, and statistics information for HSS peer services configured on this system.

**Examples**

The following command displays HSS peer service information and statistics for a session with a call ID of 08f11fa4:

```
show hss-peer-service sessions full callid 08f11fa4
```
show imei-profile

Displays information for configured International Mobile Equipment Identity (IMEI) profiles.

**Product**
SGSN

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show imei-profile { all | full { all | name imei_name } | name imei_name } [ | { grep grep_options | more } ]
```

**all**
Lists all IMEI profiles configured on the system.

**full { all | name apn_name }**

- **full**: Instructs the system to display all information in the IMEI profile(s).
- **all**: Displays a full set of information for all IMEI profiles configured on the system.
- **name imei_name**: Displays a full set of information for a specific IMEI profile.

**name imei_name**
Displays information for a specific IMEI profile expressed as an alphanumeric string of 1 through 64 characters.

```
| { grep grep_options | more }
```

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to display information for IMEI profiles configured on the system. APN profiles are configured through the global configuration mode and in the IMEI profile configuration mode. For more
information regarding IMEI profile commands, refer to the *IMEI Profile Configuration Mode Commands* chapter.

**Examples**

The following command displays all available information for an IMEI profile named *imeiprof1*:

```
show imei-profile full name imeiprof1
```
show ims-authorization policy-control

Displays information and statistics specific to the policy control in IP Multimedia Subsystem (IMS) authorization service.

**Product**
- SCM
- GGSN
- IMS
- P-GW
- SAEGW

**Privilege**
- Security Administrator, Administrator, Operator, Inspector

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show ims-authorization policy-control statistics [ service ims_auth_svc_name | server { ip-address ip_address | port port_value | name server_name } ] [ | { grep grep_options | more } ]
```

- **statistics**
  Displays the total collected statistics of all policy control parameters of IMS authorization service sessions since the last system restart or clear command.

- **service ims_auth_svc_name**
  Displays the total collected statistics of all IMS authorization sessions processed by a specific IMS authorization service since the last system restart or clear command. `ims_auth_svc_name` must be an existing IMS authorization service name, expressed as an alphanumeric string of 1 through 64 characters.

- **server { ip-address ip_address | port port_value | name server_name }**
  Displays the server-level message statistics and the server IP address.

  Specify the PCRF server name (1 through 64 alphanumeric characters), or server IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.
| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to display information and statistics about policy control configuration in existing IMS authorization services.

**Examples**

The following command displays the existing IMS authorization service name `ims_auth_gx1` on the system:

```
show ims-authorization policy-control statistics service ims_auth_gx1
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show ims-authorization policy-control misc-info

Displays the maximum backpressure information.

**Product**
- GGSN
- P-GW

**Privilege**
- Security Administrator, Administrator, Operator, Inspector

**Command Modes**
- Exec
  
The following prompt is displayed in the Exec mode:
  
  `[local]host_name#`

**Syntax Description**

- `show ims-authorization policy-control misc-info max-backpressure [all | facility sessmgr instance instance_number] | [ {grep grep_options | more } ]`

  - `all`
    
    Displays the max-backpressure count among all active session manager instances.

  - `facility sessmgr instance instance_number`
    
    Displays logged events for specific facility. That is, it will display the maximum backpressure count on that specific session manager instance.

    - `instance_number` must be an existing IMS authorization service name, expressed as an alphanumeric string of 0 to 10000000 characters.

    - `| {grep grep_options | more }`
      
      Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

      For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to display the maximum backpressure at a particular session manager instance or at all instances, and the time stamp at which maximum backpressure was seen.
Examples

The following command displays the maximum backpressure information for session1 facility on the system:

```
show ims-authorization policy-control misc-info max-backpressure facility sessmgr instance session1
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference.*
show ims-authorization policy-gate

Displays information of installed Policy Gates for specific subscriber in an IP Multimedia Subsystem (IMS) authorization (IMSA) service.

<table>
<thead>
<tr>
<th>Product</th>
<th>SCM</th>
<th>GGSN</th>
<th>IMS</th>
<th>P-GW</th>
<th>SAEGW</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Privilege</th>
<th>Security Administrator, Administrator, Operator, Inspector</th>
</tr>
</thead>
</table>

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name# 
```

**Syntax Description**

```
show ims-authorization policy-gate {{ status [summary | full ] [ { imsi imsi_value [ nsapi nsapi_value ] | callid call_id | { ims-auth-service ims_auth_svc } [ rulename rule_name ] ] | { counters all | { imsi imsi_value [ nsapi nsapi_value ] | rulename rule_name } | { callid call_id } ] ] | { grep grep_options | more } ] | status [ summary | full ]
```

- **status [ summary | full ]**
  - Displays the status of the installed policy gates and their flow definitions along with the run-time status in an IMS authorization service based on the specified criteria.
  - **summary**: Limits the display to a summary on the status of the installed policy gates and their flow definitions along with their run-time status in an IMS authorization service based on the specified criteria.
  - **full**: Displays the full information on status of the installed policy gates and their flow definitions along with their run-time status in an IMS authorization service based on the specified criteria.

- **counters all**
  - Displays the counters/statistics of the installed policy gates and their flow definitions along with their run-time status in an IMS authorization service based on the specified criteria.
  - **all** displays all counters of the installed gates and their flow definitions along with their run-time status in an IMS authorization service based on the specified criteria.
imsi imsi_value | nsapi nsapi_value |
Displays all of the counters/status of the installed policy gates and their flow definitions along with the run-time status in an IMS authorization service based on the International Mobile Subscriber Identity (IMSI).

nsapi nsapi_value specifies the Network Service Access Point Identifier (NSAPI) and limits the display to a single PDP context of the subscriber.

callid call_id
Displays all of the counters/status of the installed policy gates and their flow definitions along with their run-time status in an IMS authorization service based on the call identifier.

ims-auth-service ims_auth_svc
Displays the status of the installed policy gates and their flow definitions along with their run-time status in the named IMS authorization service.

rulename rule_name
Displays all of the counters/status of the installed policy gates and their flow definitions along with their run-time status in an IMS authorization service based on the named dynamic charging rule.

| { grep grep_options | more }
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
Please refer to the Regulating a Command's Output section of the Command Line Interface Reference for details on the usage of grep and more.

Usage Guidelines
Use this command to display information/statistics/counters about all of the installed policy gates and their flow definitions along with the run-time status with specified criteria and filters in existing IMS authorization services.

Examples
The following command displays the full status of the installed policy gates in an existing IMS authorization service on the system:
show ims-authorization policy-gate status full

The following command displays the all counters of the installed policy gates in an existing IMS authorization service on the system:
show ims-authorization policy-gate counters all

Important
Output descriptions for commands are available in the Statistics and Counters Reference.
show ims-authorization servers

Displays information and statistics specific to the authorization servers used for IP Multimedia Subsystem (IMS) authorization (IMSA) service.

**Product**
- SCM
- GGSN
- IMS
- P-GW
- SAEGW

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show ims-authorization servers [ ims-auth-service ims_auth_svc_name ] [ | { grep grep_options | more } ]
server [ ims-auth-service ims_auth_svc_name ]
```

Displays the information and statistics for all authorization servers configured within an IMS authorization service in a system.

**ims-auth-service ims_auth_svc_name**: Displays the configured authorization servers for IMS authorization within the named IMS authorization service.

```
| { grep grep_options | more } |
```

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Please refer to the *Regulating a Command's Output* section of the *Command Line Interface Reference* for details on the usage of `grep` and `more`.

**Usage Guidelines**
Use this command to display information and statistics about IMS authorization servers configured on a system or IMS authorization service.
Examples

The following command displays the information and statistics of the authorization servers in the IMS authorization service named in `ims_auth_gx1`:

```
show ims-authorization servers ims-auth-service ims_auth_gx1
```

---

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show ims-authorization service

Displays information, configuration, and statistics of all specific IP Multimedia Subsystem (IMS) authorization (IMSA) service.

**Product**
- GGSN
- P-GW
- SAEGW
- SCM

**Privilege**
- Security Administrator, Administrator

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show ims-authorization service { { all | verbose } | name ims_auth_svc_name | p-cscf { all | ip_address ipv4/ipv6_address | summary } } { statistics { all | name ims_auth_svc_name | verbose } } | | { grep grep_options | more } }
```

**all | verbose**
Displays information and configuration for all configured IMS authorization services with a single line of information for each IMS authorization service.

**verbose**: Displays all information and configuration data for all IMS authorization services configured on system.

**name ims_auth_svc_name | p-cscf { all | ip_address ipv4/ipv6_address**
Displays the information, statistics, and configuration data for the named IMS authorization service. If the optional keyword is configured, this command displays the statistics information of all P-CSCF servers or specific server.

**summary**
Displays summarized information and configuration data for all IMS authorization services configured in a system.
DisplaystheIMSAuthorizationservicestatisticsincludingfollowinginformation:

• Initial authorization procedures
• Re-authorization procedures initiated by us
• Re-authorization procedures initiated by servers
• Various failure statistics

If no criteria are specified, only summarized statistics for all IMS Authorization services are displayed

• all: displays individual statistics for every IMS authorization service configured on system.
• name ims_auth_svc_name: Displays the statistics for the IMS authorization service named in
  ims_auth_svc_name
• verbose: displays detailed statistics for a configured IMS authorization service.

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which
the output of this command will be sent.

Please refer to the Regulating a Command's Output section of the Command Line Interface Reference for
details on the usage of grep and more.

Usage Guidelines
Use this command to display the status, counters and configuration. for an IMS Authorization service. The
status includes the state of a server table switchover. The Statistics option displays information about various
processes.

Examples
The following command displays the information and configuration data of the IMS authorization service
named in ims_auth_gx1:

show ims-authorization service name ims_auth_gx1

Important
Output descriptions for commands are available in the Statistics and Counters Reference.
show ims-authorization sessions

Displays information, configuration, and statistics of sessions active in an IP Multimedia Subsystem (IMS) authorization (IMSA) service.

<table>
<thead>
<tr>
<th>Product</th>
<th>SCM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GGSN</td>
</tr>
<tr>
<td></td>
<td>IMS</td>
</tr>
<tr>
<td></td>
<td>P-GW</td>
</tr>
<tr>
<td></td>
<td>SAEGW</td>
</tr>
</tbody>
</table>

| Privilege      | Security Administrator, Administrator |

| Command Modes | Exec |

The following prompt is displayed in the Exec mode:

```
[local] host_name# 
```

**Syntax Description**

```
show ims-authorization sessions [ all | apn apn_name | callid call_id | facility sessmgr instance instance_no | full | ggsn-only | ims-auth-service ims_auth_svc_name | imsi imsi_value | nsapi nsapi_value | ip-address ip_address | local-sessions | remote-sessions | summary | [ | | grep grep_options | more ] ]
```

- **all**
  Displays information and configuration for all sessions running in IMS authorization services with a single line of information for each IMS authorization session.

- **apn apn_name**
  Displays all of the counters/status for the running services in an IMS authorization service based on the specified Access Point Name (APN).

- **callid call_id**
  Displays all of the counters/status for the running services in IMS authorization service based on the named call identifier.

- **facility sessmgr instance instance_no**
  Displays the IMS authorization sessions at the session manager instance level.
full
Displays complete information and configuration data for all sessions in IMS authorization services configured in a system.

ggsn-only
Displays GGSN-specific information in addition to detailed information about the session.

ims-auth-service ims_auth_svc_name
Displays the information, statistics, and configuration data for sessions in the named IMS authorization service.

imsi imsi_value [nsapi nsapi_value]
Displays all of the counters/status of the running services in an IMS authorization service based on the specified International Mobile Subscriber Identity (IMSI) and Network Service Access Point Identifier (NSAPI). The display is limited to a single PDP context of the subscriber.

ip-address ip_address
Displays all of the counters/status for the running services in IMS authorization service based on the specified host IP address.

local-sessions
Displays the IMS authorization sessions that are associated with local-policy.

remote-sessions
Displays the IMS authorization sessions that are associated with PCRF.

summary
Displays summarized information and configuration data for all IMS authorization services configured in a system.

| { grep grep_options | more }
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Please refer to the Regulating a Command's Output section of the Command Line Interface Reference for details on the usage of grep and more.

Usage Guidelines
Use this command to display the sessions running under IMS Authorization service on a system with different filter criteria.

Examples
The following command displays the information and statistical data for a session in an IMS authorization service:
show ims-authorization sessions full
Important

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
**show inventory**

Displays Unique Device Identifier (UDI) information for all hardware in the system for which a UDI is available.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show inventory [ | { grep grep_options | more } ]
```  

```
| { grep grep_options | more }
```

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the `grep` and `more` commands, refer to the Regulating a Command's Output section in the Command Line Interface Overview chapter.

**Usage Guidelines**
Displays UDI information (card/item description, Cisco PID, serial number) for all hardware installed in this system.

**Examples**
The following command displays UDI information for all cards in the system:

```
show inventory
```
show ip access-group statistics

Displays statistics for each rule in an access control group.

Product

HA

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

show ip access-group statistics [ | { grep grep_options | more } ]

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines

Use this command to display the configured access control groups in the current context.

Examples

The following command displays the contents of an access control group named ACG_4:

show ip access-list ACG_4
show ip access-list

Displays the information for all Access Control Lists (ACLs) or the named ACL. With no keyword supplied, a list of all access lists and their entries is displayed.

**Product**

HA

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show ip access-list list_name | | {grep grep_options | more }
```

*list_name*

Specifies the name of an existing ACL configured in the current context as an alphanumeric string of 1 through 47 characters.

| {grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to display the configured ACLs in the current context.

**Examples**

The following command displays the contents of an ACL named `ACL_4`:

```
show ip access-list ACL_4
```
show ip arp

Displays the ARP table or the ARP information associated with the specified IP address.

Important
When it restarts, the VPN Manager removes all interfaces from the kernel; the kernel then removes all ARP entries. When this happens, the NPU still holds all of the ARP entries so that there is no traffic disruption. From a user point of view, **show ip arp** is broken since this command gathers information from the kernel and not the NPU.

Product
HA

Privilege
Security Administrator, Administrator, Operator, Inspector

Command Modes
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description
```
show ip arp [ ip_address | vrf vrf_name ] | | { grep grep_options | more } |
```

**ip_address**
Specifies an IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

| vrf vrf_name
Displays information for an existing VPN Routing and Forwarding (VRF) name expressed as an alphanumeric string of 1 through 63 characters.

| { grep grep_options | more } |
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

Usage Guidelines
Use this command to display the configured ACLs in the current context.
Examples

The following command displays the contents of an ACL named *ACL_4*:

```
show ip access-list ACL_4
```
show ip as-path-access-list

Displays the contents of a Border Gateway Protocol (BGP) router Autonomous System (AS) path access list in the current context.

Product

HA

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show ip as-path-access-list list_name [ | { grep grep_options | more } ]

list_name

Specifies the name of an existing AS path access list configured in the current context as an alphanumeric string of 1 through 79 characters.

| { grep grep_options | more } |

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines

Use this command to display the configured entries for the specified BGP router AS path access list in the current context.

Examples

The following command displays the contents of an AS path access list named ASlist1:

show ip as-path-access-list ASlist1
**show ip bgp**

Displays Border Gateway Protocol (BGP) information for the current context.

**Product**

HA

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show ip bgp [ ip_address/mask | debugging | filter-list list_name | neighbors [ ip_address ] | route-map map_name | vpnv4 [ all | ip_address/mask | neighbors | summary ] | route-distinguisher { ipv4_address | asn_value | rd_value | vrf vrf_name | ip_address/mask | neighbors | summary | vpnv6 [ all | ipv4_address | neighbors | summary ] | route-distinguisher { ipv4_address | asn_value | rd_value | vrf vrf-name | ip_address/mask | neighbors | summary ] |grep grep_options | more ]
```

**ip_address/mask**

Specifies the IP address and netmask bits for the network for which information should be displayed. The IP address and mask is the number of subnet bits, representing a subnet mask in CIDR notation. These must be entered in the IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal CIDR notation.

**debugging**

Displays debug flags that are enabled.

**filter-list list_name**

Displays routes that match the specified filter list.

**neighbors [ip_address]**

Displays information for all neighbors or a neighbor specified as an IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

**route-map map_name**

Displays routes that match the specified route-map.
summary
Displays summary BGP information.

vpnv4 [all] ip_address/mask | neighbors | summary | route-distinguisher { ipv4_address | asn_value } rd_value | vrf vrf_name [ ip_address/mask | neighbors | summary ]
Displays all VPNv4 routing data.

- **all**: Displays all VPNv4 routing information. If this is specified, the information displayed is gathered from all the VRF's known to BGP and displayed. It could contain the list of neighbors, the list of networks, or a particular network.
- **neighbors**: Displays neighbor information for the all the VRFs including the default VRF or for the VRF with a matching RD value.
- **summary**: Displays summary information of neighbors for all the VRFs including the default VRF or for the VRF with a matching RD value.
- **route-distinguisher { ipv4_address | asn_value } rd_value**: Displays information about the route distinguisher. Where
  - **ipv4_address**: Specifies an IP address in IPv4 dotted-decimal notation.
  - **asn_value**: Specifies an autonomous system number as an integer from 0 through 65535.
  - **rd_value**: Specifies a route distinguisher value as an integer from 0 through 4294967295.

vrf vrf_name [ ipv4_address | neighbors | summary ]
Displays information about the VRF. Where

- **vrf_name**: Specifies the name of the VRF as an alphanumeric string of 1 through 63 characters.
- **ipv4_address**: Specifies an IP address in IPv4 dotted-decimal notation.
- **neighbors**: Displays neighbor information for the all the VRFs including the default VRF or for the VRF with a matching RD value.
- **summary**: Displays summary information of neighbors for all the VRFs including the default VRF or for the VRF with a matching RD value.

vpnv6 [all] ipv4_address | neighbors | summary | route-distinguisher { ipv4_address | asn_value } rd_value | vrf vrf_name [ ipv4_address/mask | neighbors | summary ]
Displays all VPNv6 routing data.

- **all**: Displays all VPNv6 routing information. If this is specified, the information displayed is gathered from all the VRF's known to BGP and displayed. It could contain the list of neighbors, the list of networks, or a particular network.
- **neighbors**: Displays neighbor information for the all the VRFs including the default VRF or for the VRF with a matching RD value.
- **summary**: Displays summary information of neighbors for all the VRFs including the default VRF or for the VRF with a matching RD value.
- **route-distinguisher { ipv4_address | asn_value } rd_value**: Displays information about the route distinguisher. Where
• *ipv4_address*: Specifies an IP address in IPv4 dotted-decimal notation.
• *asn_value*: Specifies an autonomous system number as an integer from 0 through 65535.
• *rd_value*: Specifies a route distinguisher value as an integer from 0 through 4294967295.

• **vrf** *vrf_name* [ *ipv4_address/mask* | neighbors | summary ]: Displays information about the VRF. Where
  • *vrf_name*: Specifies the name of the VRF as an alphanumeric string of 1 through 63 characters.
  • *ip_address/mask*: Specifies an IP address in IPv4 dotted-decimal CIDR notation.
  • *neighbors*: Displays neighbor information for the all the VRFs including the default VRF or for the VRF with a matching RD value.
  • *summary*: Displays summary information of neighbors for all the VRFs including the default VRF or for the VRF with a matching RD value.

| { grep grep_options | more } |

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command display to BGP information for the current context.

**Examples**

The following command displays information for all BGP neighbors:

**show ip bgp neighbors**
show ip framed-prefixes

Displays the framed-prefixes along with session-id, vrf-name and pool-name. The command will also display the total number of framed-prefixes matching the filtering criteria.

**Product**
All

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name>
```

**Syntax Description**
```
show ip framed-prefixes [ sess-id session_identifier | vrf vrf_identifier ]
```

**sess-id session_identifier**
Displays framed-prefixes added by a specific session.

**vrf vrf_identifier**
Displays VRF specific routing information.

Usage Guidelines
Use this command to display the framed-prefixes. This command also enables filtering of framed-prefixes based on vrf-name and/or session-id to the display. The display will show framed-prefixes along with session-id, vrf-name, and pool-name. The command will also display the total number of framed-prefixes matching the filtering criteria.

**Examples**
The following command displays ip framed-prefixes by a specific session.
```
show ip framed-prefixes sess-id session_identifier
```
show ip igmp group

Displays Internet Group Management Protocol (IGMP) information for all groups in a context or a specific IP address.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]\host_name#
```

**Syntax Description**

```
show ip igmp group [ ip_address | all ] | { grep grep_options | more }
```

**ip_address**
Displays IGMP information for the IP address specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

**all**
Displays information for all IGMP groups associated with this context.

```
| { grep grep_options | more }
```

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to display IGMP group information.

**Examples**
To display general IGMP information for all groups in this context, enter the following command:

```
show ip igmp all
```
show ip interface

Displays statistical and configuration information for the IPv4-based interfaces, including a Virtual Routing and Forwarding (VRF) table for a specific context.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show ip interface [vrf vrf-name] [name intfc_name] [tunnel [gre-keepalive]] [summary] [vrf vrf-name] [ {grep grep_options | more} ]
```

**name intfc_name**
Displays information for an existing interface specified as an alphanumeric string of 1 through 79 characters. If no interface name is specified, the information for all IP interfaces is displayed.

**summary**
Displays summarized information about requested IP interfaces.

**tunnel | gre-keepalive**
Filters the IP interface information for GRE/IP-in-IP tunnel type interfaces.
**gre-keepalive**: Displays the keepalive information for a generic routing encapsulation (GRE) tunnel configured with this IP interface.

**vrf vrf_name**
Displays Virtual Routing and Forwarding (VRF) routing information for an existing VRF specified as an alphanumeric string of 1 through 63 characters.

```
| { grep grep_options | more }
```

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to display the summarized of detailed configuration and statistical information for a configured IP interface. This information can be used to verify and/or troubleshoot communication difficulties between to a remote host/node.

**Examples**

The following command displays the interface information, including statistics, for the IP interface `Interface_1`.

```
show ip interface Interface_1 statistics
```

The following command displays the GRE keepalive information for an IP interface named `IP_gre1`.

```
show ip interface IP_gre1 tunnel gre-keepalive
```

---

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show ip ipsp

Displays the names of IP pools that are enabled for the IP pool sharing protocol (IPSP) and lists the disposition of addresses in the pools.

Product

- PDSN
- HA
- ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show ip ipsp [summary] | {grep grep_options | more }

summary

Displays only the disposition of the addresses in the participating IP pools. Does not show the names of the participating IP pools.

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines

Use this command to list the names of IP pools that are participating in the IPSP and list the disposition of IP addresses in those pools.

Important

For information on configuring and using IPSP refer to the System Administration Guide.

Examples

To list information on all IPSP participating pools and address disposition, enter the following command:

show ip ipsp
Important  Output descriptions for commands are available in the *Statistics and Counters Reference.*
show ip localhosts

 Displays host name to IP address mapping for current context. Must be followed by a specific IP host name.

**Product**
PDSN
HA
GGSN

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show ip localhosts hostname | [ grep grep_options | more ]
```

*hostname*

Specifies a configured hostname as an alphanumeric string of 1 through 127 characters.

```
| [ grep grep_options | more ]
```

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**
Use this command to display mappings of a host name to IP addresses.

**Examples**

To display IP address mapping for host name `local_2345`, enter the following command;

`show ip localhosts local_2345`
**show ip ospf**

Displays Open Shortest Path First (OSPF) routing information.

**Product**
- PDSN
- HA
- GGSN

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show ip ospf [ border-routers | database [ verbose ] [ ls-id ip_addr ] [ adv-router ip_addr ] [ ls-type { router | network | summary | asbr-summary | external | nssa [ integer ] } ] | debugging | interface | neighbor [ details ] | route | virtual-links ] [ | { grep grep_options | more } ]
```

**border-routers**
Displays all known area border routers (ABRs) and autonomous system border routers (ASBRs) for OSPF.

**database [ verbose ] [ ls-id ip_addr ] [ adv-router ip_addr ] [ ls-type { router | network | summary | asbr-summary | external | nssa [ integer ] } ]**
Displays a summary of the database information for OSPF.

**verbose:** Displays detailed OSPF database information.

**ls-id ip_addr:** Displays OSPF database information for the link state advertisements (LSAs) with the specified link state identifier (LSID). *ip_addr* is entered using IPv4 dotted-decimal notation.

**adv-router ip_addr:** Displays OSPF database information for the advertising router with the specified LSID. *ip_addr* is entered using IPv4 dotted-decimal notation.

**ls-type { router | network | summary | asbr-summary | external | nssa | LSA_Numerical_Type }**
Displays OSPF database information for the specified LSA type.

**debugging**
Lists which debugging parameters are enabled.
interface
Displays interface information for OSPF.

neighbor [ details ]
Displays summarized information about all known OSPF neighbors.
details: Displays detailed information about all known OSPF neighbors.

route [ summary ]
Displays the OSPF routing table.
summary: Displays the number of intra-area, inter-area, external-1 and external-2 routes.

virtual-links
Displays the OSPF virtual links.

| { grep grep_options | more }
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to display OSPF information.

Examples
To display general OSPF information, enter the following command; show ip ospf
show ip policy-forward

Displays information for IP packet redirecting policy for Home Agent (HA).

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
show ip policy-forward [ | { grep grep_options | more } ]
```

| | { grep grep_options | more } |
|---|---|

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to see all the settings for IP packet redirection configuration from existing HA to new HA during upgrade.

**Important**
This is a customer specific command.

**Examples**
The following command displays forward policy configuration for an HA:

```
show ip policy-forward
```
show ip pool

Displays statistics specific to IP pools.

**Product**
- PDSN
- GGSN
- HA
- ASN-GW
- A-BG

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show ip pool [ address \{ pool-name pool_name | group-name group_name \} \{ used | free | hold | release \} \{ limit limit \} | \{ grep grep_options \} | more]
```

address \{ pool-name pool_name | group-name group_name \} \{ used | free | hold | release \} \{ limit limit \}
Displays IP pool addresses for the specified IP pool or pool group that are currently in the specified state.

**pool-name pool_name**: Displays IP addresses from an existing IP pool name specified as an alphanumeric string of 1 through 31 characters.

**group-name group_name**: Displays IP addresses from an existing IP pool group name specified as an alphanumeric string of 1 through 31 characters.

**used**: Displays the IP addresses that are in a used state.

**free**: Displays the IP addresses that are in a free state.

**hold**: Displays the IP addresses that are in a hold state.

**release**: Displays the IP addresses that are in a release state.

**limit limit**: Specifies the maximum number of address to display as an integer from 1 through 524287.
**group-name group_name**
Displays information about an existing IP pool group name specified as an alphanumeric string of 1 through 31 characters.

**groups**
Lists information about all IP pool groups.

**hold-timer {imsi imsi | msid msid | username username [imsi imsi | msid msid]}**
Displays hold timer address information for the specified IMSI, MSID, or username.

**imsi imsi**: Displays hold-timer information for a valid IMSI (International Mobile Subscriber Identity), specified as a 15-character field that identifies the subscriber's home country and carrier.

**msid msid**: Displays hold-timer information for the MSID specified as a number from 7 through 16 digits.

**username username**: Displays hold-timer information for an existing username specified as an alphanumeric string of 1 through 127 characters.

**Important**
Active users cannot be displayed. If an active ID or username is entered, the following error message appears: Failure: No address matching the specified information was found! Please confirm that the options used match the network architecture/deployment, such as IMSI/MSID only, Username only, or IMSI/MSID plus Username. Please note that this command does not apply for addresses in the used state.

**many-to-one**
Lists information on Many-to-One NAT Realm IP address pools.

**nat-realm**
Lists information on NAT Realm IP address pools.

**one-to-one**
Lists information One-to-One NAT Realm IP address pools.

**overlap**
Lists information on overlapping IP pools.

**pool-name pool_name**
Displays information about an existing IP pool.

**private**
Displays information about IP pools marked Private.

**public**
Displays information about IP pools marked Public.
resource
Displays information about resource IP pools.

static
Displays information about static IP pools.

summary
Displays a summary of all IP pool information.

verbose
Displays detailed information about all IP pools.

wide
Displays detailed information formatted to more than 80 columns.

| {grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to display statistics pertaining to IP Pools in the current context.

Examples
The following command displays IP address information for an IP Pool named pool1:
show ip pool address pool-name pool

To display a summary list for all IP pools in the current context, enter the following command:
show ip pool summary

The following command displays IP pool information for all IP pools configured in the current context:
show ip pools verbose

Important
Output descriptions for commands are available in the Statistics and Counters Reference.
show ip prefix-list

Displays IP prefix lists used to filter routes. With no keyword supplied, a list of all prefix lists and their entries is displayed.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

**Syntax Description**

```plaintext
show ip prefix-list [detail | name | summary] list_name [ | { grep grep_options | more }
```

detail

Displays detailed information for the named prefix list.

name

Displays information for the named prefix list.

summary

Displays summary information for the named prefix list.

list_name

Specifies the name of an existing prefix list as an alphanumeric string of 1 through 79 characters.

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command’s Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to display information about IP prefix lists.
Examples

To display detailed information about a prefix list named `route_101`, enter the following command:
```
show ip prefix-list detail route_101
```

Important

Output descriptions for commands are available in the Statistics and Counters Reference.
show ip route

Displays information related to currently configured static or VRF routes for the current context.

Product
All

Privilege
Security Administrator, Administrator, Operator, Inspector

Command Modes
Exec
The following prompt is displayed in the Exec mode:
[local]host_name#

Syntax Description
show ip route \[ | \] ip_address/mask | vrf vrf_name | | | grep grep_options | more |

ip_address/mask
Specifies an IP address-mask (CIDR) for a static route in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

| vrf vrf_name
Displays information for an existing Virtual Routing and Forwarding (VRF) name expressed as an alphanumeric string of 1 through 63 characters.

| grep grep_options | more |
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

Usage Guidelines
Use this command to display information related to currently configured static or VRF routes for the current context.

Examples
To display detailed information about a route for a static IP address, enter the following command:
show ip route 10.1.0.0/24
Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show ip route-access-list

Displays information related to currently configured route-access-list used to filter routes.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show ip route-access-list [ name ] [ | { grep grep_options | more } ]
```

*name*
Specifies the name of an existing route access list as an alphanumeric string of 1 through 79 characters.

| { grep grep_options | more }
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to display information about IP route access lists.

**Examples**
To display detailed information about an access list named `access_route_3`, enter the following command:

```
show ip route-access-list access_route_3
```

**Important**
Output descriptions for commands are available in the Statistics and Counters Reference.
show ip static-route

Displays information related to currently configured static routes.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]\host_name#
```

**Syntax Description**

```
show ip static route [ ip_address/mask ] | { grep grep_options | more }
```

- **ip_address/mask**
  Specifies an IP address/mask (CIDR) for a static route in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

- **| { grep grep_options | more }**
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of **grep** and **more**, refer to the *Regulating a Command’s Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to display information about IP static routes.

**Examples**

To display detailed information about route 192.155.33.2/24, enter the following command:

```
show ip static route 192.155.33.2/24
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show ip vrf

Displays configuration information for VPN Routing and Forwarding instances.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show ip vrf [vrf_name [mpls-map-dscp-exp] | {grep grep_options | more}]

- **vrf_name**
  Specifies an existing VRF name as an alphanumeric string of 1 through 63 characters.

- **mpls-map-dscp-exp**
  Displays the MPLS mapping for the VRF.

Usage Guidelines

Use this command to display information about VFR names.

Examples

To display information for a VRF named corporate_range2 with MPLS mapping:

show ip vfr corporate_range2 mpls-map-dscp-exp

Important

Output descriptions for commands are available in the Statistics and Counters Reference.
**show ip vrf-list**

Displays configuration information for VRF lists currently on the system.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name$
```

**Syntax Description**
```
show ip vrf-list [ list_name ]
```

*list_name*
Specifies the name of an existing VRF list as an alphanumerical string of 1 through 63 characters.

**Usage Guidelines**
Use this command to display information about all VRF lists or a specified VRF list.

**Examples**
The following command displays information about all VRF lists in the system:
```
show ip vrf-list
```
show ipms status

 Displays the status of Intelligent Packet Monitoring System (IPMS) client service with information related to system and call events. It also displays the status of configured IPMS servers.

**Product**
IPMS

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show ipms status [ summary | all | server address ip_address ]
```

- **summary**
  Displays the summary of all configured IPMS client and IPMS servers.

- **all**
  Displays information for all configured IPMS client and IPMS servers.

- **server address ip_address**
  Displays status for the IPMS server specified as an IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

**Usage Guidelines**
This command is used to show/verify the status or configuration of one or all IPMS server along with system and call event information.

**Examples**
The following command displays status of an IPMS server with IP address 10.2.3.4:
```
show ipms status server address 10.2.3.4
```
**show ipne peers**

Generates a list of the IP Network Enabler (IPNE) peers.

**Product**
MME.

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show ipne peers { all | service ipne_service_name | summary } [ | { grep grep_options | more } ]
```

- **all**
  Generates a list of all peers bound to the IPNE services, including the local and peer addresses. Also displays the TCP connections for every Session Manager.

- **service ipne_service_name**
  Generates a list of the peers associated with the specified IPNE service.

- **Summary**
  Generates a summary of all available IPNE peer statistics.

  `| { grep grep_options | more }`

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**
Use this command to monitor and troubleshoot MME connections to the IPNE client and peer.

**Examples**
List all IPNE peers with a command similar to the following:

```
show ipne peers all
```
show ipsg service

Displays IP Service Gateway (IPSG) service information.

**Product**
eWAG
IPSG

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
show ipsg service { all | name ipsg_service_name } [ counters ] [ | { grep grep_options | more } ]
```

- **all**
  Displays information for all IPSG service(s) configured on the system.

- **name ipsg_service_name**
  Displays information for the specified IPSG service. `ipsg_service_name` must be an alphanumeric string of 1 through 63 characters.

- **counters**
  **counters** requires the output is to display counters associated with the IPSG service(s).

  | { grep grep_options | more }

  Specifies to pipe (send) the output of this command to the specified command. You must specify a command to which the output of this command should be sent.

  For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to view information for all IPSG services or a specific IPSG service.
Examples

The following command displays information for all IPSG services configured on the system:

show ipsg service all
show ipsg sessions

Displays IP Service Gateway (IPSG) session information.

**Product**

- eWAG
- IPSG

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show ipsg sessions | counters | full | summary | | all | callid call_id | ip-address ipv4_address | msid msid_number | peer-address ipv4_address | username user_name | } | { grep grep_options | more } }
```

- **counters**
  
  Displays session counters for matching sessions.

- **full**
  
  Displays all available information for matching sessions.

- **summary**
  
  Displays a summary of available information for matching sessions.

- **all**
  
  Displays session information including call ID, NAI, and home address for all current IPSG sessions.
  
  This is the default behavior for the `show ipsg sessions` command.

- **callid call_id**
  
  Displays session information for a current IPSG session based on the specified call ID.
  
  `call_id` must be an 8-digit hexadecimal number.

- **ip-address ipv4_address**
  
  Displays session information for a specific IPSG session based on the subscriber IP address.
ipv4_address must be specified in IPv4 dotted-decimal notation.

msid msid_number
Displays session information for a current IPSG session based on the specified MSID.
msid_number must be an 8-digit hexadecimal number.

peer-address ipv4_address
Displays session information for a current IPSG session based on the IP address of the device sending the RADIUS accounting messages.
ipv4_address must be specified in IPv4 dotted-decimal notation.

username user_name
Displays session information for an IPSG session based on subscriber's user name.
user_name must be an alphanumeric string of 1 through 127 characters.

| { grep grep_options | more }
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to view IPSG session information.

Examples
The following command displays all the existing IPSG service sessions on the system:
show ipsg session all

Important
Output descriptions for commands are available in the Statistics and Counters Reference.
show ipsg statistics

Displays IP Services Gateway (IPSG) service statistics.

Product

eWAG
IPSG

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

show ipsg statistics [ name ipsg_service_name | peer-address ipv4_address ] [ | { grep grep_options | more } ]

name ipsg_service_name
Displays cumulative statistics of all IPSG sessions processed by the specified service since the last system restart or clear command.

ipsg_service_name must be the name of an IPSG service, and must be an alphanumeric string of 1 through 63 characters.

peer-address ipv4_address
Displays cumulative statistics of all IPSG sessions associated with the specified IP address of the device sending the RADIUS accounting messages. The statistics displayed are from the last system restart or clear command.

ipv4_address must be specified in IPv4 dotted-decimal notation.

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines

Use this command to view IPSG service statistics.
Examples

The following command displays cumulative IPSG session statistics on the system:

```
show ipsg statistics
```

The following command displays the cumulative IPSG session statistics for an IPSG service named ipsg1:

```
show ipsg statistics name ipsg1
```

---

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show ipv6 access-group statistics

Displays statistics for each rule in all IPv6 access groups or a specified IPv6 access control group.

<table>
<thead>
<tr>
<th>Product</th>
<th>HA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Privilege</td>
<td>Security Administrator, Administrator, Operator, Inspector</td>
</tr>
</tbody>
</table>

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name# |
```

**Syntax Description**

```
show ipv6 access-group statistics | { grep grep_options | more } |

| { grep grep_options | more |
```

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to display the configured IPv6 access control groups in the current context.

**Examples**

The following command displays the contents of an IPv6 access control group named `ACGv6_4`:

```
show ipv6 access-group ACGv6_4
```
show ipv6 access-list

Displays the information for all IPv6 Access Control Lists (ACLs) or the named ACL. With no keyword supplied, a list of all access lists and their entries is displayed.

**Product**

HA

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show ipv6 access-list list_name [ | { grep grep_options | more } ]
```

- **list_name**
  Specifies the name of an existing ACL configured in the current context as an alphanumeric string of 1 through 47 characters.

- **| { grep grep_options | more }**
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command’s Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to display the configured IPv6 ACLs in the current context.

**Examples**

The following command displays the contents of an IPv6 ACL named *ACLv6_4*:

```
show ipv6 access-list ACLv6_4
```
show ipv6 interface

Displays statistical and configuration information for the IPv6-based interfaces, including a Virtual Routing and Forwarding (VRF) table for a specific context.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show ipv6 interface [ name intfc_name ] [ statistics ] [ summary ] [ vrf vrf-name ] [ { grep grep_options | more } ]

name intfc_name

Displays information for an existing interface specified as an alphanumeric string of 1 through 79 characters. If no interface name is specified, the information for all IPv6 interfaces is displayed.

statistics

Displays the session statistics of all ingress and egress packets processed through this IPv6 interface.

summary

Displays summarized information about requested IPv6 interfaces.

vrf vrf_name

Displays Virtual Routing and Forwarding (VRF) routing information for an existing VRF specified as an alphanumeric string of 1 through 63 characters.

| { grep grep_options | more } |

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.
Usage Guidelines

Use this command to display the summarized of detailed configuration and statistical information for a configured IPv6 interface. This information can be used to verify and/or troubleshoot communication difficulties between to a remote host/node.

Examples

The following command displays the interface information, including statistics, for the IPv6 interface IPv6Interface_2.

```
show ipv6 interface IPv6Interface_2 statistics
```

Important

Output descriptions for commands are available in the Statistics and Counters Reference.
show ipv6 neighbors

Displays the neighbor table for all IPv6 addresses or a specified IPv6 address in the current context.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

`[local]host_name#`

**Syntax Description**
```
show ipv6 neighbors [ ipv6_address ] [ vrf vrf-name ] [ | { grep grep_options | more } ]
```

- **ipv6_address**
  Displays information for an existing IPv6 address specified in IPv6 colon-separated-hexadecimal notation. If no IPv6 address is specified, the information for all IPv6 addresses is displayed.

- **vrf vrf_name**
  Displays Virtual Routing and Forwarding (VRF) routing information for an existing VRF specified as an alphanumeric string of 1 through 63 characters.

- **| { grep grep_options | more }**
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to display neighbor information for IPv6 address(es) in the current context. This information can be used to verify and/or troubleshoot communication difficulties between to a remote host/node.

**Examples**
The following command displays the neighbor information for the IPv6 address ffe:ffff:101::230:6eff:fe04:d9aa.
```
show ipv6 neighbor ffe:ffff:101::230:6eff:fe04:d9aa
```
show ipv6 neighbors

---

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 

---
show ipv6 ospf

Displays information regarding the configuration of the OSPFv3 Protocol on this system.

**Product**
- PDSN
- HA
- GGSN

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#```

**Syntax Description**
```
show ipv6 ospf [ database | debugging | interface | nieghbor | route | virtual-links | | verbose | verbose |
| | | grep grep_options | more | ]
show ipv6 ospf database | adv-router\ipv4-address | | ls-type | external | inter-prefix | inter-router |
intra-prefix | link | network | router }
show ipv6 ospf debugging
show ipv6 ospf interface
show ipv6 ospf neighbor | [details]
show ipv6 ospf route | [summary ]
show ipv6 ospf virtual-links
```

**show ipv6 ospf database**
Displays the OSPFv3 database including the following components.

- **adv-router ipv4-address**: Displays OSPF database information from the advertising router specified as an IP address in IPv4 dotted-decimal notation.

- **ls-type**: Displays the specified Link-State Advertisement (LSA) type, which can be one of the following:
  - **external**: Display External LSA information
  - **inter-prefix**: Displays Inter Area Prefix LSA information
  - **inter-router**: Displays Inter Area Router LSA information
  - **intra-prefix**: Displays Intra Area Prefix LSA information
  - **link**: Displays Link LSA information
  - **network**: Displays Network LSA information
• **router**: Displays Router LSA information

**show ipv6 ospf debugging**
Displays OSPFv3 Debugging Flags.

**show ipv6 ospf interface**
Displays OSPFv3 Interfaces.

**show ipv6 ospf neighbor [details]**
Displays OSPFv3 neighbors with the option for full details.

**show ipv6 ospf route [summary]**
Displays OSPFv3 route information with the option for summarized information.

**show ipv6 ospf virtual-links**
Displays OSPFv3 virtual links.

**verbose**
Displays detailed information.

| { grep grep_options | more }
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**
Use this command to see all OSPFv3 information.

**Examples**
The following command displays IPv6 OSPF information:

**show ipv6 ospf**
show ipv6 pool

Displays information related IPv6 Pool configuration/state.

**Product**
- PDSN
- GGSN
- ASN-GW

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show ipv6 pool [ group-name group-name ] [ pool-name pool-name ] [ summary ] [ verbose ] [ \ | \{ grep grep_options | more \}]
```

- **group-name**
  Displays IP address pool information for an existing group-name specified as an alphanumeric string of 1 through 31 characters.

- **pool-name**
  Displays IPv6 address pool information for an existing pool name specified as an alphanumeric string of 1 through 31 characters.

- **summary**
  Displays summary information about all IP address pools; this is the default.

- **verbose**
  Displays detailed information about all IP address pools.

  `| { grep grep_options | more }
  `Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of **grep** and **more**, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.
**Usage Guidelines**

Use this command to see all the ipv6 pool information.

**Examples**

The following command displays IPv6 pool information:

```
show ipv6 pool
```
show ipv6 prefix-list

Displays information related to an IPv6 prefix list.

**Product**
- PDSN
- GGSN
- ASN-GW

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
show ipv6 prefix-list { detail prefix-list-name } [ name prefix-list-name ] [ ip-address/mask | longer ] [ match-first ] [ seq seq_value ] [ summary prefix-list-name ] [ | grep grep_options | more ]
```

- **detail prefix-list-name**
  Displays detailed IP address information for an existing prefix-list specified as an alphanumeric string of 1 through 79 characters.

- **name prefix-list-name**
  Displays IP address information for an existing prefix-list specified as an alphanumeric string of 1 through 79 characters.

- **ip-address/mask**
  Specifies an IPv6 Network Address/Mask Bits combination in CIDR notation.

- **longer**
  Displays IP address prefix-list details in longer format.

- **match-first**
  Displays first matched IP address prefix-list details.
seq seq_value
Specifies the sequence number as an integer from 1 through 4294967295.
seq_value is the integer value between 1 through 4294967295.

summary prefix-list-name
Displays prefix-list summary for an existing prefix-list specified as an alphanumeric string of 1 through 79 characters.

| { grep grep_options | more } |
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to see all the ipv6 prefix-list information.

Examples
The following command displays IPv6 prefix list information:
show ipv6 prefix-list
show ipv6 route

Displays information related to specific route for current context.

**Product**
- PDSN
- GGSN
- ASN-GW

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
show ipv6 route [ ip-address/mask ] [ vrf vrf-name ] [ | { grep grep_options | more } ]
```

- **ip-address/mask**
  Specifies an IP address entered using IPv6 colon-separated-hexadecimal and CIDR notation.

- **vrf vrf-name**
  Displays Virtual Routing and Forwarding (VRF) routing information for an existing VRF specified as an alphanumeric string of 1 through 63 characters.

- | { grep grep_options | more }
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of `grep` and `more`, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to see all the ipv6 route information.

**Examples**
The following command displays IPv6 route information:
```
show ipv6 route 2001:0db8:85a3:0000:0000:8a2e:0370:7334/5
```
show ipv6 route-access-list

Displays the route access list.

**Product**
- PDSN
- GGSN
- ASN-GW

**Privilege**
- Security Administrator, Administrator, Operator, Inspector

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
show ipv6 route-access-list [ route-access-list ] [ | { grep grep_options | more } ]
```

- `route-access-list`
  - `route-access-list` is an alphanumeric string of 1 through 79 characters.

  ```
  | { grep grep_options | more }
  ```

  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of `grep` and `more`, refer to the *Regulating a Command’s Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**
- Use this command to see all the IPv6 route access list information.

**Examples**
- The following command displays IPv6 route access list information:
  ```
  show ipv6 route-access-list
  ```
show iups-service

Displays information for Iu-PS services in the current context. The Iu-PS interface links the radio network controller (RNC) with the packet switched core network.

**Product**
SGSN

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show iups-service { all | name srvc_name } [ gtpu-table ] [ rnc { all | id rnc_id } ] [ | { grep grep_options | more } ]
```

- **all**
  Shows information for all configured IuPS services.

- **name srvc_name**
  Specifies an existing IuPS service as an alphanumeric string of 1 through 63 characters.

- **gtpu-table**
  Displays the configured GTPU database.

- **rnc all**
  Displays information for all configured RNCs.

- **rnc rnc_id**
  Specifies the identification number of an existing RNC configuration instance as an integer from 0 through 4095.

```
| { grep grep_options | more }
```

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
show iups-service

For details on the usage of `grep` and `more`, refer to the *Regulating a Command’s Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Iu-PS services control the interface between the SGSN and the RNCs in the UMTS radio access network (UTRAN). Iu-PS services include the control plane and the data plane between these nodes.

Use this command to display information for a specific Iu-PS service or for all Iu-PS services configured within the context. A filtering keyword can limit the display to only information for a specific RNC or for a GTPU table in the Iu-PS service configuration.

**Examples**

The next command displays information for all Iu-PS services configured in the current context:

```
show iups-service all
```

This command displays information for a specific RNC for a specific Iu-PS services:

```
show iups-service name iups-svc-1 rnc 123name
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*.
show l2tp sessions

Displays information for Layer 2 Tunneling Protocol (L2TP) tunnels.

Product
- LNS
- PDSN
- GGSN
- HA

Privilege
Security Administrator, Administrator, Operator, Inspector

Command Modes
Exec
The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show l2tp sessions [full | summary | counters] [all | callid id | username name | msid ms_id | lac-service service_name | lns-service service_name | pdnsclosedrp-service service_name | peer-address | peer_address]

full
Displays all available information for the specified sessions.

summary
Displays a summary of available information for the specified sessions.

counters
Displays counters for the specified L2TP sessions.

all
Displays all current sessions.

callid id
Displays session information for the call ID specified an 8-byte hexadecimal number. The output of the command show l2tp tunnels contains a field labeled Callid Hint which lists the call ID information to use with this command.
username name
Displays session information for an existing subscriber specified as an alphanumeric string of 1 through 127 characters. Wildcard characters $ and * are allowed.

msid ms_id
Displays session information for the MSID specified as 7 to 16 digits for an IMSI, MIN, or RMI. Wildcard characters $ and * are allowed.

lac-service service_name
Displays all L2TP sessions in the specified LAC service.

lns-service service_name
Displays all L2TP sessions in the specified LNS service.

pdsn closedrp-service service_name
Displays all L2TP sessions in the specified Closed R-P service.

peer-address [ operator ] peer_address
Displays all L2TP sessions to the destination (peer LNS) specified as an IP address in IPv4 dotted-decimal notation.
In conjunction with sessions keyword, indicates a range of peers is to be displayed.
peer-address [ operator ] peer_address is specified using IPv4 dotted-decimal notation.
operator implies how to logically specify a range of peer-address and it must be one of the following:

• <: IP address less than the specified peer_address
• >: IP address less than the specified peer_address
• greater-than: IP address less than the specified peer_address
• less-than: IP address less than the specified peer_address

Usage Guidelines
Use this command to show information for sessions in the current context.

Important
If this command is executed from within the local context, cumulative session information is displayed for all contexts.

Examples
The following command displays cumulative statistics for all sessions processed within the current context:
show l2tp sessions
The following command displays all information pertaining to the L2TP session of a subscriber named isp1vpnuser1:
show l2tp session full username isp1vpnuser1
Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show l2tp statistics

Displays statistics for all Layer 2 Tunneling Protocol (L2TP) tunnels and sessions.

**Product**
PDSN
GGSN
HA

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show l2tp statistics [lac-service service_name] [l2tp-service service_name] [pdsnclosedrp-service service_name] [peer-address peer_ip_address]
```

- **lac-service service_name**
  Displays L2TP statistics for all tunnels and sessions in an existing L2TP Access Concentrator (LAC) service specified as an alphanumeric string of 1 through 63 characters.

- **l2tp-service service_name**
  Displays L2TP statistics for all tunnels and sessions in an existing L2TP Network Server (LNS) service specified as an alphanumeric string of 1 through 63 characters.

- **pdsnclosedrp-service service_name**
  Displays L2TP statistics for all tunnels and sessions in an existing Closed R-P service specified as an alphanumeric string of 1 through 63 characters.

- **peer-address peer_address**
  Displays L2TP statistics for all tunnels and sessions to the destination (peer LNS) at the IP address specified in IPv4 dotted-decimal notation.

**Usage Guidelines**
Use this command to display statistics for L2TP services.
Examples

The following command displays statistics for a specific LAC service named *vpn1*:

```
show l2tp statistics lac-service vpn1
```

<table>
<thead>
<tr>
<th>Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output descriptions for commands are available in the <em>Statistics and Counters Reference</em>.</td>
</tr>
</tbody>
</table>
show l2tp tunnels

Displays information for Layer 2 Tunneling Protocol (L2TP) tunnels.

Product

- PDSN
- GGSN
- HA

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

show l2tp tunnels [full | summary | counters | all | callid id | username name | msid ms_id | lac-service service_name | lns-service service_name | pdsnclsdpr-service service_name | peer-address [ operator | peer_address ]

full
Displays all available information for the specified tunnels.

summary
Displays a summary of available information for the specified tunnels.

counters
Displays counters for the specified L2TP tunnels.

all
Displays all current tunnels.

callid id
Displays tunnel information for the call id specified as an 8-digit hexadecimal number. The output of the command show l2tp tunnels contains a field labeled Callid Hint which lists the call id information to use with this command.
username name
Displays tunnel information for an existing subscriber specified as an alphanumeric string of 1 through 127 characters. Wildcard characters $ and * are allowed.

msid ms_id
Displays tunnel information for the MSID specified as 7 to 16 digits for an IMSI, MIN, or RMI. Wildcard characters $ and * are allowed.

lac-service service_name
Displays all L2TP tunnels in the specified LAC service.

lns-service service_name
Displays all L2TP tunnels in the specified LNS service.

pdsn closedrp-service service_name
Displays all L2TP tunnels in the specified Closed R-P service.

peer-address [ operator ] peer_address
Displays all L2TP tunnels to the destination (peer LNS) at the IP address specified in IPv4 dotted-decimal notation.
In conjunction with tunnels keyword, indicates a range of peers is to be displayed.

peer-address [ operator ]: Specifies a peer address using IPv4 dotted-decimal notation.
operator implies how to logically specify a range of peer-address and it must be one of the following:
- • <: IP address less than the specified peer_address
  • >: IP address less than the specified peer_address
  • greater-than: IP address less than the specified peer_address
  • less-than: IP address less than the specified peer_address

Usage Guidelines
Use this command to show information for tunnels in the current context.

Examples
The following command displays all of the tunnels currently being facilitated by LAC services within the current context:
show l2tp tunnels all
The following command displays information pertaining to the L2TP tunnel(s) established for a LAC-service named vpn1:
show l2tp tunnels full lac-service vpn1

Important
Output descriptions for commands are available in the Statistics and Counters Reference.
# show lac-service

Displays the information for all L2TP Access Concentrator (LAC) services or for a particular LAC service.

<table>
<thead>
<tr>
<th>Product</th>
<th>PDSN</th>
<th>HA</th>
<th>GGSN</th>
</tr>
</thead>
</table>

| Privilege | Security Administrator, Administrator, Operator, Inspector |

<table>
<thead>
<tr>
<th>Command Modes</th>
<th>Exec</th>
</tr>
</thead>
<tbody>
<tr>
<td>The following prompt is displayed in the Exec mode:</td>
<td></td>
</tr>
<tr>
<td>[local] <code>host_name</code>#</td>
<td></td>
</tr>
</tbody>
</table>

| Syntax Description | `show lac-service { all | name service_name } [ | { grep grep_options | more } ]` |
|-------------------|-------------------------------------------------|
| all               | Display information for all LAC services.       |
| name service_name | Display information only for an existing LAC service specified as an alphanumeric string of 1 through 63 characters. |
| `{ grep grep_options | more }` | Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent. |
| For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter. |

| Usage Guidelines | Use this command to list information for LAC services configured on this system. |

<table>
<thead>
<tr>
<th>Examples</th>
<th>The following commands display information for all LAC services and the LAC service named lac1, respectively.</th>
</tr>
</thead>
<tbody>
<tr>
<td>show lac-service all</td>
<td></td>
</tr>
<tr>
<td>show lac-service name lac1</td>
<td></td>
</tr>
</tbody>
</table>
show lawful-intercept

Refer to the Lawful Intercept Configuration Guide for a full description of this command.
show lawful-intercept ssdf statistics

Refer to the Lawful Intercept Configuration Guide for a description of these statistics.
show ldap connection all

Displays all details about the Lightweight Directory Access Protocol (LDAP) subsystem.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:
[local]host_name#

**Syntax Description**

```
show ldap connection all   | { grep grep_options | more } |

| { grep grep_options | more }
```

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Display all details about the LDAP subsystem.

**Examples**

The following command displays full information about the LDAP subsystem.
```
show ldap connection all
```
show leds

Displays the current status of the light emitting diodes (LEDs) for a specific card or all cards.

**Product**  
All

**Privilege**  
Security Administrator, Administrator, Operator, Inspector

**Command Modes**  
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show leds { all | card_num } [ | { grep grep_options | more } ]
```

- `all | card_num`
  - `all`: Displays the LED status for all cards.
  - `card_num`: Displays the LED status for the card specified by its slot number.

- `| { grep grep_options | more }`
  - Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
  - For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Display the status of the LEDs as a part of an automated periodic script which checks the LEDs of the chassis.

---

**Important**

This command is not supported on all platforms.

---

**Examples**

The following commands display the LED status for all cards and only card 8, respectively.

```
show leds all
show leds 8
```
Important

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show license information

Displays information about the licenses installed on this system, as well as the maximum number of sessions.

Product All

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

[local] host_name$

Syntax Description show license information { key_name | full } | { key } | | { grep grep_options | more } |

key_name | full
key_name: Displays the information for an existing license key specified as an alphanumeric string of 1 of 1 through 500 characters.
full: Displays the full features and quantities without any hardware limits in place.

key:
Displays the installed keys in encrypted format.

| | { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines Displays the license information to verify the proper keys have been installed. This command is also helpful in troubleshooting user system access due to the maximum number of sessions being reached.

Examples The following displays the encrypted installed key and the information for sampleKey respectively.

show license information sampleKey
Important

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show linecard

Displays information on the interface cards installed in the rear of the system chassis.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show linecard { dlc-utilization card# | table } | | { grep grep_options | more } |
```

- **dlci-utilization card#**
  
  ASR 5000, SGSN only
  
  In tabular format, displays current data link utilization (in 5 minute and 15 minute breakdowns) for all Frame Relay ports on the specified CLC-type line card. Data links are referred to by data link connection identifiers (DLCI).

  - **card#** - Identifies the chassis slot number where the line card resides. Enter an integer from 1 to 48.

- **table**
  
  Displays information on all line card slots in tabular format.

  | | { grep grep_options | more } |

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of **grep** and **more**, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to show the line card information

- to verify hardware inventories and installed components.
- to review DLCI utilization for a specific Frame Relay channelized line card.
This command is not supported on all platforms.

**Examples**

Use the following command to display a table with information identifying all line cards installed in the chassis:

```plaintext
show linecard table
```

Use the following command to display DLCI utilization information for all ports on an ASR 5000 CLC card in slot 27:

```plaintext
show linecard dci-utilization 27
```

Output descriptions for `show` commands are available in the *Statistics and Counters Reference*. 
show link-aggregation

Displays information about any Link Aggregation Group (LAG) configured in this system. A LAG works by exchanging control packets via Link Aggregation Control Protocol (LACP) over configured physical ports with peers to reach agreement on an aggregation of links. The LAG sends and receives the control packets directly on physical ports.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show link-aggregation { info | lacp info | statistics } group group_number [ { grep grep_options | more } ]
show link-aggregation table [all] [ { grep grep_options | more } ]
show link-aggregation utilization table [ { grep grep_options | more } ]
```

Displays the following categories of LAG information:

- **info** – LAG configuration and operating state
- **lacp info** – LACP Rx and Tx counters
- **statistics** – LAG Rx and Tx counters and data throughput statistics

**group group_number**

Specifies the LAG number as an integer from 1 through 1023.

**table [all] group_number**

Displays information about the current LAG port configuration in tabular form. The **all** option includes ATM PVCs for ATM ports (ASR 5000 only).

**utilization table**

Displays LAG utilization data in tabular form.
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to display information about any Link Aggregation Group (LAG) configured in this system.

**Examples**

The following command displays configuration information for LAG number 100:

```
show link-aggregation info group 100
```

**Important**

Output descriptions for `show` commands are available in the Statistics and Counters Reference.
show linkmgr

Displays statistics for the link manager (linkmgr).

Product
SGSN

Privilege
Inspector

Command Modes
Exec
The following prompt is displayed in the Exec mode:
[local]host_name#

Syntax Description
show linkmgr { all | instance instance } [ parser | ]

all
Display statistics for all link managers.

instance instance
Display statistics for a single instance of a link manager specified as an integer from 1 to 4.

| { grep grep_options | more }
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
This command displays statistical information for the SGSN's link manager which handles the layer between the session manager and the SS7 functionality downwards from layer 3.

Examples
Use the following command to display the statistics for link manager 4:
show linkmgr 4

Important
Output descriptions for commands are available in the Statistics and Counters Reference.
**show llc statistics**

Displays traffic statistics for the GPRS logical link-control (LLC) layer.

**Product**
SGSN

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show llc statistics [gprs-service srvc_name] [verbose] [ | {grep grep_options | more} ]
```

- **gprs-service srvc_name**
  Displays the statistics for an existing GPRS service specified as an alphanumeric string of 1 through 63 characters.

- **verbose**
  Displays all possible statistics for specified command or keyword.

  ```
  | {grep grep_options | more}
  ```

  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  For more information on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section of the Command Line Interface Reference.

**Usage Guidelines**

This command can display either a summarized or full (verbose) view of statistics collected for the traffic that has gone through the LLC layer for either all GPRS services or for a specified GPRS service.

**Examples**

The following command displays the frame Tx/Rx LLC statistics for GPRS service **gprs1**:

```
show llc statistics gprs-service gprs1
```
show llc status

Displays status information for the GPRS logical link-control (LLC) layer.

Product
SGSN

Privilege
Inspector

Command Modes
Exec

The following prompt is displayed in the Exec mode:
[local]\host_name#

Syntax Description
show llc status gprs-service srvc_name sessmgr instance instance { dlc `ms_id ms_id sapi sapid | lsap sapid sapid | ms ms_id | usap sapid sapid | | `grep grep_options | more } |

gprs-service srvc_name
Displays the LLC layer status for an existing GPRS service specified as an alphanumeric string of 1 through 63 characters.

sessmgr instance instance
Displays the LLC status for a session manager instance specified as an integer. The range varies depending upon the release:
• for releases prior to 14.0, the range is from 1 to 4294967295.
• for releases 14.0 and later, the range is from 1 to 384.

dlc ms-id ms_id | sapi sapid |
Displays the LLC status for a specific data link connection identifier (DLCI) between the LLC and the mobile station (MS). ms_id must be an integer from 0 to 65536 that identifies the DLCI interface connecting to a specific MS.

sapi: Filters the display of the LLC status information to focus on a specific service access point interface (SAPI) within the specified DLCI specified as an integer from 1 to 11

lsap sapid
Refines the display of the LLC status to focus on a specific lower service access point interface (LSAP) specified as an integer from 0 to 65536.
**ms-id ms_id**
Displays the LLC status for a connected MS specified as an integer from 0 to 65536.

**usap sapid**
Refines the display of the LLC statistics to focus on a specific upper service access point interface (USAP) specified as an integer from 0 to 65536.

| { grep grep_options | more } |
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
For more information on the usage of **grep** and **more**, refer to the *Regulating a Command’s Output* section of the *Command Line Interface Reference*.

**Usage Guidelines**
This command can display either a summarized or full (verbose) view of statistics collected for the traffic that has gone through the LLC layer for either all GPRS services or for a specified GPRS service.

**Examples**
The following command displays the frame Tx/Rx LLC statistics for GPRS service *gprs1*:

```
show llc statistics gprs-service gprs1
```
show lma-service

Displays statistic and counter information for Local Mobility Anchor (LMA) services on this system.

**Product**

P-GW
SAEGW

**Privilege**

Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show lma-service all
show lma-service name service_name
show lma-service session [ all | callid id | counters | full | ipv6-address { < address | > address | address | greater-than address | less-than address | less-than address | greater-than address } | summary | username name ]
show lma-service statistics [ lma-service name ] [ | { grep grep_options | more } ]
```

- **all**
  Displays information about all configured LMA services on this system.

- **name service_name**
  Displays configuration information for an existing LMA service specified as an alphanumeric string of 1 through 63 characters.

```
show lma-service session [ all | callid id | counters | full | ipv6-address { < address | > address | address | greater-than address | less-than address | less-than address | greater-than address } | summary | username name ]
```

- **all**: Displays all active LMA sessions using LMA services on the system.
- **callid id**: Displays available session information for the call identification number specified as an eight-byte hexadecimal number.
- **counters**: Displays session counters for active LMA sessions using LMA services on the system. This keyword can also be filtered by the following:
  - **all**
callid
ipv6-address
username

Refer to the keyword descriptions in this command for information regarding these filters.

full: Displays additional session information for active LMA sessions using LMA services on the system. This keyword includes the information in the output of the all keyword plus additional information. This keyword can also be filtered by the following:

- all
- callid
- ipv6-address
- username

Refer to the keyword descriptions in this command for information regarding these filters.

ipv6-address:

- < address and less-than address: Displays summarized information for a group of IPv6 addresses that are less than the specified IPv6 address using one of these keywords. A range can be specified by including an address with the greater-than option. address must be specified in IPv6 colon-separated-hexadecimal notation.
- > address and greater-than address: Displays summarized information for a group of IPv6 addresses that are greater than the specified IPv6 address using one of these keywords. A range can be specified by including an address with the less-than option. address must be specified in IPv6 colon-separated-hexadecimal notation.
- address: Displays summarized information for a specific IPv6 address using an LMA service on this system. address must be specified in IPv6 colon-separated-hexadecimal notation.

summary: Displays the number of LMA sessions currently active for LMA services configured on the system.

username name: Displays available session information for an existing user specified as an alphanumeric string of 1 through 127 characters.

statistics [ lma-service name ]

lma-service name: Displays LMA service statistics for an existing LMA service specified as an alphanumeric string of 1 through 63 characters.

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the grep and more commands, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines

Use this command to view configuration information for LMA services on this system.
Examples

The following command displays service statistics for the LMA service named *lma1*:

```
show lma-service name lma1
```
show lns-service

Displays the information for all L2TP Network Server (LNS) services or for a particular LNS service.

**Product**
- PDSN
- HA
- GGSN

**Privilege**
- Security Administrator, Administrator, Operator, Inspector

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show lns-service { all | name service_name } | { grep grep_options | more }
```

- **all**
  - Display information for all LNS services.

- **name service_name**
  - Displays information only for an existing LNS service specified as an alphanumeric string of 1 through 63 characters.

  ```
  | { grep grep_options | more }
  ```

  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to list information for LNS services configured on this system.

**Examples**

The following commands display information for all LNS services and the LNS service named `lns1`, respectively.

- `show lns-service all`
- `show lns-service name lns1`
show local-policy

Displays information pertaining to local QoS policy services.

**Product**

P-GW

SAEGW

**Privilege**

Security Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

**Syntax Description**

show local-policy statistics { all | service service_name | summary } | { grep grep_options | more }

- **statistics { all | service service_name | summary }**
  - Display statistics pertaining to local QoS services.
  - **all**: Displays information for all local QoS services.
  - **service service_name**: Displays statistics only for an existing local QoS service specified as an alphanumeric string of 1 through 64 characters.
  - **summary**: Displays summarized statistics all local QoS services.

- **| { grep grep_options | more }**
  - Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
  - For details on the usage of **grep** and **more**, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to display statistics for local QoS policies on this system.

**Examples**

The following command displays statistics for the local QoS policy named *sample1*.

```
show local-policy statistics service sample1
```
show local-user

Displays information pertaining to local-user accounts.

**Product**
All

**Privilege**
Security Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

[local] **host_name**#

**Syntax Description**

```
show local-user [ [username name] [inactive filter] [verbose | wide] [statistics | verbose] ]
```

**username name**
Displays information for an existing local-user administrative account specified as an alphanumeric string of 3 through 16 characters that is case sensitive. If a username is not specified, information is displayed for all local users.

**inactive filter**
Specifies a filter for displaying inactive local-user accounts:

- `<days>`: Displays accounts that have been inactive less than the specified number of days.
- `>`: Displays accounts that have been inactive more than the specified number of days.
- **greater-than** `days`: Displays accounts that have been inactive more than the specified number of days.
- **less-than** `days`: Displays accounts that have been inactive less than the specified number of days.

`days` can be configured to an integer from 1 through 365.

[ | verbose | wide |]

Specifies how the information is to be displayed as one of the following options:

- **verbose**: The data is displayed in list format. Additional information is provided beyond what is displayed when the `wide` option is used.
- **wide**: The data is displayed in tabular format. This is the default setting.
statistics [ verbose ]
Displays local-user statistics.
Using the verbose keyword displays additional statistics.

Usage Guidelines
Use this command to display information and statistics on local-user administrative accounts.

Examples
The following command displays detailed information on local-user administrative accounts that have been inactive for more than 10 days:
show local-user inactive greater-than 10 verbose
The following command displays detailed information for a local-user account named Test:
show local-user username Test verbose
The following command displays detailed local-user account statistics:
show local-user statistics verbose

Important
Output descriptions for commands are available in the Statistics and Counters Reference.
show location-service

Displays information and statistics for all location services or for a specific location service.

**Product**
- MME
- SGSN

**Privilege**
- Security Administrator, Administrator, Operator, Inspector

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name# 
```

**Syntax Description**

```
show location-service { service { all | name service_name } | statistics { all | service service_name } } | { grep grep_options | more }
```

- `show location-service { service { all | name service_name } }`:
  - Display configuration information pertaining to location services.
  - `all`: Displays information for all location services.
  - `name service_name`: Displays information only for an existing location service specified as an alphanumeric string of 1 through 63 characters.

- `show location-service { statistics { all | service service_name } }`:
  - Display statistics pertaining to location services.
  - `all`: Displays statistics for all location services.
  - `name service_name`: Displays statistics only for an existing location service specified as an alphanumeric string of 1 through 64 characters.

- `| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.
Usage Guidelines

Use this command to list configuration information and statistics for location services configured on this system.

Examples

The following commands display information for all location services and the location service named location_service1, respectively.

show location-service service all
show location-service service name location_service1

The following command displays statistics for the location service named location_service1.

show location-service statistics service location_service1
show logging

Displays the defined logging filters for the current context.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show logging [ active | verbose ] [ | { grep grep_options | more } ]
```

- **active | verbose**
- **active**: Displays only active CLI logging filter information in concise format.
- **verbose**: Displays as much information as possible.

```
| { grep grep_options | more } 
```

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of `grep` and `more`, refer to the *Regulating a Command’s Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

View log filters to troubleshoot disk utilization issues.

**Examples**

```
show logging
show logging active
show logging verbose
show logging active verbose
```
show logical-port utilization table

Displays logical port (VLAN and NPU) utilization for a specified interface port.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

show logical port utilization table  slot/port  [vlan { 5-minute | hourly } ]  [ | { grep grep_options | more } ]

slot/port

Specifies the port for which logical-port statistics will be displayed. The slot and port must refer to an installed card and port.

vlan { 5-minute | hourly }

Displays only active VLAN information for the specified collection interval.

• 5-minute: Displays 5-minute utilization intervals for the past 24 hours.

• hourly: Displays hourly utilization intervals for the past 24 hours.

| { grep grep_options | more } |

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines

View logical port (VLAN) statistics for 5-minute intervals on port 17/1.

Examples

show logical-port utilization table 17/1 vlan 5-minute
show logs

Displays active and inactive logs filtered by the options specified.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

[local] *host_name*#

**Syntax Description**

```
show logs [ active ] [ inactive ] [ callid call_id ] [ event-verbosity evt_verboseness ] [ facility facility ] [ level severity_level ] [ pdu-data pdu_format ] [ pdu-verbosity pdu_verboseness ] [ proclet facility ] [ since from_date_time [ until to_date_time ] ] [ grep grep_options | more ]
```

**active**

Displays data from active logs.

**inactive**

Displays data from inactive logs.

**callid call_id**

Displays log information only for a call ID specified as a 4-digit hexadecimal number.

**event-verbosity evt_verboseness**

Specifies the level of verboseness to use in displaying of event data as one of:

- **min** - displays minimal information about the event. Information includes event name, facility, event ID, severity level, date, and time.
- **concise** - displays detailed information about the event, but does not provide the event source within the system.
- **full** - displays detailed information about event, including source information, identifying where within the system the event was generated.
facility facility

Specifies the facility to modify the filtering of logged information for as one of:

- **a10**: A10 interface facility
- **a11**: A11 interface facility
- **a11mgr**: A11 Manager facility
- **aaa-client**: Authentication, Authorization and Accounting (AAA) client facility
- **aaamgr**: AAA manager logging facility
- **aaaproxy**: AAA Proxy facility
- **aal2**: ATM Adaptation Layer 2 (AAL2) protocol logging facility
- **acl-log**: Access Control List (ACL) logging facility
- **acscrl**: Active Charging Service (ACS) Controller facility
- **acsmgr**: ACS Manager facility
- **afctrl**: Fabric Controller facility [ASR 5500 only]
- **afmgr**: Fabric Manager logging facility [ASR 5500 only]
- **alarmctrl**: Alarm Controller facility
- **alcap**: Access Link Control Application Part (ALCAP) protocol logging facility
- **alcapmgr**: ALCAP manager logging facility
- **all**: All facilities
- **asngwmgm**: Access Service Network (ASN) Gateway Manager facility
- **asnpemgr**: ASN Paging Controller Manager facility
- **bfd**: Bidirectional Forwarding Detection (BFD) protocol logging facility
- **bgp**: Border Gateway Protocol (BGP) facility
- **bindmux**: IPCF BindMux-Demux Manager logging facility
- **bngmgr**: Broadband Network Gateway (BNG) Demux Manager logging facility
- **bssap+**: Base Station Sub-system Application Part+ protocol facility for the login interface between the SGSN and the MSC/VLR (2.5G and 3G)
- **bssgp**: Base Station Sub-system GPRS Protocol logging facility handles exchange information between the SGSN and the BSS (2.5G only)
- **callhome**: Call Home application logging facility
- **cap**: CAMEL Application Part (CAP) logging facility for protocol used in prepaid applications (2.5G and 3G)
- **cbsmgr**: Cell Broadcasting Service (CBS) logging facility [HNBGW]
- **cdf**: Charging Data Function (CDF) logging facility
- **cgw**: Converged Access Gateway (CGW) logging facility
• **cli**: Command Line Interface (CLI) logging facility
• **cmp**: Certificate Management Protocol (IPSec) logging facility
• **connectedapps**: SecGW ASR 9000 oneP communication protocol
• **conproxy**: Controller Proxy logging facility
• **credit-control**: Credit Control (CC) facility
• **csp**: Card/Slot/Port controller facility
• **css**: Content Service Selection (CSS) facility
• **css-sig**: CSS RADIUS Signaling facility
• **cx-diameter**: Cx Diameter Messages facility [CSCF <-- HSS]
• **data-mgr**: Data Manager Framework logging facility
• **dcardctrl**: IPSec Daughter Card Controller logging facility
• **dcardmgr**: IPSec Daughter Card Manager logging facility
• **demuxmgr**: Demux Manager API facility
• **dgmbmgr**: Diameter Gmb Application Manager logging facility
• **dhcp**: Dynamic Host Configuration Protocol (DHCP) logging facility
• **dhcpv6**: DHCPv6
• **dhost**: Distributed Host logging facility
• **diabase**: Diabase messages facility
• **diactrl**: Diameter Controller proclet logging facility
• **diameter**: Diameter endpoint logging facility
• **diameter-acct**: Diameter Accounting
• **diameter-auth**: Diameter Authentication
• **diameter-dns**: Diameter DNS subsystem
• **diameter-ecs**: ACS Diameter signaling facility
• **diameter-engine**: Diameter version2 engine logging facility
• **diameter-hdd**: Diameter Horizontal Directional Drilling (HDD) Interface facility
• **diameter-svc**: Diameter Service
• **diamproxy**: DiamProxy logging facility
• **dpath**: IPSec Data Path facility
• **drvctrl**: Driver Controller facility
• **dpath**: IPSec Data Path logging facility
• **drvctrl**: Driver Controller logging facility
• **doulosuemgr**: Doulos (IMS-IPSec-Tool) user equipment manager
- **eap-diameter**: Extensible Authentication Protocol (EAP) IP Security facility
- **eap-ipsec**: Extensible Authentication Protocol (EAP) IPSec facility
- **eap-sta-s6a-s13-s6b-diameter**: EAP/STA/S6A/S13/S6B Diameter messages facility
- **ecs-css**: ACSMGR <-> Session Manager Signalling Interface facility
- **egtpc**: eGTP-C logging facility
- **egtpmgr**: enhanced GPRS Tunneling Protocol (eGTP) manager logging facility
- **egtpu**: eGTP-U logging facility
- **embms**: evolved Multimedia Broadcast Multicast Services Gateway facility
- **smbms**: eMBMS Gateway Demux facility
- **epdg**: evolved Packet Data (ePDG) gateway logging facility
- **event-notif**: Event Notification Interface logging facility
- **evlog**: Event log facility
- **famgr**: Foreign Agent manager logging facility
- **firewall**: Firewall logging facility
- **fng**: Femto Network Gateway (FNG) logging facility
- **gbmgr**: SGSN Gb Interface Manager facility
- **gmm**:
  - For 2.5G: Logs the GPRS Mobility Management (GMM) layer (above LLC layer)
  - For 3G: Logs the access application layer (above the RANAP layer)
- **gprs-app**: GPRS Application logging facility
- **gprs-ns**: GPRS Network Service Protocol (layer between SGSN and the BSS) logging facility
- **gq-rx-tx-diameter**: Gq/Rx/Tx Diameter messages facility
- **gss-gcdr**: GTPP Storage Server GCDR facility
- **gtpe**: GTP-C protocol logging facility
- **gtpcmgr**: GTP-C protocol manager logging facility
- **gtpp**: GTP-prime protocol logging facility
- **gtpu**: GTP-U protocol logging facility
- **gtpumgr**: GTP-U Demux manager
- **gx-ty-diameter**: Gx/Ty Diameter messages facility
- **gy-diameter**: Gy Diameter messages facility
- **h248prt**: H.248 port manager facility
- **hamgr**: Home Agent manager logging facility
- **hat**: High Availability Task (HAT) process facility
• **hdctrl**: HD Controller logging facility
• **henbapp**: Home Evolved NodeB (HENB) App facility
• **henbgw**: HENB-GW facility
• **henbgw-pws**: HENB-GW Public Warning System logging facility
• **henbgw-sctp-acs**: HENB-GW access Stream Control Transmission Protocol (SCTP) facility
• **henbgw-sctp-nw**: HENBGW network SCTP facility
• **henbgwdemux**: HENB-GW Demux facility
• **henbgwmgmr**: HENB-GW Manager facility
• **hnb-gw**: HNB-GW (3G Femto GW) logging facility
• **hnbmgmr**: HNB-GW Demux Manager logging facility
• **hss-peer-service**: Home Subscriber Server (HSS) Peer Service facility
• **igmp**: Internet Group Management Protocol (IGMP)
• **ikev2**: Internet Key Exchange version 2 (IKEv2)
• **ims-authoriztn**: IP Multimedia Subsystem (IMS) Authorization Service facility
• **ims-sh**: HSS Diameter Sh Interface Service facility
• **imsimgr**: SGSN IMSI Manager facility
• **imsue**: IMS User Equipment (IMSUE) facility
• **ip-arp**: IP Address Resolution Protocol facility
• **ip-interface**: IP interface facility
• **ip-route**: IP route facility
• **ipms**: Intelligent Packet Monitoring System (IPMS) logging facility
• **ipne**: IP Network Enabler (IPNE) facility
• **ipsec**: IP Security logging facility
• **ipsecdemux**: IPSec demux logging facility
• **ips**: IP Service Gateway interface logging facility
• **ipsgmgr**: IP Services Gateway facility
• **ipsp**: IP Pool Sharing Protocol logging facility
• **kvstore**: Key/Value Store (KVSTORE) Store facility
• **l2tp-control**: Layer 2 Tunneling Protocol (L2TP) control logging facility
• **l2tp-data**: L2TP data logging facility
• **l2tpdemux**: L2TP Demux Manager logging facility
• **l2tpmgr**: L2TP Manager logging facility
• **lagmgr**: Link Aggregation Group (LAG) manager logging facility
- **lcs**: Location Services (LCS) logging facility
- **ldap**: Lightweight Directory Access Protocol (LDAP) messages logging facility
- **li**: Refer to the *Lawful Intercept Configuration Guide* for a description of this command.
- **linkmgr**: SGSN/BSS SS7 Link Manager logging facility (2.5G only)
- **llc**: Logical Link Control (LLC) Protocol logging facility; for SGSN: logs the LLC layer between the GMM and the BSSGP layers for logical links between the MS and the SGSN
- **local-policy**: Local Policy Service facility
- **location-service**: Location Services facility
- **m3ua**: M3UA Protocol logging facility
- **magmgr**: Mobile Access Gateway manager logging facility
- **map**: Mobile Application Part (MAP) protocol logging facility
- **megadiammgr**: MegaDiameter Manager (SLF Service) logging facility
- **mme-app**: Mobility Management Entity (MME) Application logging facility
- **mme-misc**: MME miscellaneous logging facility
- **mmedemux**: MME Demux Manager logging facility
- **mmemgr**: MME Manager facility
- **mmgr**: Master Manager logging facility
- **mobile-ip**: Mobile IP processes
- **mobile-ip-data**: Mobile IP data facility
- **mobile-ipv6**: Mobile IPv6 logging facility
- **mpls**: Multiprotocol Label Switching (MPLS) protocol logging facility
- **mrmr**: Multi Radio Mobility Entity (MRME) logging facility
- **mseg-app**: Mobile Services Edge Gateway (MSEG) application logging facility (This option is not supported in this release.)
- **mseg-gtcp**: MSEG GTP-C application logging facility (This option is not supported in this release.)
- **mseg-gtpu**: MSEG GTP-U application logging facility (This option is not supported in this release.)
- **msegmgr**: MSEG Demux Manager logging facility (This option is not supported in this release.)
- **mtp2**: Message Transfer Part 2 (MTP2) Service logging facility
- **mtp3**: Message Transfer Part 3 (MTP3) Protocol logging facility
- **multicast-proxy**: Multicast Proxy logging facility
- **nas**: Non-Access Stratum (NAS) protocol logging facility [MME 4G]
- **netwstrg**: Network Storage facility
- **npuctrl**: Network Processor Unit Control facility
- **npudrv**: Network Processor Unit Driver facility [ASR 5500 only]
- `npumgr`: Network Processor Unit Manager facility
- `npumgr-acl`: NPUMGR ACL logging facility
- `npumgr-driv`: NPUMGR DRV logging facility
- `npumgr-flow`: NPUMGR FLOW logging facility
- `npumgr-fwd`: NPUMGR FWD logging facility
- `npumgr-init`: NPUMGR INIT logging facility
- `npumgr-lc`: NPUMGR LC logging facility
- `npumgr-port`: NPUMGR PORT logging facility
- `npumgr-recovery`: NPUMGR RECOVERY logging facility
- `npumgr-rrri`: NPUMGR RRI (Reverse Route Injection) logging facility
- `npumgr-vpn`: NPUMGR VPN logging facility
- `npusim`: NPUSIM logging facility [ASR 5500 only]
- `ntfy-intf`: Notification Interface logging facility [Release 12.0 and earlier versions only]
- `orbs`: Object Request Broker System logging facility
- `ospf`: OSPF protocol logging facility
- `ospfv3`: OSPFv3 protocol logging facility
- `p2p`: Peer-to-Peer Detection logging facility
- `pagingmgr`: PAGINGMGR logging facility
- `pccmgr`: Intelligent Policy Control Function (IPCF) Policy Charging and Control (PCC) Manager library
- `pdg`: Packet Data Gateway (PDG) logging facility
- `pdgdmg`: PDG Demux Manager logging facility
- `pdif`: Packet Data Interworking Function (PDIF) logging facility
- `pgw`: Packet Data Network Gateway (PGW) logging facility
- `pmm-app`: Packet Mobility Management (PMM) application logging facility
- `pp`: Point-To-Point Protocol (PPP) link and packet facilities
- `ppoe`: PPP over Ethernet logging facility
- `proclet-map-frwk`: Proclet mapping framework logging facility
- `push`: VPNMGR CDR push logging facility
- `radius-acct`: RADIUS accounting logging facility
- `radius-auth`: RADIUS authentication logging facility
- `radius-coa`: RADIUS change of authorization and radius disconnect
- `ranap`: Radio Access Network Application Part (RANAP) Protocol facility logging info flow between SGSN and RNS (3G)
• **rect**: Recovery Control Task logging facility
• **rdt**: Redirect Task logging facility
• **resmgr**: Resource Manager logging facility
• **rf-diameter**: Diameter Rf interface messages facility
• **rip**: Routing Information Protocol (RIP) logging facility [RIP is not supported at this time.]
• **rlf**: Rate Limiting Function (RLF) logging facility
• **rohc**: Robust Header Compression (RoHC) facility
• **rsvp**: Reservation Protocol logging facility
• **rua**: RANAP User Adaptation (RUA) [3G Femto GW - RUA messages] logging facility
• **s102**: S102 protocol logging facility
• **s102mgr**: S102Mgr logging facility
• **s1ap**: S1 Application Protocol (S1AP) Protocol logging facility
• **sabp**: Service Area Broadcast Protocol (SABP) logging facility
• **saegw**: System Architecture Evolution (SAE) Gateway facility
• **sbc**: SBc protocol logging facility
• **scep**: Signalling Connection Control Part (SCCP) Protocol logging (connection-oriented messages between RANAP and TCAP layers).
• **sct**: Shared Configuration Task logging facility
• **sctp**: Stream Control Transmission Protocol (SCTP) Protocol logging facility
• **sef_ees**: Severely Errored Frames (SEF) APIs printing facility
• **sess-gr**: SM GR facility
• **sessctrl**: Session Controller logging facility
• **sessmgr**: Session Manager logging facility
• **sesstrc**: session trace logging facility
• **sft**: Switch Fabric Task logging facility
• **sgs**: SGs interface protocol logging facility
• **sgsn-app**: SGSN-APP logging various SGSN “glue” interfaces (for example, between PMM, MAP, GPRS-FSM, SMS).
• **sgsn-failures**: SGSN call failures (attach/activate rejects) logging facility (2.5G)
• **sgsn-gtpc**: SGSN GTP-C Protocol logging control messages between the SGSN and the GGSN
• **sgsn-gtpu**: SGSN GTP-U Protocol logging user data messages between the SGSN and GGSN
• **sgsn-mbms-bearer**: SGSN Multimedia Broadcast/Multicast Service (MBMS) Bearer app (SMGR) logging facility
• **sgsn-misc**: Used by stack manager to log binding and removing between layers
• **sgsn-system**: SGSN System Components logging facility (used infrequently)
• **sgsn-test**: SGSN Tests logging facility; used infrequently
• **sgtpcmgr**: SGSN GTP-C Manager logging information exchange through SGTPC and the GGSN
• **sgw**: Serving Gateway facility
• **sh-diameter**: Sh Diameter messages facility
• **sitmain**: System Initialization Task main logging facility
• **sls**: Service Level Specification (SLS) protocol logging facility
• **sm-app**: SM Protocol logging facility
• **sms**: Short Message Service (SMS) logging messages between the MS and the SMSC
• **sndep**: Sub Network Dependent Convergence Protocol (SNDCP) logging facility
• **snmp**: SNMP logging facility
• **sprmgr**: IPCF Subscriber Policy Register (SPR) manager logging facility
• **srdb**: Static Rating Database
• **srp**: Service Redundancy Protocol (SRP) logging facility
• **sscfnni**: Service-Specific Coordination Function for Signaling at the Network Node Interface (SSCF-NNI) logging facility
• **sscop**: Service-Specific Connection-Oriented Protocol (SSCOP) logging facility
• **ssh-ipsec**: Secure Shell (SSH) IP Security logging facility
• **ssl**: Secure Socket Layer (SSL) message logging facility
• **stat**: Statistics logging facility
• **supserv**: Supplementary Services logging facility [H.323]
• **system**: System logging facility
• **tacacsplus**: TACACS+ Protocol logging facility
• **tcap**: TCAP Protocol logging facility
• **testctrl**: Test Controller logging facility
• **testmgr**: Test Manager logging facility
• **threshold**: threshold logging facility
• **ttg**: Tunnel Termination Gateway (TTG) logging facility
• **tucl**: TCP/UDP Convergence Layer (TUCL) logging facility
• **udr**: User Data Record (UDR) facility (used with the Charging Service)
• **user-data**: User data logging facility
• **user-i3tunnel**: User Layer 3 tunnel logging facility
• **usertcp-stack**: User TCP Stack
• **vim**: Voice Instant Messaging (VIM) logging facility
• **vinfo**: VINFO logging facility
• **vmgctrl**: Virtual Media Gateway (VMG) controller facility
• **vmgctrl**: VMG Content Manager facility
• **vpn**: Virtual Private Network logging facility
• **wimax-data**: WiMAX DATA
• **wimax-r6**: WiMAX R6
• **wsg**: Wireless Security Gateway (ASR 9000 Security Gateway)
• **x2gw-app**: X2GW (X2 proxy Gateway, eNodeB) application logging facility
• **x2gw-demux**: X2GW demux task logging facility

**level severity_level**

**level severity_level**: Specifies the level of information to be logged from the following list which is ordered from highest to lowest:

• **critical** - display critical events
• **error** - display error events and all events with a higher severity level
• **warning** - display warning events and all events with a higher severity level
• **unusual** - display unusual events and all events with a higher severity level
• **info** - display info events and all events with a higher severity level
• **trace** - display trace events and all events with a higher severity level
• **debug** - display all events

**pdu-data pdu_format**

Specifies output format for the display of packet data units as one of:

• **none** - output is in raw format (unformatted).
• **hex** - output being displayed in hexadecimal format.
• **hex-ascii** - output being displayed in hexadecimal and ASCII similar to a main-frame dump.

**pdu-verbosity pdu_verboseness**

Specifies the level of verboseness to use in displaying of packet data units as an integer from 1 through 5, where 5 is the most detailed.

**proclet facility**

Shows the logs from a specific proclet facility. The available facilities are the same as those listed earlier.

**since from_date_time [ until to_date_time ]**

Default: no limit.
since from_date_time: indicates only the log information which has been collected more recently than from_date_time is to be displayed.

until to_date_time: indicates no log information more recent than to_date_time is to be displayed. until defaults to current time when omitted.

from_date_time and to_date_time must be formatted as YYYY:MM:DD:HH:mm or YYYY:MM:DD:HH:mm:ss. Where:

- YYYY = 4-digit year
- MM = 2-digit month in the range 01 through 12
- DD = 2-digit day in the range 01 through 31
- HH = 2-digit hour in the range 00 through 23
- mm = 2-digit minute in the range 00 through 59
- ss = 2-digit second in the range 00 through 59

to_date_time must be a time which is more recent than from_date_time.

The use of the until keyword allows for a time range of log information while only using the since keyword will display all information up to the current time.

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines

View log files for general maintenance or troubleshooting system issues.

Examples

The following command displays log information for the allmgr facility starting with July 1th, 2011 at midnight.

show logs facility allmgr since 2011:07:11:00:00

The following command displays the log information for call ID FE881D32 only in active logs.

show logs active callid FE881D32
show lte-policy

Displays information for Long term Evolution (LTE) policy configurations on this system including congestion action profiles, handover restriction lists, paging maps, paging profiles, subscriber maps, and tracking area identifiers (TAIs).

**Product**
- HeNBGW
- MME
- SAEGW
- S-GW

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#`

**Syntax Description**
```bash
show lte-policy { cause-code-group { name group_name | summary } | congestion-action-profile { name congest_profile_name | summary } | foreign-plmn-guti-mgmt-db { name db_name | summary } | henbgw { mme-pool { name mme_pool_name | summary } | qci-dscp-mapping-table { name table_name | summary } | overload-control | s1-reset | session-recovery } | ho-restriction-list { name ho_list_name | summary } | lte-emergency-profile { name emer_profile_name | summary } | mme { henbgw mgmt-db { name henbgw_mgmtdb_name | summary } | paging cache parameters | paging-map { name page_map_name | summary } | paging-profile { name page_profile_name | summary } } | peer-map { name sub_map_name | summary } | subscriber-map { name sub_map_name | summary } | tai-list-db { name tai_list_name summary } | tai-mgmt-db { name tai_name | tai-mgmt-obj name obj_name | tai-custom-list tac cstm_tac_value | summary } } | grep grep_options | more }
```

cause-code-group { name group_name | summary }
This MME-specific keyword displays information about the Cause Code Groups configured on this system.

name group_name: Displays information about a specific cause code group configured on this system.
group_name must be an existing cause code group, expressed as an alphanumeric string of 1 to 16 characters.

summary: Displays summarized information about all cause code groups configured on this system.

congestion-action-profile { name congest_profile_name | summary }
Displays information about MME congesting action profiles configured on this system.
**name profile_name**: Displays information about a specific congestion action profile configured on this system. 

*profile_name* must be an existing HO restriction list, expressed as an alphanumeric string of 1 to 64 characters.

**summary**: Displays summarized information about all congestion action profiles configured on this system.

---

**foreign-plmn-guti-mgmt-db { name db_name | summary }**

This MME-specific keyword displays information about LTE Foreign PLMN GUTI management databases configured on this system.

**name db_name**: Displays information about a specific management database configured on this system. 

*db_name* must be an existing management database, expressed as an alphanumeric string of 1 to 64 characters.

**summary**: Displays summarized information about all Foreign PLMN GUTI management databases configured on this system.

---

**henbgw { mme-pool { name mme_pool_name | summary } | qci-dscp-mapping-table { name table_name | summary } | overload-control | session-recovery }**

This HeNBGW keyword displays information about HeNBGW configured on this system.

**mme-pool** shows mme pool.

**name mme_pool_name**: Displays detailed information about specified MME Pool configured on this system. 

*mme_pool_name* must be an existing management database, expressed as an alphanumeric string of 1 to 63 characters.

**summary**: Displays summarized information about MME Pool configured on this system.

**qci-dscp-mapping-table** shows qci-dscp-mapping-table information.

**name table_name**: Displays information for specific qci-dscp-mapping-table. 

*table_name* must be qci-dscp-mapping-table expressed as an alphanumeric string of 1 to 63 characters.

**summary**: Displays summary of all qci-dscp-mapping-table.

**overload-control**: Displays information about overload control.

**s1-reset**: Displays information about s1 reset.

**session-recovery** shows session recovery information.

---

**ho-restriction-list { name list_name | summary }**

Displays information about handover restriction lists configured on this system.

**name ho_list_name**: Displays information about a specific handover restriction list configured on this system. 

*name* must be an existing HO restriction list, expressed as an alphanumeric string of 1 to 64 characters.

**summary**: Displays summarized information about all handover restriction lists configured on this system.

---

**lte-emergency-profile { name emer_profile_name | summary }**

Displays information about LTE emergency profiles configured on this system.

**name emer_profile_name**: Displays information about a specific LTE emergency profile configured on this system. 

*emer_profile_name* must be an existing LTE emergency profile, expressed as an alphanumeric string of 1 to 64 characters.

**summary**: Displays summarized information about all LTE emergency profiles configured on this system.
mme paging cache parameters
Displays the configured MME paging cache timeout and MME paging cache size configured with the mme paging cache command in the LTE Policy configuration mode.

paging-map { name page_map_name | summary }
Displays information about LTE paging maps configured on this system.
name page_map_name: Displays information about an existing LTE paging map specified as an alphanumeric string of 1 through 64 characters.
summary: Displays summarized information about all LTE paging maps configured on this system.

paging-profile { name page_profile_name | summary }
Displays information about LTE paging profiles configured on this system.
name page_profile_name: Displays information about an existing LTE paging profile specified as an alphanumeric string of 1 through 64 characters.
summary: Displays summarized information about all LTE paging profiles configured on this system.

peer-map { name name | summary }
Displays information about peer maps configured on this system.
name map_name: Displays information about an existing peer map specified as an alphanumeric string of 1 through 64 characters.
summary: Displays summarized information about all peer maps configured on this system.

subscriber-map { name name | summary }
Displays information about subscriber maps configured on this system.
name sub_map_name: Displays information about an existing subscriber map specified as an alphanumeric string of 1 through 64 characters.
summary: Displays summarized information about all subscriber maps configured on this system.

tai-list-db { name tai_list_name | summary }
Displays information about TAI list databases configured on this system
name tai_list_name: Displays information about specified TAI list database as an alphanumeric string of 1 through 64 characters.
summary: Displays summarized information about specified TAI list databases configured on this system.

tai-mgmt-db { name name [ tai-mgmt-obj name obj_name | tai-custom-list tac cstm_tac_value ] | summary }
Displays information about TAI management databases configured on this system.
name tai_name: Displays information about an existing TAI management database specified as an alphanumeric string of 1 through 64 characters.
tai-mgmt-obj name obj_name : Filters the information by the specified TAI Management Object name, where obj_name is a string from 1 through 64 characters.
tai-custom-list tac cstm_tac_value : Filters the information by the specified Custom TAI List TAC, where cstm_tac_value is an integer from 0 through 65535.

summary: Displays summarized information about all TAI management databases configured on this system.

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the grep and more commands, refer to the Regulating a Command's Output section in CLI Overview chapter.

Usage Guidelines

Use this command to display information for LTE policy configurations on this system including congestion action profiles, handover restriction lists, paging maps, paging profiles, subscriber maps, and tracking area identifiers (TAIs).

Examples

The following command displays information about a subscriber map named map3:

show lte-policy subscriber-map name map3

Important

Output descriptions for commands are available in the Statistics and Counters Reference.
show lte-policy
Exec Mode show Commands (M-P)

The Exec Mode is the initial entry point into the command line interface system. Exec mode show commands are useful in troubleshooting and basic system monitoring.

This section includes the commands show mag-service through show ps-network statistics.

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Important

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

- show mag-service, page 1290
- show map-service, page 1293
- show map statistics, page 1294
- show maximum-temperatures, page 1295
- show mbms bearer-service, page 1296
- show mipfa, page 1298
- show mipha, page 1301
- show mipv6ha, page 1304
- show mme-embms-service, page 1306
- show mme-hss session, page 1308
- show mme-service, page 1310
- show mme-service db record, page 1312
- show mme-service db statistics, page 1314
- show mme-service enodeb-association, page 1315
• show mme-service id, page 1317
• show mme-service session, page 1319
• show mme-service statistics, page 1322
• show module, page 1325
• show mpls cross-connect, page 1326
• show mpls ftn, page 1327
• show mpls ilm, page 1328
• show mpls ldp, page 1330
• show mpls next-hop-label-forwarding-entry, page 1332
• show mrme-service, page 1333
• show mrme-service active-session, page 1334
• show mrme-service imsi-sticky, page 1335
• show mrme-service mac-sticky, page 1336
• show mseg-config, page 1337
• show mseg-service, page 1338
• show multicast-sessions, page 1339
• show network-requested-pdp-context, page 1342
• show network-service-entity, page 1343
• show npu arp, page 1344
• show npu error-counters, page 1345
• show npu tm, page 1346
• show npu utilization, page 1348
• show ntp, page 1349
• show nw-reachability server, page 1351
• show operator-policy, page 1353
• show orbem, page 1355
• show patch progress, page 1357
• show pcc-af service, page 1358
• show pcc-af session, page 1360
• show pcc-policy service, page 1362
• show pcc-policy session, page 1364
• show pcc-service, page 1366
• show pcc-service session, page 1368
• show pcc-service statistics, page 1370
• show pcc-sp-endpoint, page 1372
• show pcc-sp-endpoint connection, page 1374
• show pdg-service, page 1376
• show pdg-service statistics, page 1377
• show pdif-service, page 1378
• show pdn-connection-count, page 1380
• show pdsn-service, page 1381
• show pdsnclosedrp-service, page 1383
• show peer-profile, page 1384
• show pgw-service, page 1386
• show pilot-packet statistics, page 1388
• show plugin, page 1389
• show port, page 1390
• show power, page 1392
• show ppp, page 1394
• show prepaid3gpp2, page 1396
• show prepaid wimax, page 1398
• show profile-id-qci-mapping, page 1400
• show ps-network, page 1401
• show ps-network counters, page 1403
• show ps-network statistics, page 1405
show mag-service

Displays statistic and counter information for Mobile Access Gateway (MAG) services on this system.

<table>
<thead>
<tr>
<th>Product</th>
<th>HSGW</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S-GW</td>
</tr>
</tbody>
</table>

| Privilege | Inspector |

<table>
<thead>
<tr>
<th>Command Modes</th>
<th>Exec</th>
</tr>
</thead>
</table>

The following prompt is displayed in the Exec mode:

```
[local]host_name# 
```

<table>
<thead>
<tr>
<th>Syntax Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>show mag-service { all</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Syntax Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>all: Displays information for all configured MAG services on this system.</td>
</tr>
<tr>
<td>name service_name: Displays configuration information for a specific MAG service configured on this system.</td>
</tr>
<tr>
<td>session [ all</td>
</tr>
<tr>
<td>all: Displays all active MAG sessions using MAG services on the system.</td>
</tr>
<tr>
<td>callid id: Displays available session information for the specific call identification number.</td>
</tr>
<tr>
<td>id must be an 8-digit hexadecimal number.</td>
</tr>
<tr>
<td>counters: Displays counters for all MAG services on the system. This keyword can also be filtered by the following:</td>
</tr>
<tr>
<td>• all</td>
</tr>
<tr>
<td>• callid</td>
</tr>
<tr>
<td>• ip-address</td>
</tr>
</tbody>
</table>
• msid
• summary
• username

Refer to the keyword descriptions in this command for information regarding these filters.

full: Displays additional session information for all active MAG sessions using MAG services on the system. This keyword includes the information in the output of the all keyword plus additional information. This keyword can also be filtered by the following:

• all
• callid
• ip-address
• msid
• summary
• username

Refer to the keyword descriptions in this command for information regarding these filters.

ip-address home_ip_address: Displays available session information for a specific home IPv4 or IPv6 address of a subscriber in a service session.

msid id: Displays available information for a specific mobile station identification number or group of numbers based on wildcard entry.

id must be a valid MSID number and can be a sequence of characters and/or wildcard characters ('$' and/or '*'). The * wildcard matches multiple characters and the $ wildcard matches a single character. If you do not want the wildcard characters interpreted as wildcard enclose them in single quotes ('). For example: '$'.

summary: Displays the number of MAG sessions currently active for MAG services configured on the system.

username name: Displays available session information for a specific user in a service session.

name must be followed by an existing user name expressed as an alphanumeric string of 1 through 127 characters.

statistics [ name service_name ]

name service_name: Displays MAG service statistics for an existing MAG service specified as an alphanumeric string of 1 through 63 characters.

| { grep grep_options | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the grep and more commands, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines

Use this command to view configuration information for MAG services on this system.
Examples

The following command displays service statistics for the MAG service named mag1:

```
show mag-service name mag1
```
show map-service

Displays information configured for the Mobile Application Part (MAP) services, including MAP service features and operational configuration. Also includes some related configuration information for the HLR and EIR configuration parameters.

**Product**  
SGSN

**Privilege**  
Security Administrator, Administrator, Operator, Inspector

**Command Modes**  
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**  
```
show map-service [ all | name srvc_name ] | | { grep grep_options | more } ]
```

- `name srvc_name`
  Specifies an existing MAP service as an alphanumeric string of 1 through 63 characters.

- `| | { grep grep_options | more }`
  Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**  
Use this command to display all MAP service or the statistics for a particular MAP service.

**Examples**  
The following command displays configuration information for the MAP service named `map-svc-1`:

```
show map-service name map-srv-1
```

**Important**  
Output descriptions for commands are available in the Statistics and Counters Reference.
show map statistics

Displays Mobile Application Part (MAP) statistics.

Product

SGSN

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show map statistics [ name srvc_name ] [ recovered-values ] [ [ grep grep_options | more ] ]

name srvc_name

Specifies an existing MAP service as an alphanumeric string of 1 through 63 characters.

recovered-values

Only displays recovered values for key KPI counters that were backed-up.

[ grep grep_options | more ]

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines

Use this command to display all MAP statistics or the statistics for a particular MAP service.

Examples

The following command displays statistics for the MAP service named map-svc-1:

show map statistics name map-svc-1

The following command displays combined statistics for all MAP services in the current context:

Important

Output descriptions for commands are available in the Statistics and Counters Reference.
show maximum-temperatures

Shows the maximum temperature reached by each card since the last temperature timestamp reset.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]\host_name#

Syntax Description

show maximum-temperatures [ verbose ] [ | { grep grep_options | more } ]

verbose

Indicates that the output is to contain detailed information.

| { grep grep_options | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines

Verify the maximum temperature reached by components in the chassis since the indicated timestamp.

Important

This command is not supported on all platforms.

Examples

show maximum-temperatures
show maximum-temperatures verbose
show mbms bearer-service

Displays configuration information for bearer services configured for the multimedia broadcast multicast service (MBMS) running on this system.

**Product**
- GGSN
- SGSN

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show mbms bearer-service [ all ] [ apn apn_name mcast-addr ip_address ] [ full ] [ instance instance_id ] [ service-type { broadcast | multicast } ] [ sgsn-sessions ] [ summary ] [ grep grep_options | more ]
```

**all**
Displays information on all bearer services configured on the system.

**apn apn_name mcast-addr ip_address**
Displays bearer service information of the MBMS for a specific Access Point Name (APN). *apn_name* is bound to a given BM-SC (Broadcast Multicast - Service Center) server address *ip_address*.

*apn_name* is the name of the APN expressed as an alphanumeric string of 1 through 62 characters that is case sensitive.

*ip_address* is the IP address of the BM-SC server in IPv4 dotted-decimal notation bound to the APN.

**full**
Displays full information for specific or all instances of bearer service in MBMS feature on system.

**instance instance_id**
Displays session information filtered for an instance of a bearer service running as an MBMS session and specified an integer from 1 through 64.
service-type \{ broadcast | multicast \}

Displays information for a specific type of service for MBMS.

broadcast: Specifies the MBMS service type as broadcast only.

multicast: Specifies the MBMS service type as multicast only.

sgsn-sessions

Displays summary information for all the SGSN multicast sessions.

summary

Displays summary information for specific or all instances of a bearer service.

| \{ grep grep_options | more \}

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of grep and more options, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to verify the configuration of one or all bearer services and active instances of bearer services under MBMS. It is also useful for monitoring or troubleshooting purposes.

If this command is executed from within the local context with the all keyword, information for all bearer service instances running under MBMS will be displayed.

**Examples**

The following command displays configuration information for all bearer service instances running on system:

```
show mbms bearer-service full all
```

---

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show mipfa

Displays information for specified Mobile IP Foreign Agent (MIP-FA) calls.

Product

PDSN
GGSN
ASN-GW

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show mipfa { counters | full | summary | all | callid call_id | msid ms_id | peer-address peer_address | reverse-tunnel { on | off } | username user_name | statistics fa-service fa_name | peer-address peer_address | greater-than peer_address | less-than peer_address | > peer_address | < peer_address | peers fa-service service_name | current-sessions { > sessions | < sessions | >= sessions | <= sessions } | peer-address peer_address | grep grep_options | more }

counters | full | summary

counters: Displayed output includes the statistical counters.
full: Displays detailed information.
summary: Displays only summary information. this is the default setting.

These options are not available in conjunction with the statistics keyword.

all | callid call_id | msid ms_id | peer-address peer_ip_address | reverse-tunnel { on | off } | username user_name

all: Displays all available information.
callid call_id: Displays information only for calls with the call ID specified as a 4-byte hexadecimal number.
msid ms_id: Displays information for a mobile subscriber ID expressed as a string from 7 to 16 digits for an IMSI, MIN, or RMI and/or characters $ and * for wildcard filter.

show mipfa msid 01234567$$
Shows any subscriber with an MSID that matches the upper 8 digits of the supplied MSID, such as 01234567, and any two digits at the remaining two places.

**peer-address peer_ip_address**: Displays information for the MIP call for the peer IP address specified using IPv4 dotted-decimal notation.

**reverse-tunnel { on | off }**: Enables the display of reverse IP tunnel information.

**username user_name**: Displays MIP call user information for the username specified as an alphanumeric string of 1 through 127 characters that may include wildcard characters ($ and *).

**statistics | fa-service fa_name | peer-address | peer_address | greater-than peer_address | less-than peer_address | > peer_address | < peer_address**

Displays information for the foreign agent service specified by name or peer IP address.

**fa-service fa_name** must be an alphanumeric string of 1 through 63 characters.

**peer-address peer_address** must be specified using IPv4 dotted-decimal notation.

**greater-than peer_address**: Specifies the range of IPv4 addresses greater than peer_address.

**less-than peer_address**: Specifies the range of IPv4 addresses less than peer_address.

> peer_address: Specifies the range of IPv4 addresses greater than peer_address.

< peer_address: Specifies the range of IPv4 addresses less than peer_address.

**peer-address | operator | peer_address**

In conjunction with the **mipfa [summary | peer-address** keyword, indicates a range of peers is to be displayed.

**peer-address | operator | peer_address** must be specified using IPv4 dotted-decimal notation.

**operator** implies how to logically specify a range of peer-address and it must be one of the following:

- • <: IP address is less than the specified peer_address
- • >: IP address is greater than the specified peer_address
- • greater-than: IP address is greater than the specified peer_address
- • less-than: IP address is less than the specified peer_address

**peers fa-service service_name | current-sessions { { > | greater-than } sessions | < sessions } | { < | less-than } sessions | > sessions | < sessions | peer-address peer_address**

Displays peer servers for the specified FA service.

**fa-service service_name**: Specifies the name of an existing FA service for which the associated peer servers are to be displayed as an alphanumeric string of 1 through 63 characters.

**current-sessions**: Displays only peer servers with current sessions meeting the following criteria:

- • > | greater-than sessions: Displays only peer servers currently running sessions higher than the value entered in this parameter. sessions must be an integer from 1 to 3000000. **Note**: the keyword "greater-than" and the ">" symbol are interchangeable in this instance of the command.
- • < sessions: Displays only peer servers that are currently running sessions less than the greater-than parameter but less than the value entered in this parameter. sessions must be an integer from 1 to 3000000.
• `<` sessions: Displays only peer servers currently running sessions lower than the value entered in this parameter. `sessions` must be an integer from 1 to 3000000. **Note:** the keyword "less-than" and the "<" symbol are interchangeable in this instance of the command.

• `>` sessions: Displays only peer servers that are currently running sessions lower than the **less-than** parameter but more than the value entered in this parameter. `sessions` must be an integer from 1 to 3000000.

• `sessions`: Displays only peer servers currently running sessions that are equal to the value entered in this parameter. `sessions` must be an integer from 1 to 3000000.

**peer-address** address: Displays only peer servers matching the IP address entered in this parameter. `address` must be specified using IPv4 dotted-decimal notation and can be followed by the netmask of the address.

```
| { grep grep_options | more }
```

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command’s Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

View MIP foreign agent information to support troubleshooting subscriber issues by viewing call information and filtering on the subscriber information using various methods.

**Examples**

The following displays the call information for all mobile IP FA calls and statistics for `fa1`, respectively:

```
show mipfa all
```

The following command displays the statistics for the foreign agent service `fa1`:

```
show mipfa statistics fa-service fa1
```

The following commands displays call information for user `user6@aaa` in full detail and in summary:

```
show mipfa full username user6@aaa
show mipfa summary username user1
```

The following displays MIP FA call information for calls from mobile subscriber `4412345678` and peer address `10.2.3.4`, respectively:

```
show mipfa msid 4412345678 4412345678
show mipfa peer-address 10.2.3.4
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference.*
show mipha

Displays information for specified Mobile IP Home Agent (MIP-HA) calls.

**Product**

HA

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name# 
```

**Syntax Description**

```
show mipha { [ [ counters | full | summary ] [ { all | callid call_id | imsi imsi_num | ip-address ip_addr | msid msid_num | peer-address | operator | peer_address | reverse-tunnel { on | off } | username user_name ] | statistics [ ha-service ha_name | peer-address peer_address | peer_address peer_address ] ] | peers ha-service service_name [ current-sessions { { > | greater-than } sessions | < sessions } | { < | less-than } sessions | > sessions ] | sessions ] | [ peer-address address ] } [ | { grep grep_options | more } ]
```

**counters | full | summary**

Default: concise output.

**counters**: Displayed output includes the statistical counters.

**full**: Displays detailed information.

**summary**: Displays only summary information.

These options are not available in conjunction with the statistics keyword.

**msid msid_num**

Displays information for the subscriber with the supplied MSID on HA.

**msid msid_num** specifies a mobile subscriber ID for which information is to be displayed. *ms_id* must be from 7 to 16 digits for an IMSI, MIN, or RMI and /or characters $ and * for wildcard filtering.

If **enforce imsi-min equivalence** is enabled on the chassis and MIN or IMSI numbers are supplied, this keyword/ filter will show subscribers with a corresponding MSID (MIN or IMSI) whose lower 10 digits matches the lower 10 digits of the supplied MSID.

**show mipha msid ABCD0123456789 or**

**show mipha msid 0123456789**

Shows any subscriber with a MSID that match the lower 10 digits of MSID supplied, such as 0123456789.
show mipha

**show mipha msid 01234567$$**

Shows any subscriber with a MSID that match the upper 8 digits of the supplied MSID, such as 01234567 and any two digits at the remaining two places.

**all | callid call_id | imsi imsi_num | ip-address ip_addr | msid msid_num | peer-address [ operator ] peer_address | reverse-tunnel { on | off } | username user_name**

**all:** Displays all available information.

**callid call_id:** Displays information only for calls with the call ID specified as a 4-byte hexadecimal number.

**imsi imsi_num:** Specifies an IMSI (international mobile subscriber ID) for which information is to be displayed. The IMSI is a 15-character field which identifies the subscriber's home country and carrier.

**ip-address ip_addr:** Displays statistics for a call with the IP address specified in IPv4 dotted-decimal notation.

**msid msid_num:** Specifies a mobile subscriber ID only for which information is to be displayed. *ms_id* must be from 7 to 16 digits specified as an IMSI, MIN, or RMI.

**peer-address peer_address:** Displays statistical information for the peer IP address specified using IPv4 dotted-decimal notation.

**reverse-tunnel { on | off }:** Enables the display of reverse IP tunnel information.

**username user_name:** Displays user MIP call information for the username specified as an alphanumeric string of 1 through 127 characters including wildcard characters ($ and *)

**peer-address [ operator ] peer_address**

In conjunction with **mipha [ summary ] peer-address** keyword, indicates a range of peers is to be displayed. *peer_address* must be specified using IPv4 dotted-decimal notation.

**operator** implies how to logically specify a range of peer-addresses and it must be one of the following:

- • *<:* IP address is less than the specified *peer_address*
- • *>:* IP address is greater than the specified *peer_address*
- • *greater-than:* IP address is greater than the specified *peer_address*
- • *less-than:* IP address is less than the specified *peer_address*

**statistics [ ha-service ha_name | peer-address peer_address ]**

Displays statistical information for the home agent service specified by its name (an alphanumeric string of 1 through 63 characters) or peer IP address (IPv4 notation).

**peers ha-service service_name [ current-sessions { { > | greater-than } sessions | < sessions } | { < | less-than } sessions | > sessions | | sessions } ] [ peer-address address ]**

Displays peer servers for the specified HA service.

**ha-service service_name:** Specifies the name of an existing HA service for which the associated peer servers are to be displayed as an alphanumeric string of 1 through 63 characters.

**current-sessions:** Displays only peer servers with current sessions meeting the following criteria:
show mipha

- > | greater-than sessions: Displays only peer servers currently running sessions higher than the value entered in this parameter. sessions must be an integer from 1 to 3000000. **Note:** the keyword "greater-than" and the ">" symbol are interchangeable in this instance of the command.

- < | less-than sessions: Displays only peer servers currently running sessions higher than the **greater-than** parameter but less than the value entered in this parameter. sessions must be an integer from 1 to 3000000.

- = | less-than sessions: Displays only peer servers currently running sessions lower than the value entered in this parameter. sessions must be an integer from 1 to 3000000. **Note:** the keyword "less-than" and the "<" symbol are interchangeable in this instance of the command.

- > | greater-than sessions: Displays only peer servers that are currently running sessions lower than the **less-than** parameter but more than the value entered in this parameter. sessions must be an integer from 1 to 3000000.

- sessions: Displays only peer servers currently running sessions that are equal to the value entered in this parameter. sessions must be an integer from 1 to 3000000.

**peer-address address:** Displays only peer servers matching the IP address entered in this parameter. address must be specified using IPv4 dotted-decimal notation and can be followed by the netmask of the address.

| { grep grep_options | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

View MIP home agent information to support troubleshooting subscriber issues by viewing call information and filtering on the subscriber information using various methods.

**Examples**

The following displays the call information for all mobile IP HA calls and statistics for ha1, respectively:

`show mipha all`

`show mipha statistics ha-service ha1`

The following commands displays call information for user ispluser1 in full detail and in summary:

`show mipha full username ispluser1`

`show mipha summary username ispluser1`

The following displays MIP-HA call information for calls from mobile subscribers with reverse tunneling off and peer address 10.2.3.4, respectively:

`show mipha reverse-tunnel off`

`show mipha peer-address 10.2.3.4`

**Important**

Output descriptions for commands are available in the Statistics and Counters Reference.
show mipv6ha

Displays information for specified Mobile IPv6 Home Agent (MIPv6-HA) calls.

Product
PDSN
HA

Privilege
Security Administrator, Administrator, Operator, Inspector

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description
show mipv6ha [all | callid callid | counters filter | full filter | ipv6-address ip_addr| statistics mipv6ha-service mipv6ha-service_name | summary filter | username user_name ]

all
Displays all information for MIPv6-HA calls.

callid call_id
Specifies the Call Identification number as an 8-digit hexadecimal number.

counters [ all | callid | ipv6-address | username ]
Displays the counters associated with the MIPv6-HA service. The following filters are available:

• all
• callid:
• ipv6-address
• username

full [ all | callid | ipv6-address | username ]
Displays all available information for the associated display or filter keyword.
The following filters are available:

• all
- callid:
- ipv6-address
- username

**ipv6-address** ip_addr
Displays information for subscribers connected via the packet control function for a specific or range of IPv6 addresses. The address must be specified using the IPv6 colon-separated-hexadecimal notation.

- <: Filters output so that only information less than the specified IPv6 address value is displayed.
- >: Filters output so that only information greater than the specified IPv6 address value is displayed.
- **less-than**: Filters output so that only information less than the specified IPv6 address value is displayed.
- **greater-than**: Filters output so that only information greater than the specified IPv6 address value is displayed.

**statistics** [ mipv6ha-service mipv6ha-service_name ]
Displays all information collected for specific protocol since last the **restart** or **clear** command.
This can be filtered according to a specified **mipv6ha-service**.

**summary** [ all | callid | ipv6-address | username ]
Displays summary information for defined sessions, based on defined parameters.
The following filters are available:

- all
- callid:
  - ipv6-address
  - username

**username** user_name
Displays session information for a specific username.

**Usage Guidelines**
View MIPv6 home agent information to support troubleshooting subscriber issues by viewing call information and filtering on the subscriber information using various methods.

**Examples**
The following displays the call information for all mobile IPv6 HA calls:

```
show mipv6ha all
```

The following command displays call information for user **mipv6hauser1** in full detail and in summary:

```
show mipv6ha full username mipv6hauser1
```

**Important**
Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show mme-embms-service

Displays configuration information for MME-eMBMS services on this system. MME-eMBMS is the LTE version of Multimedia Broadcast/Multicast Service (eMBMS) on the Cisco Mobility Management Entity (MME).

Product MME

Privilege Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show mme-embms-service { all | all-session-info [ summary ] | m3ap statistics { all | verbose | name mme_embms_service_name } | mce-association { all | summary } | full | name mme_embms_service_name [ summary ] | path-info { all | name mme_embms_service_name } } | mce-session-association { plmn-id mcc mnc mnc mce-id mce_id | tmgi-service-id tmgi_serv_id | mbms-flow-id mbms_flow_id | | name mme_embms_service_name | setp statistics { all | name mme_embms_service_name } }

mme_embms_service_name

Identifies the name of a specific MME-eMBMS service. The name comprises a string of 1 to 63 alphanumeric characters.

all

Lists all configured MME-eMBMS service instances on the system and displays upper-level service information for each of the services.

all-session-info [ summary ]

Lists all active eMBMS sessions currently being handled by the MMEmgr. Optionally, the display can provide a summary of eMBMS information for each session.

m3ap statistics { all | verbose | name }

Displays all M3AP statistics available for the MME or displays the M3AP statistics for the named "active" MME-eMBMS service. With the all keyword, the command output is used to clarify status of MBMS sessions with the following counters in the output:

• MBMS Session Start Request
• MBMS Session Start Response
• MBMS Session Start Response Failure

mce-association { all | full | name | path-info }
Displays peer MCE associations for either all eMBMS services or specifically for the named eMBMS service. Filters are included in the CLI to control the level of detail in the output.
When the mce-association and path-info keywords are used together, the output displays path information for the MCEs associated with either all or only with the named MME-eMBMS service(s).

mce-session-association { plmn-id mcc mcc mnc mnc mce-id mce_id | tmgi-service-id tmgi_service_id mbms-flow-id mbms_flow_id }
Displays the MCE session associations for either
• a specific carrier, identified by the PLMN ID
• specific session attributes, such as Temporary Mobile Group Identity (TMGI) and/or Flow Identifier

name mme_embms_service_name { summary }
Displays the configuration for the named eMBMS service.

sctp statistics { all | name mme_embms_service_name }
Displays SCTP statistics for all or named "active" eMBMS service(s)

| { grep grep_options | more }
Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.
For details on the usage of the grep and more commands, refer to the Regulating a Command's Output section in the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to view configuration information for MME-eMBMS services on this system and to monitor status of the MCE associations and sessions.

Examples
The following command displays MCE session information filtered by the TMGI 42949672:
show mme-embms-service mce-session-association tmgi-service-id 42949672
show mme-hss session

Displays session information of Mobility Management Entity-Home Subscriber Server (MME-HSS) service(s) running on a peer or local system.

**Product**
MME

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name# 
```

**Syntax Description**

```
show mme-hss session [ summary | full | all | call-id call_identifier | mdn mdn_string | nai nai_string | [ verbose | | | grep grep_options | more ] ]
```

**summary**
This keyword displays the summarized output of this command.

**full**
This keyword displays detailed output of this command.

**all**
This keyword displays information of all MME-HSS sessions running on this system.

**call-id call_identifier**
Displays summarized or detailed statistics of MME-HSS sessions running and filtered by the call identifier with an MME-HSS service configured on this system.

*call_identifier* must an existing call identity in eight character Hex digit format running on an MME service on system.

**mdn mdn_string**
Displays summarized or detailed statistics of MME-HSS sessions running and filtered by mobile directory Number (MDN) with an MME-HSS service configured on this system.

*mdn_string* must be an alphanumeric string of 1 to 100 characters.
nai \textit{nai\_string}

Displays summarized or detailed statistics of MME-HSS sessions running and filtered by Network Access Identifier (NAI) with an MME service configured on this system.

\textit{nai\_string} must be an alphanumeric string of 1 to 128 characters.

\textbf{verbose}

This keyword displays the comprehensive information of specific or set of arguments.

\textbf{\{ grep \textit{grep\_options} \mid more \}}

This argument searches the output of the root command and selects the lines matching one or more patterns/options. The types of patterns are controlled by the options specified with \textit{grep\_options}.

For details on the usage of the \texttt{grep} and \texttt{more} commands, refer to the Regulating a Command's Output section in CLI Overview chapter of the Command Line Interface Reference.

\textbf{Usage Guidelines}

Use this command to view detailed or summarized session statistics of MME-HSS sessions running on MME-HSS services on a system. This command also provides the various filter criteria to display the session statistics.

\textbf{Examples}

The following command displays information of all MME-HSS sessions of MME-HSS services running on a system:

\begin{verbatim}
show mme-hss session all
\end{verbatim}

\begin{verbatim}
Important
Output descriptions for commands are available in the \textit{Statistics and Counters Reference}.
\end{verbatim}

The following command displays summarized session information of all MME-HSS sessions running on a system:

\begin{verbatim}
show mme-hss session summary all
\end{verbatim}
show mme-service

Displays configuration information for Mobility Management Entity (MME) services on this system.

**Product**
MME

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show mme-service { all | name svc_name | offload statistics | } | | { grep grep_options | more } |
```

- **all**
  Displays configuration information for all MME services configured on this system.

- **name service_name**
  Displays configuration information for an existing MME service specified as an alphanumeric string of 1 through 63 characters.

- **offload statistics**
  Displays configuration information for the MME load rebalancing feature (UE offload), as well as current statistics about any active offloading processes.
  This keyword option is only available in Release 14.0 and higher.

  | { grep grep_options | more } |

  Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

  For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

**Usage Guidelines**
Use this command to view configuration information for MME services on this system.
Examples

The following command displays service statistics for the MME service named *mme1*:

```
show mme-service name mme1
```

Important

Output descriptions for these commands are available in the *Statistics and Counters Reference*. 
show mme-service db record

Displays the Mobile Management Entity (MME) database records for MME sessions grouped in session instances on this system and filtered with IMSI or GUTI as criteria.

Product

MME

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show mme-service db record { all | call-id call_id | guti plmn plmn_id group-id mme_grp_id code mme_code m-tmsi mtmsi_value | imsi imsi_identifier }

all
Displays all database records of a session instance used for MME service.

call-id call_id
Displays database records filtered by the call ID specified as an 8-digit hexadecimal number

guti plmn plmn_id group-id mme_grp_id code mme_code m-tmsi mtmsi_value
Displays database records filtered by the Globally Unique Temporary Identifier (GUTI). The GUTI is constructed from the GUMMEI and the M-TMSI.
The GUMMEI is constructed from the public land mobile network (PLMN) ID [MMC and MNC] and the MME Group ID (MMEGI). Within the MME, the mobile is identified by the M-TMSI.
A GUTI has: 1) a unique identity for the MME which allocated the GUTI; and 2) the unique identity of the UE within the MME that allocated the GUTI.
The MME Identifier (MMEI) is constructed from an MME Group ID (MMEGI) and an MME Code (MMEC).

imsi imsi_identifier
Displays database records filtered by International Mobile Subscriber Identity (IMSI).

imsi_identifier is a 15-character IMSI field which identifies the subscriber's home country and carrier. Wildcard characters $ and * are allowed. The * wildcard matches multiple characters and the $ wildcard matches a
Usage Guidelines  Use this command to view database records for all or a particular instance of session manager for MME services on this system with IMSI or GUTI as a filter criteria.

Examples  The following command displays the summary database records of a session instance for a subscriber having IMSI as 123455432112345 in the MME service:
show mme-service db record imsi 123455432112345

Important  Output descriptions for these commands are available in the Statistics and Counters Reference.
show mme-service db statistics

This command displays the Mobile Management Entity (MME) database statistics for all or specific MME sessions on this system.

**Product**
MME

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show mme-service db statistics [ instance smgr_instance ]
```

*instance smgr_instance*
Displays MME database statistics for a specific instance of a session manager running the MME service. *smgr_instance* is an instance ID specified as an integer from 0 through 4294967295. If an instance is not specified, summary statistics are displayed.

**Usage Guidelines**
Use this command to view database statistics for all or a particular instance of session manager for MME services on this system.

**Examples**
The following command displays summary database statistics for the MME service running on a system:

```
show mme-service db statistics
```

**Important**
Output descriptions for these commands are available in the *Statistics and Counters Reference*. 
**show mme-service enodeb-association**

Displays configuration information for an eNodeB association within an MME service.

**Product**
MME

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show mme-service enodeb-association [summary | full | wfl | path-info | wfl | all | enodeb-name enodeb_name | henbgw | ipsec | mme-service-name mme_svc_name | peer-address peer_ip_address | peer-id peer_identifier | | { grep grep_options | more } ]
```

**summary**
Displays summarized output for this command.

**full**
Displays detailed output for this command.

**wfl**
Displays output in a tabular format.

**path-info**
Displays S1 path association information of eNodeBs associated with MME services on this system.

**all**
Displays information of all eNodeBs associated with MME services on this system.

**enodeb-name enodeb_name**
Displays information for the specified eNodeB associated with MME services on this system.
henbgw
Displays information for Home eNodeB Gateways (HeNB-GWs) associated with MME services on this system.
In Release 20.0, HeNBGW is not supported. This keyword must not be used in Release 20.0. For more information, contact your Cisco account representative.

ipsec
Displays information of all IPSec enabled eNodeBs associated with MME services on this system.

mme-service-name mme_svc_name
Displays summarized or detailed configuration information for eNodeBs associated with an existing MME service specified as an alphanumeric string of 1 through 63 characters.

peer-address peer_ip_address
Displays summarized or detailed configuration information of eNodeBs associated with an existing MME peer IP address configured with an MME service and expressed in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

peer-id peer_identifier
Displays summarized or detailed configuration information for eNodeBs associated with an existing MME peer ID configured with an MME service and specified as an integer from 1 through 4294967295.

| { grep grep_options | more }
Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.
For details on the usage of the grep and more commands, refer to the Regulating a Command's Output section in the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to view configuration information of eNodeBs associated with an MME service on this system.

Examples
The following command displays detailed service statistics for associated eNodeBs within the MME service named ingress:
show mme-service enodeb-association full mme-service-name ingress

Important
Output descriptions for commands are available in the Statistics and Counters Reference.
show mme-service id

This command displays the current number of MME-assigned and eNodeB-assigned S1AP session IDs.

Product: MME

Privilege: Inspector

Command Modes: Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description:

show mme-service id summary [service-name name | sessmgr instance] | [peer-id id | sessmgr instance] | {grep grep_options | more}]

id summary
Displays the current number of MME-assigned and eNodeB-assigned S1AP session IDs.

service-name name
Filters the output of the command by for an existing MME service name specified as an alphanumeric string of 1 through 63 characters.

peer-id id
Filters the output of the command by a MME peer identifier specified as an integer from 1 through 4294967295.

sessmgr instance
Filters the output of the command by the specified session manager instance as an integer from 1 through 4294967295.

| {grep grep_options | more}

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the grep and more commands, refer to the Regulating a Command's Output section in the Command Line Interface Overview chapter.
Usage Guidelines

Use this command to display the current number of MME-assigned and eNodeB-assigned S1AP session IDs.
show mme-service session

Displays session information for Mobile Management Entity (MME) service(s) running on a peer or local system.

**Product**
MME

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show mme-service session [ summary | full | counters ] [ all | callid call_identifier | imei imei_id | imsi imsi_id | ipsec | mme-service service_name | msisdn number | pdn-address pdn_ip_address | s1-peer s1_peer_ip_address | s11-peer s11_peer_ip_address | vlr-name vlr_name | ue-ecm-state { connected | idle | | | { grep grep_options | more } ]
```

- **summary**
  Displays summarized output for this command.

- **full**
  Displays detailed output for this command.

- **counters**
  Displays all counters for related events and messages for an MME session running on a system.

- **all**
  Displays information for all MME sessions running on this system.

- **callid call_identifier**
  Displays summarized or detailed configuration information for an MME session filtered by a call identifier within an MME service configured on this system.

  The `call_identifier` must be an existing call identity in 8-digit hexadecimal format running in an MME service on this system.
imei imei_id
Displays summarized or detailed configuration information about MME sessions running and filtered by an International Mobile Equipment Identification (IMEI) number within an MME service configured on this system.

imei_id must be an existing IMEI in an existing MME service on the system. imei_id must contain an 8-digit TAC (Type Allocation Code) and a 6-digit SNR (Serial Number).

imsi imsi_id
Displays summarized or detailed configuration information about MME sessions running and filtered by an International Mobile Subscriber Identity (IMSI) number within an MME service configured on the system.

imsi_id must be an existing IMSI in an existing MME service on the system. imsi_id is a 15-character IMSI field which identifies the subscriber's home country and carrier.

Wildcard characters $ and * are allowed. The * wildcard matches multiple characters and the $ wildcard matches a single character. If you do not want the wildcard characters interpreted as a wildcard enclose them in single quotes ('). For example; '$'.

ipsec
Displays information for all IPSec enabled sessions using MME services on the system.

mme-service service_name
Displays summarized or detailed configuration information about MME sessions running and filtered by an MME service name configured on the system.

service_name must be a configured MME service on the system, expressed as an alphanumeric string of 1 through 63 characters.

msisdn number
Displays summarized or detailed configuration information about MME sessions running and filtered by a Mobile Station International ISDN Number.

number must be a combination of the CC (Country Code) and National (significant) mobile number, not exceeding 15 digits.

pdn-address pdn_ip_address
Displays summarized or detailed configuration information about MME sessions running and filtered by the IP address of a connected PDN(s) within an MME service configured on this system.

pdn_ip_address must be a configured IP address of a PDN expressed in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation within an existing MME service on the system.

s1-peer s1_peer_ip_address
Displays summarized or detailed configuration information of MME sessions running and filtered by the IP address of a peer connected through an S1 interface within an MME service configured on this system.

s1_peer_ip_address must be a configured IP address of a peer on S1 interface expressed in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation within an existing MME service on this system.
**s11-peer s11_peer_ip_address**

Displays summarized or detailed configuration information of MME sessions running and filtered by IP address of a peer connected through S11 interface with an MME service configured on this system.

*s11_peer_ip_address* must be a configured IP address of a peer on S11 interface expressed in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation within an existing MME service on this system.

**vlr-name vlr_name**

Displays summarized or detailed configuration information of MME sessions running and filtered by Visitor Location Register (VLR) name.

*vlr_name* must be an alphanumeric string of 1 through 63 characters.

**ue-ecm-state { connected | idle }**

Displays summarized or detailed configuration information about MME sessions running and filtered by the UE's EPS Connected Management (ECM) state.

*connected*: Specifies that summarized or detailed configuration information about MME sessions is to be displayed based on the UE ECM state of "connected".

*idle*: Specifies that summarized or detailed configuration information about MME sessions is to be displayed based on the UE ECM state of "idle".

| | { grep grep_options | more } |

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the *grep* and *more* commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

### Usage Guidelines

Use this command to view information for MME sessions within MME services on this system.

### Examples

The following command displays detailed session statistics for an MME service running on this system:
```
show mme-service session full
```

**Important**

Output descriptions for these commands are available in the *Statistics and Counters Reference*.

The following command displays detailed session counters for an MME service running on this system:
```
show mme-service session counters
```
show mme-service statistics

This command displays MME service statistics specified by various criteria.

<table>
<thead>
<tr>
<th>Product</th>
<th>MME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Privilege</td>
<td>Security Administrator, Administrator</td>
</tr>
<tr>
<td>Command Modes</td>
<td>Exec</td>
</tr>
<tr>
<td>The following prompt is displayed in the Exec mode:</td>
<td>[local] host_name#</td>
</tr>
</tbody>
</table>

**Syntax Description**

```
show mme-service statistics [emm-only | esm-only | handover | mme-service mme_svc_name | emm-only | esm-only | handover | s1ap | sctp | peer-id peer_identifier | emm-only | esm-only | handover | s1ap | sctp | recovered-values | s1ap | sctp | tai taidb db_name mcc mcc mnc mnc tac tac | verbose | | | grep grep_options | more ]
```

- **emm-only**
  Displays only EPS mobility management (EMM) related statistics, or filters EMM statistics for a specific MME service name or a specific eNodeB association peer identifier.

- **esm-only**
  Displays only EPS session management (ESM) related statistics, or filters ESM statistics for a specific MME service name or a specific eNodeB association peer identifier.

- **handover**
  Displays only handover related statistics (such as Intra-MME, EUTRAN<>EUTRAN via S10, EUTRAN<>UTRAN via GnGp, EUTRAN<>GERAN via GnGp, and EUTRAN<>UTRAN via S3), or filters handover statistics for a specific MME service name or a specific eNodeB association peer identifier.

- **mme-service mme_svc_name**
  Displays MME service statistics for only the specified MME service name.

- **peer-id peer_identifier**
  Displays MME service statistics for only the specified eNodeB association peer identifier.
recovered-values
Enables the display of recovered counter values if the backup and recovery of statistics has been enabled. This keyword can be combined with the emm-only, the esm-only, or the peer-id options. For details on this feature, refer to the Backup and Recovery of Key KPI Statistics feature chapter in the MME Administration Guide.

s1ap
Displays only S1-AP related statistics, or filters S1-AP statistics for a specific MME service name or a specific eNodeB association peer identifier.

sctp
Displays only SCTP related statistics, or filters SCTP statistics for a specific MME service name or a specific eNodeB association peer identifier.

tai taidb db_name mcc mnc mcc mnc tac tac
Displays only TAI statistics stored for the specified TAI management database name and MCC/MNC/TAC.

Important For the MME to report TAI level statistics, you must first issue the MME Service Configuration Mode command: statistics collection-mode tai. Only those MME Services which are configured accordingly will provide TAI based statistics. When the collection-mode is configured to tai, the peer-id keyword will no longer report valid statistics (All values will be shown as ZERO).

Caution Changing this collection mode will restart the MME service and will clear all statistics at the MME service and eNodeB level.

verbose
Displays comprehensive information for a specific argument or set of arguments.

| { grep grep_options | more }
Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the grep and more commands, refer to the Regulating a Command’s Output section in the Command Line Interface Overview chapter.
show mme-service statistics

Usage Guidelines

This command is used to display the statistical information of MME services based on various filter criteria.

Examples

The following command displays all service statistics for all MME services on a system:

```
show mme-service statistics
```

The following command displays the service statistics of all MME services on a system related to S1-AP:

```
show mme-service statistics s1ap
```

The following command displays only EMM related statistics for the only the MME service named `ingress`:

```
show mme-service statistics mme-service ingress emm-only
```
**show module**

Displays the current status of the Version Priority List (VPL) for one or all plugin modules installed on the system. This command is associated with the dynamic software upgrade process.

**Product**

All

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show module [plugin_name]
```

**plugin_name**

Filters the output of the VPL by an existing plugin name expressed as an alphanumeric string of 1 through 16 characters.

**Usage Guidelines**

Display the priority, load status, location, installation timestamp and download status of one or all plugin modules. A plugin module is a shared object library that can be dynamically updated or rolled back. Refer to the *System Administration Guide* for additional information on dynamic software updates.

**Examples**

The following command displays the VPL status of all plugin modules currently installed on the system:

```
show module
```
show mpls cross-connect

Displays Multiprotocol Label Switching (MPLS) cross-connect information.

**Product**
GGSN

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show mpls cross-connect | (| grep grep_options | more ) |
```

| { grep grep_options | more } |

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

**Usage Guidelines**
This command displays MPLS cross-connect information. MPLS tunnel cross-connects between interfaces and Label-Switched Paths (LSPs) connect two distant interface circuits of the same type by creating MPLS tunnels that use LSPs as the conduit.

**Examples**
The following command displays MPLS cross-connect information:

```
show mpls cross-connect
```

---

**Important**
Output descriptions for these commands are available in the *Statistics and Counters Reference*. 

---
show mpls ftn

Displays MPLS FEC-to-NHLFE (FTN) table information.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show mpls ftn [vrf vrf_name] [|| {grep grep_options | more}]

vrf vrf_name

Displays FTN information for the Virtual Routing and Forwarding (VRF) specified as an alphanumeric string of 1 through 63 characters.

| {grep grep_options | more}

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the grep and more commands, refer to the Regulating a Command's Output section in the Command Line Interface Overview chapter.

Usage Guidelines

This command displays MPLS FEC (Forward Error Correction)-to-NHLFE (Next-Hop label Forwarding Entry) table information.

Examples

The following command displays MPLS FTN information:

show mpls ftn

Important

Output descriptions for these commands are available in the Statistics and Counters Reference.
## show mpls ilm

Displays MPLS Incoming Label Map (ILM) table information.

### Product

GGSN

### Privilege

Security Administrator, Administrator

### Command Modes

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name>
```

### Syntax Description

```
show mpls ilm | fec | label label_value | verbose | | { grep grep_options | more } }
```

- **fec**
  - Displays Forwarding Equivalency Class (FEC) information.

- **label label_value**
  - Displays MPLS ILM information for the specified label. label_value is an integer from 16 through 1048575.

- **verbose**
  - Displays detailed information for the MPLS ILM table.

- `{ grep grep_options | more }

  Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

  For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command’s Output* section in the *Command Line Interface Overview* chapter.

### Usage Guidelines

This command displays MPLS Incoming Label Map (ILM) table information.

### Examples

The following command displays information for MPLS ILM information:

```
show mpls ilm
```
Important

Output descriptions for these commands are available in the Statistics and Counters Reference.
show mpls ldp

Displays MPLS Label Distribution Protocol (LDP) information.

Product
GGSN

Privilege
Security Administrator, Administrator

Command Modes
Exec

The following prompt is displayed in the Exec mode:
[local]\host_name#

Syntax Description
show mpls ldp { bindings { ldp-id IPv4_add | local | ldp-id | local | prefix | remote } | prefix IPv4_addr | remote } | discovery | neighbor { detail | ldp-id } }

bindings
Displays the MPLS LDP label bindings.

ldp-id
Displays label values for a specific peer LDP ID.

local
Displays locally assigned label values.

prefix
Displays label values for a specific prefix.

remote
Displays remotely assigned label values.

discovery
Displays the MPLS LDP discovery information.

neighbor
Displays the MPLS LDP peer information.
detail
Displays the MPLS LDP peer information in details. The displayed information includes, Local LDP ID, Peer LDP ID, Transport address, State (for example, Established), Role (for example, Active), Uptime, Keepalive negotiated hold time, Proposed Local/Peer, Remaining Keepalive hold time, and Address advertised.

Usage Guidelines
This command displays statistical information for an MPLS Label Distribution Protocol configuration. The information includes Prefix, LDP ID, Label, Nexthop, and Egress_if_index for all MPLS LDP Bindings configurations.

Examples
The following command displays information about MPLS LDP protocol related configurations:
```
show mpls ldp discovery neighbor ldp-id 10.2.3.4 detail bindings ldp-id 31.33.34 prefix 192.168.102.232 local remote
```
The following command displays the MPLS LDP discovery information, including, LDP Peer IDs, Hold time (in seconds), Proposed Local/Peer, and Remaining (time in seconds):
```
show mpls ldp discovery
```
The following command displays the remotely assigned label values in the MPLS LDP binding configuration:
```
show mpls ldp bindings remote
```

Important
Output descriptions for these commands are available in the Statistics and Counters Reference.
show mpls nexthop-label-forwarding-entry

Displays MPLS Next-Hop Label Forwarding Entry (NHLFE) table information.

Product
GGSN

Privilege
Security Administrator, Administrator

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description
show mpls nexthop-label-forwarding-entry | { grep grep_options | more } |

| | { grep grep_options | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the grep and more commands, refer to the Regulating a Command’s Output section in the Command Line Interface Overview chapter.

Usage Guidelines
This command displays MPLS Next-Hop Label Forwarding Entry (NHLFE) table information.

Examples
The following command displays MPLS NHLFE information:

show mpls nexthop-label-forwarding-entry

Important
Output descriptions for these commands are available in the Statistics and Counters Reference.
show mrme-service

Displays configuration and/or statistical information for MRME services on this system.

**Product**
SaMOG

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Syntax Description**

```
show mrme-service { all | name name | statistics { all | verbose | dns-stats | name name | dns-stats } } |
{ grep grep_options | more }
```

- **all**
  Displays all MRME services.

- **name name**
  Displays information for specific MRME service name.
    
    `name` is a string of size 1 to 63.

- **statistics**
  Displays Node level Statistics for MRME.

- **verbose**
  Specifies Detailed statistics.

- **dns-stats**
  Specifies the information related to the DNS selection of P-GW.

  ```
  | { grep grep_options | more }
  ```

  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**
Use this command to displays configuration and/or statistical information for MRME services on this system.

**Examples**

```
show mrme-service all
```
show mrme-service active-session

Displays configuration and statistical information of the data stored in the active session entry (if present) of the specified User Equipment's (UE) MAC address.

Product
SaMOG

Privilege
Security Administrator, Administrator, Operator, Inspector

Syntax Description
show mrme-service active-session mac mac_address || { grep grep_options | more } ||

mac mac_address
Specifies the MAC address.
mac_address must be an alpha-numeric string of 1 to 15 characters and should not be separated by a colon or hyphen.

|| { grep grep_options | more } ||
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to display the configuration and statistical information of the data stored in the active session entry (if present) of the specified User Equipment's (UE) MAC address.

Examples
show mrme-service active-session mac 001d33227310
show mrme-service imsi-sticky

Displays configuration and statistical information of the IMSI to session manager mapping (if available) in the mapping table of the IPSG manager.

**Product**
SaMOG

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Syntax Description**

```
show mrme-service imsi-sticky imsi imsi_value | { grep grep_options | more }
```

- `imsi imsi_value`
  Specifies the International Mobile Subscriber Identity (IMSI) value.
  `imsi_value` must be an integer from 1 to 15 digits.

  ```
  | { grep grep_options | more }
  ```
  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
  For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to display configuration and statistical information of the IMSI to session manager mapping (if available) in the mapping table of the IPSG manager.

**Examples**

```
show mrme-service imsi-sticky imsi 123456789 all
```
show mrme-service mac-sticky

Displays configuration and statistical information of the User Equipment (UE) MAC address to IMSI mapping (if available) in the mapping table of the IPSG manager.

Product
SaMOG

Privilege
Security Administrator, Administrator, Operator, Inspector

Syntax Description
show mrme-service mac-sticky mac  mac_address  [ | { grep grep_options | more } ]

mac  mac_address
Specifies the MAC address.
mac_address must be an alpha-numeric string of 1 to 15 characters and should not be separated by a colon or hyphen.

| { grep grep_options | more } |
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to display the configuration and statistical information of the User Equipment (UE) MAC address to IMSI mapping (if available) in the mapping table of the IPSG manager.

Examples
show mrme-service mac-sticky mac 001d33227310
show mseg-config

This command is not supported in this release.
show mseg-service

This command is not supported in this release.
show multicast-sessions

Displays information for multicast sessions defined by the specified keywords.

Product
- PDSN
- GGSN

Privilege
- Security Administrator, Administrator, Operator, Inspector

Command Modes
- Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show multicast-sessions [ command_keyword ] [ filter_keywords ] | | { grep grep_options | more }

command_keyword
The following keywords are base commands that each have a distinct display output. Only one keyword can entered on the command line.

debug-info { callid id | flowid id }
Displays internal call troubleshooting information for multicast sessions defined by the specified keywords.
callid id: Displays subscriber information for the call specified as an 8-digit hexadecimal number.
flowid id: Displays information for a specific BCMCS flow, defined by The flow ID as a hexadecimal number.

full
Displays all available multicast session information. The following filter keywords are valid for this command:
active, all, callid, card-num, dormant, flowid, flowid-type, mcast-address, pcf, pdsn-service, grep, more

summary
Only displays a summary of multicast session information. The following commands are valid for this command:
active, all, callid, card-num, dormant, flowid, flowid-type, mcast-address, pcf, pdsn-service, grep, more

filter_keywords
The following keywords are filters that modify or filter the output of the Command Keywords. Not all filters are available for all Command Keywords. Multiple Filter Keywords can be entered on a command line.
When multiple Filter Keywords are specified, the output conforms to all of the Filter Keywords specifications.

active
Only displays information for multicast sessions that are currently active.

all
If no keywords are specified before all, information for all multicast sessions is displayed. If keywords are specified before all, all information is displayed with no further options being allowed.

callid id
Displays multicast session information for the call specified by id. The call must be specified as an 8-digit hexadecimal number.

card-num card_num
The slot number of the processing card by which the subscriber session is processed. card_num is a slot number from 1 through 7 or 10 through 16 on the ASR 5000, or 1 through 4 or 7 through 10 on the ASR 5500.

dormant
Shows information for subscriber sessions that are dormant (not transmitting or receiving data).

flowid id
Displays information for a specific BCMCS flow, defined by id. The flow ID must be a hexadecimal number.

flowid-type [ flow | program ]
Displays information for multicast sessions according to the type of flow.

flow: Shows all multicast sessions for the flow ID type "flow".
program: Shows all multicast sessions for the flow ID type "program".

mcast-address ipv4_address
Show multicast sessions for a specific multicast address. Must be followed by the IP address of an interface, using IPv4 dotted-decimal notation.

pcf ipv4_address
Displays information for multicast sessions connected via the packet control function, defined by ipv4_address. The address must be specified using IPv4 dotted-decimal notation.

pdsn-service svc_name
Displays information for multicast session connected to the packet data service svc_name. The packet data service must have been previously configured and expressed as an alphanumeric string of 1 through 63 characters.
| { grep grep_options | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

Please refer to the *Regulating a Command’s Output* section in the *Command Line Interface Overview* chapter for details on the usage of `grep` and `more`.

**Usage Guidelines**

Use this command to view information about multicast sessions.

The output of this command may be considered for part of a periodic system auditing program by verifying active and dormant sessions.

**Examples**

The following command displays the all broadcast-multicast sessions active in a context/system:

```
show multicast-sessions all
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show network-requested-pdp-context

Displays information for the specified network-requested packet data protocol (PDP) context.

Product  GGSN

Privilege  Security Administrator, Administrator, Operator, Inspector

Command Modes  Exec

The following prompt is displayed in the Exec mode:

[local] host_name$

Syntax Description  show network-requested-pdp-context ims1 ims1_value

ims1 ims1_value

Specifies that information will be displayed for a particular International Mobile Subscriber Identity (IMSI).

ims1_value is an integer from 1 to 15 digits.

Usage Guidelines  Use this command to display information pertaining to network-requested PDP contexts.

Examples  The following command displays network-requested PDP context information for a subscriber with an IMSI of 123456789:

show network-requested-pdp-context ims1 123456789
show network-service-entity

Displays information regarding the network service entities (NSEs) in the network.

**Product**
SGSN

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show network-service-entity { consolidated-status | fr-config | peer-nsei nsei | ip-config | nsvl { all | instance value } }
```

- **consolidated-status**
  Displays Network Service Virtual Connection (NSVC) status information for all network service entities in the network. This keyword is particularly useful for troubleshooting.

- **fr-config [ peer-nsei nsei ]**
  Displays network service configurations for NSEs using Frame Relay configurations.
  `peer-nsei nsei` limits the display to a specific peer NSE identified as an integer from 0 through 65535.

- **ip-config [ nsvl { all | instance value } ]**
  Displays network service configurations for NSEs using IP configurations.
  Including the `nsvl` keyword limits the display to all or a single (instance 0 to 3) of a network service virtual link.

**Usage Guidelines**

Use this command to display NSE information pertaining to the NSVCs of the NSEs in the networks or NSEs configured for Frame Relay or IP.

**Examples**

The following command displays the status of all the NSVCs for all the NSEs in the network.

```
show network-service-entity consolidated-status
```
show npu arp

Displays an Address Resolution Protocol (ARP) for a specified VPN identifier.

Product
ASR 5000 only

Privilege
Security Administrator, Administrator, Operator, Inspector

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description
show npu arp lookup vpnid identifier nexthop ip_address slot slot_number

identifier
Specifies a valid VPN identifier as an integer from 0 through 2114.

nexthop ip_address
Specifies a valid nexthop IP address in IPv4 dotted decimal or IPv6 colon-separated-hexadecimal notation.

slot slot_number
Specifies the slot number of the card for which the lookup is being form. slot is one of the following integers: 1, 2, 8 or 9.

Usage Guidelines
Use this command to perform an aRP lookup of a valid VPNid.

Examples
The following command displays ARP lookup information for VPN 234:

show npu arp lookup vpnid 234 nexthop 10.1.1.1 slot 8
show npu error-counters

Displays packet error counters.

**Product**

ASR 5000 only

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show npu error-counters | { grep grep_options | more }
```

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

View network timing protocol information to troubleshooting system clock issues by displaying the associations and status of the local NTP client.

**Examples**

The following displays the NPU information.

```
show npu error-counters
show npu error-counters |grep qwe
```
**show npu tm**

Displays queue status and performance statistics from the Traffic Manager (TM) component of an MIO NPU.

**Product**

ASR 5500 only

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

[local] *host_name*$

**Syntax Description**

```
show npu tm { queue card/cpu/npu | mode { both | hex | text } } | statistics card/cpu/npu | reset | || { grep grep_options | more }
```

- `queue card/cpu/npu`:
  Displays the TM queuing information for the specified NPU. The `mode` option allows you to specify hexadecimal, ASCII text or both types of display values.

- `statistics | reset`:
  Displays TM-related operational statistics. The `reset` option allows you to clear the statistical counters.

**Usage Guidelines**

Use this command to display queue status and performance statistics from the Traffic Manager (TM) component of an MIO NPU.

For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the Command Line Interface Overview chapter.
Examples

The following command displays cumulative TM statistics for all NPUs associated with CPU 0 on the MIO in slot 5:

```plaintext
show npu tm statistics 5/0
```

The following command displays individual statistics for NPU 3 associated with CPU 0 on the MIO in slot 5.

```plaintext
show npu tm statistics 5/0/3
```
**show npu utilization**

Displays NPU utilization information.

**Product**

ASR 5000, ASR 5500, VPC

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name>
```

**Syntax Description**

```
show npu utilization table [ | { grep grep_options | more } |]
```

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Displays NPU manager state table information.

**Examples**

The following displays the NPU information.

```
show npu utilization table
show npu utilization table | grep qwe
```
show ntp

Displays the network timing protocol (NTP) associations and status.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show ntp { associations | status } [ address ip_address ] [ | { grep grep_options | more } ]
```

- **associations**
  Displays the current NTP server associations and related statistics.

- **status**
  Displays the client permeates configured and the synchronization status.

- **address ip_address**
  Specifies the IP address of an NTP server/client in the current context in IPv4 dotted-decimal notation.

  ```
  | { grep grep_options | more }
  ```

  Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

  For details on the usage of `grep` and `more`, refer to the *Regulating a Command’s Output* section of the Command Line Interface Overview chapter.

**Usage Guidelines**

View network timing protocol information to troubleshooting system clock issues by displaying the associations and status of the local NTP client.

**Examples**

The following displays the NTP associations and status, respectively.

```
show ntp associations
show ntp status
```
show ntp

Important
Output descriptions for commands are available in the Statistics and Counters Reference.
show nw-reachability server

Displays the configuration of network reachability servers for the current context.

**Product**

HA

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show nw-reachability server { all | ipv4-only | ipv6-only | name server_name }
```

- **all**
  
  Displays configuration information for all network reachability servers in the current context.

- **ipv4-only**
  
  Displays IPv4 Network Reachability Detection servers.

- **ipv6-only**
  
  Displays IPv6 Network Reachability Detection servers.

- **name server_name**
  
  Displays configuration information for an existing network reachability server specified as an alphanumeric string of 1 through 15 characters.

**Usage Guidelines**

Use this command to display configuration information on network reachability servers configured in the current context.

**Examples**

The following command displays information on all network reachability servers in the current context:

```
show nw-reachability server all
```
show nw-reachability server

**Important**  Output descriptions for commands are available in the *Statistics and Counters Reference.*
show operator-policy

Displays the information configured for an operator policy.

**Product**
- MME
- SAEGW
- S-GW
- SGSN

**Privilege**
- Inspector

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show operator-policy { all | full { all | name op_policy_name } | name op_policy_name } | | { grep grep_options | more }
```

- **all**
  Displays a list of all operator policies configured on the system.

- **full { all | name op_policy_name }**
  - full: Displays a full set of available information for the specified operator policy (policies).
  - all: Displays a full set of available information for all operator policies configured on the system.
  - name op_policy_name: Displays a full set of available information for an existing operator policy specified as an alphanumeric string of 1 through 64 characters.

- **name op_policy_name**
  Displays a full set of available information for an existing operator policy specified as an alphanumeric string of 1 through 64 characters.

  | { grep grep_options | more }

  Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.
For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section in the Command Line Interface Overview chapter.

**Usage Guidelines** Use this command to display information for operator policies configured on the system. Operator policies are configured through the Global Configuration Mode and in the Operator Policy Configuration Mode. For more information regarding operator policy commands, refer to the Operator Policy Configuration Mode Commands chapter.

**Examples** The following command displays all available information for an operator policy named `policy-5`:

```
show operator-policy full name policy-5
```
show orbem

Displays information and statistics for the Object Request Broker Element Manager (ORBEM) interface in the current context.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show orbem { client { id client_name | table } | event-notif-service filters | session { id session_name | table } | status } | { grep grep_options | more }
```

- **client { id client_name | table }**
  Indicates the Common Object Request Broker Architecture (CORBA) client information is to be displayed. The keyword `table` is used to output the display information on all configured clients. The keyword `id` is used to specify a specific client for which information is to be displayed specified as `client_name`. `client_name` must refer to an existing client which is found using the `table` keyword option.

- **event-notif-service filters**
  Displays information pertaining to filters configured for the ORB Notification Service.

  **Important**
  In 18.0 and later releases, this keyword is obsolete.

- **session { id session_name | table }**
  Indicates session information is to be displayed. The keyword `table` is used to output to the display information on all configured clients. The keyword `id` is used to specify a specific session for which information is to be displayed specified as `session_name`. `session_name` must refer to an existing session which is found using the `table` keyword option.

- **status**
  Indicates that the ORBEM server status information is to be displayed.
| { grep grep_options | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

Usage Guidelines
Display current sessions when ORBEM system response may appear sluggish. This command is also useful in periodic verification of the server status.

Examples
The following commands will display the information for all clients.

```
show orbem client table
```

The following commands display the information for the `clientName` and `sessionID`, respectively:

```
show orbem client id clientName
show orbem session id sessionId
```

The following command displays the ORBEM server status:

```
show orbem status
```

The following command displays the information for all sessions:

```
show orbem session table
```

Important
Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show patch progress

Displays the status of the on-going software patch installation.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

`show patch progress`

**Usage Guidelines**

Use this command to show the status of an on-going software patch installation.

**Important**

Software Patch Upgrades are not supported in this release.
show pcc-af service

Displays the statistical and configuration information of configured Policy and Charging Control- Application Function (PCC-AF) services configured in a context.

Product
IPCF

Privilege
Security Administrator, Administrator, Operator, Inspector

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description
show pcc-af service [ statistics ] { all | name pcc_af_svc_name | summary } [ | { grep grep_options | more } ]

all
all: displays information for all configured PCC-AF services.

name pcc_af_svc_name
Displays information only for an existing PCC-AF service specified as an alphanumeric string of 1 through 79 characters

statistics
Displays the statistical information for a specific service or all PCC-AF services configured in a context.

summary
Displays the summarized output of this command.

| { grep grep_options | more } |

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the grep and more commands, refer to the Regulating a Command's Output section in the Command Line Interface Overview chapter.
Usage Guidelines

Use this command to display the statistical and configuration information of configured PCC-AF services configured in a context.
Display can further be filtered for specific PCC-AF service name or summarized output of the command.

Examples

The following command displays the information for the PCC-AF service named `pccApp1` in summarized output:
`show pcc-af service name pccApp1 summary`

Important

Output descriptions for commands are available in the *Statistics and Counters Reference.*
show pcc-af session

Displays the active/dormant session information about Policy and Charging Control- Application Function (PCC-AF) service instances configured and running on this system based on different filter criteria.

**Product**
IPCF

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name# 
```

**Syntax Description**

```
show pcc-af sessions [full | summary] [all | [apn | call-id call_id | ip-address pcc_af_ip_address | service pcc_af_svc_name | sipuri sip-uri | | | {grep grep_options | more }] ]
```

**full**
Displays the full information of specific registered IP Connectivity Access Network (IP-CAN) session(s) on a PCC-AF service instance running on system. Display can be filtered based on given filtering criteria.

**summary**
Displays summarized information for specific registered IP-CAN session(s) on a PCC-AF service instance running on system. Display can be filtered based on given filtering criteria.

**all**
Displays summarized or full information for all registered IP-CAN session(s) on a PCC-AF service instance running on system. Display can be filtered based on given filtering criteria.

**apn apn_name**
Displays information for PCC-AF service sessions connected via an existing APN at the Policy and Charging Enforcement Function (PCEF).

**ip-address pcc_af_ip_address**
Filters the display of full or summarized session statistics for IP-CAN session(s) based on the IP address of a registered PCC-AF server on a PCC-AF service instance.
**pcc_af_ip_address** is an IP address expressed in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

**call-id call_id**
Filters the display of full or summarized session statistics for IP-CAN session(s) based on the registered call ID on a PCC-AF service instance for the IP-CAN session subscriber in 8-digit hexadecimal format.

**pcc-af-service pcc_af_svc_name**
Filters the display of session statistics for a registered IP-CAN session(s) based on an existing PCC-AF service name specified as an alphanumeric string of 1 through 63 characters.

**sip_uri sip_uri**
Displays summarized or full information for IP-CAN session(s) based on the SIP-URI on a PCC-AF service instance.

*sip_uri* is the Session Initiation Protocol (SIP) addressing schema to call another person. It resembles an e-mail address and is written in the SIP URI format as *sip:x@y:Port* format, where *x* = username and *y* = host (domain or IP)

```bash
| { grep grep_options | more }
```
Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section in the Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to view the session statistics of all or specific registered IP-CAN session(s) or in selected part of user session for PCC-AF services configured and running on this system.

**Examples**
The following command displays the summarized session statistics for all registered IP-CAN sessions on the PCC-AF service named *pccAF1*:

```bash
show pcc-af sessions summary all service pccAF1
```

---

**Important**
Output descriptions for commands are available in the *Statistics and Counters Reference.*
show pcc-policy service

Displays the statistical and configuration information of configured PCC-Policy services configured in a context.

**Product**
IPCF

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show pcc-policy service [ statistics ] { all | name pcc_plcy_svc_name | summary } [ | { grep grep_options | more } ]
```

- **all**
  all: displays information for all configured PCC-Policy services.

- **name pcc_plcy_svc_name**
  Displays information for an existing PCC-Policy service specified as an alphanumeric string of 1 through 79 characters.

- **statistics**
  Displays statistical information for a specific or all PCC-Policy services configured in a context.

- **summary**
  Displays summarized output for this command.

```
| { grep grep_options | more } |
```

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command’s Output* section in the *Command Line Interface Overview* chapter.
Usage Guidelines

Use this command to display the statistical and configuration information of configured PCC-Policy services configured in a context.

Display can further be filtered for specific PCC-Policy service name or summarized output of the command.

Examples

The following command displays the information for the PCC-Policy service named pcc_policy1 in summarized output:

```
show pcc-policy service name pcc_policy1 summary
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference.*
show pcc-policy session

Displays active/dormant session information about PCC-Policy service instances configured and running on this system based on different filter criteria.

### Product
IPCF

### Privilege
Inspector

### Command Modes
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name>
```

### Syntax Description

`show pcc-policy sessions [full | summary | all | apn [call-id call_id | imsi imsi_id | ip-address pcc_pcef_ip_address | service pcc_plcy_svc_name | grep grep_options | more ]]

- **full**
  Displays full information for a specific registered IP Connectivity Access Network (IP-CAN) session(s) on a PCC-Policy service instance running on system. Display can be filtered based on given filtering criteria.

- **summary**
  Displays summarized information for a specific registered IP-CAN session(s) on a PCC-Policy service instance running on system. Display can be filtered based on given filtering criteria.

- **all**
  Displays summarized or full information for all registered IP-CAN session(s) on a PCC-Policy service instance running on system. Display can be filtered based on given filtering criteria.

- **apn apn_name**
  Displays information for PCC-Policy service sessions connected via an existing APN on the PCEF.

- **imsi imsi_id**
  Displays summarized or full information for IP-CAN session(s) based on the International Mobile Subscriber Identity (IMSI) of a subscriber in a PCC-Policy service instance.

  `imsi_id` is the IMSI and must be a 15-character field which identifies the subscriber's home country and carrier.
**ip-address pcc_pcef_ip_address**
Filters the display of full or summarized session statistics for IP-CAN session(s) based on the IP address of the registered PCEF node specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

**call-id call_id**
Filters the display of full or summarized session statistics display for an IP-CAN session(s) based on the registered call ID in a PCC-Policy service instance.

call_id must be an existing call identifier in the IP-CAN session subscriber expressed in 8-digit hexadecimal format.

**pcc-policy-service pcc_plcy_svc_name**
Filters the display of session statistics for registered IP-CAN session(s) based on an existing PCC-Policy service name specified as an alphanumeric string of 1 through 63 characters.

```
| { grep grep_options | more }
```

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

**Usage Guidelines**
Use this command to view the session statistics for all or a specific registered IP-CAN session(s) for PCC-Policy services configured and running on this system.

**Examples**
The following command displays summarized session statistics for all registered IP-CAN sessions on the PCC-Policy service named `pccPolicy1`:

```
show pcc-policy sessions summary all service pccPolicy1
```

**Important**
Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show pcc-service

Displays the configuration information for Policy and Charging Control (PCC) services configured in a context.

**Product**

IPCF

**Privilege**

Security Administrator Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show pcc-service { summary | all | service-name pcc_svc_name } | | { grep grep_options | more } |
```

**all**

`all`: displays information for all configured PCC services.

**service-name pcc_svc_name**

Displays information for an existing PCC service specified as an alphanumeric string of 1 through 79 characters.

**summary**

Displays the summarized output of this command.

| { grep grep_options | more } |

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to display statistical and configuration information for configured PCC services in a context. Display can further be filtered for a specific PCC service name.

**Examples**

The following command displays the information for the PCC service named `pcc_svc1`:

```
show pcc-service service-name pcc_svc1 summary
```
Output descriptions for commands are available in the *Statistics and Counters Reference.*
show pcc-service session

Displays active/dormant session information about Policy and Charging Control (PCC) service instances configured and running on this system based on different filter criteria.

**Product**
IPCF

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name# 
```

**Syntax Description**

```
show pcc-service sessions [full | summary | all emergency-only | call-id call_id | instance instance_id | service-name pcc_svc_name | grep grep_options | more ]
```

- **full**
  Displays full information for a specific registered IP Connectivity Access Network (IP-CAN) session(s) in a PCC service instance running on system. Display can be filtered based on given filtering criteria.

- **summary**
  Displays summarized information for a specific registered IP-CAN session(s) in a PCC service instance running on system. Display can be filtered based on given filtering criteria.

- **all**
  Displays summarized or full information for all registered IP-CAN sessions on a PCC service instance running on system. Display can be filtered based on given filtering criteria.

- **emergency-only**
  Displays summarized or full information for all IP-CAN sessions on a PCC service instance running on system which are using emergency APN for emergency services. Display can be filtered based on given filtering criteria.

- **instance instance_id**
  Displays summarized or full information for an IP-CAN session(s) based on the PCC service instance identifier on an IPCF/PCRF node specified as an integer from 1 through 512.
service-name pcc_svc_name

Filters the display of session statistics display of registered IP-CAN session(s) based on an existing PCC service name specified as an alphanumeric string of 1 through 63 characters.

| { grep grep_options | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the grep and more commands, refer to the Regulating a Command's Output section in the Command Line Interface Overview chapter.

Usage Guidelines

Use this command to view session statistics for all or a specific registered IP-CAN session(s) in PCC services configured and running on this system.

Examples

The following command displays summarized session statistics for all registered IP-CAN sessions in the PCC service named pccsvc1:

```
show pcc-service sessions summary service-name pccsvc1
```

Important

Output descriptions for commands are available in the Statistics and Counters Reference.
show pcc-service statistics

Displays the statistical information for Policy and Charging Control (PCC) services configured in a context.

Product
- IPCF

Privilege
- Security Administrator, Administrator, Operator, Inspector

Command Modes
- Exec
  The following prompt is displayed in the Exec mode:
  
  ```
  [local] host_name#
  ```

Syntax Description
- `show pcc-service statistics { all | service-name pcc_svc_name [ profile-name pcc_profile_name ] } | | { grep grep_options | more } ]`

  `all`
  Displays statistical information for all configured PCC services on a system.

  `service-name pcc_svc_name`
  Displays information for an existing PCC service specified as an alphanumeric string of 1 to 79 characters. It can be further filtered by the PCC profile name used in an IP-CAN session.

  `profile-name pcc_profile_name`
  Displays information for an existing PCC profile in an IP-CAN session.

  `| | { grep grep_options | more }`
  Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.
  
  For details on the usage of the `grep` and `more` commands, refer to the Regulating a Command’s Output section in the Command Line Interface Overview chapter.

Usage Guidelines
- Use this command to display the statistical information for PCC services configured in a context.
  Display can further be filtered for a specific Profile name used in a session.
The following command displays the information for the PCC service named `pcc_svc1` using PCC profile named `pcc_profile_default`:

```
show pcc-service statistics service-name pcc_svc1 profile-name pcc_profile_default
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference.*
show pcc-sp-endpoint

Displays statistical and configuration information for a configured PCC Sp-Endpoint instance in a context.

**Product**

IPCF

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show pcc-sp-endpoint [statistics] [all | name sp_endpt_name] [ | |grep grep_options | more] |connection [all | name sp_endpt_name]]
```

**all**

Displays statistical information for all configured PCC Sp-Endpoint instances on a system.

**name sp_endpt_name**

Displays information for an existing PCC Sp-Endpoint instance specified as an alphanumeric string of 1 through 79 characters.

```
| grep grep_options | more
```

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of `grep` and `more` commands, refer to the *Regulating a Command’s Output* section in the *Command Line Interface Overview* chapter.

**connection**

Displays statistics for the configured connection values along with peer selection success and failures.

**Usage Guidelines**

Use this command to display statistical information and peer name for a configured PCC Sp-Endpoint instance in a context.
Important

If the secondary peer is not configured, then N/A is printed in the output.

Display can further be filtered for a specific PCC Sp-Endpoint instance used in a session.

Examples

The following command displays statistical information for the PCC Sp-Endpoint instance named Sp_Intf1:
```
show pcc-sp-endpoint statistics name Sp_Intf1
```

Important

Output descriptions for commands are available in the Statistics and Counters Reference.
show pcc-sp-endpoint connection

Displays statistical and configuration information for an Sp interface connection in a PCC Sp-Endpoint instance.

**Product**

IPCF

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name>
```

**Syntax Description**

`show pcc-sp-endpoint connection [ all | name sp_endpt_name | peer sp_peer_name ] | | { grep grep_options | more } ]`

- **all**
  
  Displays statistical information for all configured PCC Sp-Endpoint instances on a system.

- **name sp_endpt_name**
  
  Displays information for an existing PCC Sp-Endpoint instance specified as an alphanumeric string of 1 through 79 characters. It can further be filtered with an Sp Endpoint peer (SSC/SPR) name used for the IP Connectivity Access Network (IP-CAN) session.

- **peer ssc_name**
  
  Displays information only for the PCC Sp-Endpoint instance within an existing Subscriber Service Controller/Subscriber Profile Repository (SSC/SPR) as a peer for an IP-CAN session.

  *ssc_name* is the name of the SSC/SPR node used by the Sp Endpoint interface.

  
  | { grep grep_options | more } |

  Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

  For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to display statistical information for Sp interface connections in PCC Sp-Endpoint instances.
Display can further be filtered for a specific peer name (SSC/SPR).

**Examples**

The following command displays the Sp interface connection related statistical information for the PCC Sp-Endpoint instance named *Sp_Intf1* using peer name *SSC1*:

```
show pcc-endpoint connection name Sp_Intf1 peer SSC1
```

---

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference.*
**show pdg-service**

Displays configuration information about PDG services configured on the system.

**Product**

PDG/TTG

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show pdg-service { all | name service_name } | { grep grep_options | more }
```

**all**

Displays information for all configured Packet Data Gateway/Tunnel Termination Gateway (PDG/TTG) services.

**name service_name**

Displays information only for an existing PDG service specified as an alphanumeric string of 1 through 63 characters.

| { grep grep_options | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command’s Output* section in the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to display information for PDG services.

**Examples**

The following command displays available information for all active PDG services:

```
show pdg-service all
```
show pdg-service statistics

Displays statistics for the Packet Data Gateway/Tunnel Termination Gateway (PDG/TTG) since the last restart or clear command. The output includes the number of each type of Extensible Authentication Protocol (EAP) messages.

**Product**

PDG/TTG

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

**Syntax Description**

`show pdg-service statistics [ name service_name | peer-address ipv4_address ]`

- `name service_name`
  
  Displays statistics for an existing PDG service specified an alphanumeric string of 1 through 63 characters.

- `peer-address ipv4_address`
  
  Displays statistics for a specific subscriber with the WLAN IP address specified in IPv4 dotted-decimal notation.

  ```
  | { grep grep_options | more }
  ```

  Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

  For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section in the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to display PDG service statistics.

**Examples**

The following command displays statistics for all active PDG services:

`show pdg-service statistics`
show pdif-service

Displays configuration information about Packet Data Interworking Function (PDIF) services configured on the system.

**Product**

PDIF

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

**Syntax Description**

`show pdif-service { all | counters | name name | counters | statistics [ name name | peer-address address ] | grep grep_options | more }`

- **all | counters**
  
  Displays configuration information and statistical counters for all PDIF services in the system.

- **name name | counters**
  
  Displays configuration information and statistical counters for an existing PDIF service specified as an alphanumeric string of 1 through 63 characters.

- **statistics [ name name | peer-address address ]**
  
  - **name name**: Displays service statistics for an existing PDIF service specified as an alphanumeric string of 1 through 63 characters.
  
  - **peer-address address**: Displays service statistics for a peer server IP address specified in IPv4 dotted-decimal notation.

- **| grep grep_options | more**
  
  Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

  For details on the usage of `grep` and `more`, refer to the *Regulating a Command’s Output* section in the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to display configuration information and statistics about PDIF services on the system.
Examples

The following example displays configuration information about a PDIF service named `pdif23`:

```
show pdif service name pdif23
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference.*
**show pdn-connection-count**

Displays the current number of PDN connections for each of the Restoration-Priority-Level values received from AAA across S6b interface.

**Product**
P-GW
SAEGW

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show pdn-connection-count restoration-priority-level { priority_level | all }
```

- `restoration-priority-level { priority_level | all }`
  - Restoration priority associated with PDN connection.
  - `priority_level`: Restoration priority level must be an integer from 1 through 8.
  - `all`: Displays the number of PDN connections associated with all restoration priorities.

**Usage Guidelines**
To distinguish between VoLTE enabled IMS PDN connections and non-VoLTE enabled IMS PDN connections, the P-GW supports receiving AVP "Restoration-Priority-Indicator" from AAA server over the S6b interface. The P-GW also provides KPIs based on the AVP value.

**Examples**
The following command displays the number of PDN connections associated with restoration priority level 2:
```
show pdn-connection-count restoration-priority-level 2
```
show pdsn-service

Displays information for configured packet data services in the current context.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show pdsn-service { all | name pdsn_name } [ pcf-status [ address ip_address | filter [ all | icmp-monitored | no-calls | summary | up ] ] ] [ grep grep_options | more ]
```

- **all | name pdsn_name**
  - all: Displays information for all configured packet data services.
  - name pdsn_name: Displays information only for an existing PDSN service specified as an alphanumeric string of 1 through 79 characters.

- **pcf-status [ address ip_address | filter [ all | icmp-monitored | no-calls | summary | up ] ]**
  - **pcf-status**: Displays summary information for all Packet Control Functions (PCFs).
  - **address ip_address**: Only lists information for the PCF with the IP address specified in IPv4 dotted-decimal notation.
  - **filter**: Filters the output so only the specified information is displayed. If a filter is specified with no keywords, summary information for all PCFs is displayed.
    - **all**: Displays information for all the PCFs
    - **icmp-monitored**: Displays information only for PCFs which are ICMP monitored
    - **no-calls**: Displays information only for PCFs which have no active sessions
    - **summary**: Displays only a summary of the status of the PCFs
    - **up**: Displays information only for PCFs which are alive
Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command’s Output* section in the *Command Line Interface Overview* chapter.

**Usage Guidelines**
Show the PDSN service information for standard system monitoring or troubleshooting.

**Examples**
The following will display the information for all configured services and *sampleService*, respectively:
- `show pdsn-service all`
- `show pdsn-service name sampleService`
show pdsnclosedrp-service

Displays information on configured Closed R-P services for the current context.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

[local]-host_name#

**Syntax Description**

`show pdsn-service { all | name name }`

- **all | name name**
  - **all**: Displays information for all configured Closed R-P services.
  - **name name**: Displays information for an existing Closed R-P service specified as an alphanumeric string of 1 through 79 characters.

**Usage Guidelines**

Show the Closed R-P service information for standard system monitoring or troubleshooting.

**Examples**

The following command displays information for the Closed R-P service named *SampleRP* and for all configured services, respectively.

```verbatim
show pdsn-service all
show pdsn-service name SampleRP
```
show peer-profile

Displays configuration of the specified peer profile.

**Product**
- GGSN
- P-GW
- SAEGW
- S-GW

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
show peer-profile { all | full { all | name profile_name } | name profile_name } | \{ grep grep_options \} | more
```

**all**
Displays a list of all peer profiles configured on the system, arranged by service type.

**full { all | name profile_name }**
Displays detailed peer profile configuration information.

- **all**: Displays detailed configuration information for all peer profiles configured on the system.
- **name profile_name**: Displays detailed configuration information for the specified peer profile.

*profile_name* is an alphanumeric string of 1 through 64 characters.

**name profile_name**
Lists the specified peer profile, and the service type to which it belongs.

*profile_name* is an alphanumeric string of 1 through 64 characters.

**| \{ grep grep_options | more \}**
Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.
For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to display configuration information for the peer profiles created on the system. Refer to the `peer-profile` command in the *Global Configuration Mode Commands* chapter and the *Peer Profile Configuration Mode Commands* chapter for more information.

**Examples**

The following command displays detailed configuration information for the `pp2` peer profile.

```
show peer-profile full name pp2
```
show pgw-service

Displays configuration information for PDN Gateway (P-GW) services on this system.

**Product**

- P-GW
- SAEGW

**Privilege**

Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show pgw-service { all | name service_name | statistics { all | name service_name } | verbose } || { grep grep_options | more } |
```

- **all**
  Displays configuration information for all P-GW services configured on this system.

- **name service_name**
  Displays configuration information for an existing P-GW service specified as an alphanumeric string of 1 through 63 characters.

- **statistics { all | name service_name } | verbose**
  Displays P-GW service statistics.
  - **all**: Displays statistics for all P-GW services on the system.
  - **name service_name**: Displays statistics for an existing P-GW service specified as an alphanumeric string of 1 through 63 characters.
  
  If **verbose** is also specified, the information is displayed in more detail.

- **| { grep grep_options | more }**
  Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

  For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section in the Command Line Interface Overview chapter.
**Usage Guidelines**  
Use this command to view configuration information for P-GW services on this system.

**Examples**  
The following command displays service statistics for the P-GW service named *pgw1*:  
```
show pgw-service name pgw1
```
show pilot-packet statistics

Display Pilot Packet statistics for all servers and all session manager instances, or for a specified server name.

Product
NAT

Privilege
Inspector

Command Modes
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

Syntax Description

```
show pilot-packet statistics { all | destination-context context_name } | | { grep grep_options | more } |
```

- `all`
  Displays statistics for all servers and session manager instances.

- `destination-context context_name`
  Displays statistics for a specified destination context. `context_name` is specified as an alphanumeric string of 1 through 79 characters.

  | { grep grep_options | more } |
  Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

  For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section in the Command Line Interface Overview chapter.

Usage Guidelines

Use this command to display Pilot Packet statistics for all servers and all session manager instances, or for a specified server name.

Examples

The following command displays Pilot Packet statistics for all servers and session manager instances:

```
show pilot-packet statistics all
```
show plugin

Displays the current configuration of one or all plugin modules installed on the system. This command is associated with the dynamic software upgrade process.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show plugin [ plugin_name ]

plugin_name

Filters the output by an existing plugin name expressed as an alphanumeric string of 1 through 16 characters.

Usage Guidelines

Displays the attribute settings, priority and version for one or all plugin modules. A plugin module is a shared object library that can be dynamically updated or rolled back. Refer to the System Administration Guide for additional information on dynamic software updates.

Examples

The following command displays the configuration status of all plugin modules currently installed on the system:

show plugin
show port

Displays information on configured parameters and operational statistics for physical and logical ports in the system.

Product

All

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

show port { datalink counters [ slot/port ] | info [ slot/port ] | vlan vlan_id ] | npu counters [ slot/port ]
tagged | untagged | vlan tag_id ] | table | transceiver slot/port | utilization table [ verbose ] | [ grep grep_options ] | more ]
show port info { slot/port } [ vlan vlan_id ] [ [ grep grep_options ] | more ]

datalink counters slot/port

Displays the physical layer information for all data links or only the one specified by the slot/port location of a previously configured port.

info [ slot/port ] [ vlan vlan_id ]

Displays detailed information for all ports within the chassis or only the one specified by slot/port location of a previously configured port.

vlan vlan_id: Displays detailed information about all Virtual Local Area Networks (VLANs) in the port/slot. If the optional vlan_id is not specified, this keyword displays port information for all VLANs in the slot/port location.

npu counters [ slot/port ] [ tagged | untagged | vlan tag_id ] | [ bound | unbound ]

Displays the information for Network Processing Unit (NPU) ports. The information for all ports is output or only the one specified by the slot/port location of a previously configured port.

For ASR 5500 MIO ports, this command displays the combined statistics for the specified port and its paired port (virtual pair).

tagged: Display statistics for all tagged packets.

untagged: Display statistics for all untagged packets.
**vlan tag_id**: Display NPU counters for a previously configured VLAN ID.

**bound**: Displays individual and cumulative NPU port counters for the bound ports within the current context. If the command is invoked in the local context, all of the bound ports for all contexts and cumulative counter values for all contexts are displayed.

**unbound**: Displays individual and cumulative NPU port counters for all unbound ports within system.

**table**
Displays information for all physical ports on rear-installed cards with physical interfaces.

**transceiver slot/port**
Displays diagnostic information for all SFP+ transceivers connected to a specified subscriber traffic port on the MIO card.

**utilization table [ verbose ]**
Shows average port utilization in Mbps. The output is a table that lists the current utilization average, a 5-minute average, and a 15-minute average, for all enabled ports.

The `verbose` option displays port utilization with kilobyte accuracy using decimal points.

```
| { grep grep_options | more }
```
Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of `grep` and `more`, refer to the *Regulating a Command’s Output* section in the *Command Line Interface Overview* chapter.

**Usage Guidelines**
Display port information for troubleshooting of network communications by viewing statistics and configuration information for physical ports.

**Examples**
The following displays detailed information for port 1 in slot 17:
```
show port info 17/1
show port table
```
The following displays information for the data link port 33/1:
```
show port datalink counters 33/1
show port npu counters 33/1
```
The following displays detailed information for port 11 in slot 5:
```
show port info 5/11
show port table
```

**Important**
Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show power

Displays information about the power on/off status of individual cards and the operating status of installed power filter units.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show power [ all | chassis | card_num ] [ | { grep grep_options | more } ]
```

- **all**: Displays power on/off state for all cards in the chassis.
- **chassis**: Displays the operating status of installed power filter units. This is the default setting.
- **card_num**: Displays the power on/off state for a single card specified an integer from 1 through 48 for the ASR 5000 or 1 through 20 for the ASR 5500.

```
| { grep grep_options | more }
```

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of **grep** and **more**, refer to the *Regulating a Command's Output* section in the *Command Line Interface Overview* chapter.

**Usage Guidelines**

View power source information to quickly check the power for all cards within a chassis.

**Important**

On some platforms, only **show power** is supported with no other keywords or variables.

**Examples**

The following displays power supply status for the chassis:

```
show power
```
The following command displays the power status for all slots:

```
show power all
```
show ppp

Displays the point-to-point protocol (PPP) information, detailed or summarized, for one or all connections by the use of filtering options.

Product

<table>
<thead>
<tr>
<th>PDSN</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGSN</td>
</tr>
</tbody>
</table>

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

```
show ppp { [ counters | full | summary ] | [ all | callid call_id | imsi id | msid ms_id | username user_name ] } | [ statistics | pcf-address { pcf_ip_addr | all | pdsn-service pdsn_name } ] | [ [ grep grep_options [ more ] ] ]
```

counters | full | summary

Filters the output for the level and type of information with the options described below.
counters: Displays PPP statistics.
full: Displays all available information.
summary: Displays only a summary of available information.

```
all | callid call_id | imsi id | msid ms_id | username user_name
```

all: Displays all available information.
callid call_id: Displays PPP information only for the call ID specified as a 4-digit hexadecimal number.
imsi id: Displays PPP information only for the subscriber with the specified IMSI (International Mobile Subscriber Identity). id is a 15-digit field which identifies the subscriber's home country and carrier.
msid ms_id: Displays information for a mobile subscriber ID specified as 7 to 16 digits for an IMSI, MIN, or RMI.
username user_name: Displays user PPP information for the specified username.

```
statistics | pcf-address { pcf_ip_addr | all | pdsn-service pdsn_name }
```

Displays statistics for all packet data services.
**Usage Guidelines**

View Point-to-Point Protocol information to support troubleshooting subscriber connections by viewing information on PPP connections for a specific subscriber.

**Examples**

The following displays the PPP summary for all connections.

```
show ppp summary all
```

The following outputs the point-to-point detailed information for the user `user1`.

```
show ppp full username user1
```

The following command displays the standard information for the call with ID `FF0E11CD`.

```
show ppp callid ff0e11cd
```

The following command displays the PPP statistics for `pdsn1`.

```
show ppp statistics pdsn-service pdsn1
```

The following command provides summarized information for the PPP statistics.

```
show ppp
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 

---

**pcf-address** *pcf_ip_addr|all*

Displays statistics only for the time the session is connected to the specified PCF (Packet Control Function) or for all PCFs. *pcf_ip_addr* must be specified using IPv4 dotted-decimal notation.

**pdsn-service** *pdsn_name*

Display statistics only for an existing PDSN service specified as an alphanumeric string of 1 through 63 characters.

| {grep grep_options | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of `grep` and `more`, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter in the *Command Line Interface Reference*. 

---

**Exec Mode show Commands (M-P)**

**show ppp**
show prepaid 3gpp2

Displays prepaid accounting information for all services or only the service specified.

**Product**
- PDSN
- GGSN

**Privilege**
- Security Administrator, Administrator, Operator, Inspector

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

- `show prepaid 3gpp2 statistics all` displays prepaid statistics for all services.
- `show prepaid 3gpp2 statistics ggsn-service` displays statistics for GGSN service(s).
- `show prepaid 3gpp2 statistics ha-service` displays statistics for HA service(s).
- `show prepaid 3gpp2 statistics lns-service` displays statistics for LNS service(s).
- `show prepaid 3gpp2 statistics pdn-service` displays statistics for PDSN service(s).
- `show prepaid 3gpp2 statistics pdnclosedrp-service` displays statistics for PDSN Closed-RP service(s).

**show prepaid 3gpp2**

Displays prepaid accounting information for all services or only the service specified.

**Product**
- PDSN
- GGSN

**Privilege**
- Security Administrator, Administrator, Operator, Inspector

**Command Modes**
- Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

- `show prepaid 3gpp2 statistics all` displays prepaid statistics for all services.
- `show prepaid 3gpp2 statistics ggsn-service` displays statistics for GGSN service(s).
- `show prepaid 3gpp2 statistics ha-service` displays statistics for HA service(s).
- `show prepaid 3gpp2 statistics lns-service` displays statistics for LNS service(s).
- `show prepaid 3gpp2 statistics pdn-service` displays statistics for PDSN service(s).
- `show prepaid 3gpp2 statistics pdnclosedrp-service` displays statistics for PDSN Closed-RP service(s).


{ all | name service_name }

all: Displays statistics for all services of the specified type.

name service_name: Displays statistics for an existing service specified an alphanumeric string of 1 through 63 characters.

per-service-summary
Displays prepaid statistics per service summary for all services.

| { grep grep_options | more }
Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.
For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter in the Command Line Interface Reference.

Usage Guidelines
Displays Pre-paid statistics for a particular named service or for all services.

Examples
To display statistics for a PDSN service named PDSN1, enter the following command:
show prepaid 3gpp2 statistics pdsn-service name PDSN1

Important
Output descriptions for commands are available in the Statistics and Counters Reference.
**show prepaid wimax**

This command displays prepaid WiMAX accounting information for all services or only the service specified.

**Product**

ASN-GW

**Privilege**

Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show prepaid wimax statistics { all | asngw-service { all | name service_name } | ha-service { all | name service_name } | per-service-summary } [ | { grep grep_options | more } ]
```

- **all**
  - This keyword displays prepaid statistics for all services.

- **asngw-service**
  - Displays prepaid statistics for Access Service Network-Gateway (ASN-GW) service(s).

- **ha-service**
  - Displays prepaid accounting statistics for Home Agent (HA) service(s).

- `{ all | name service_name }
  - **all**: Displays statistics for all services of the specified type.
  - **name service_name**: Displays statistics for an existing service specified as an alphanumeric string of 1 through 63 characters.

- **per-service-summary**
  - Displays prepaid statistics per service summary for all services.

  ```
  | { grep grep_options | more } |
  ```
  - Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.
For details on the usage of `grep` and `more`, refer to the Regulating a Command’s Output section in the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to display prepaid WiMAX accounting statistics for named service or for all services.

**Examples**

The following command displays prepaid WiMAX accounting statistics for an ASN-GW service named `asn1`:

```
show prepaid wimax statistics asngw-service name asn1
```

---

**Important**

Output descriptions for commands are available in the Statistics and Counters Reference.
show profile-id-qci-mapping

Displays QoS Class Identifier-Radio Access Network (QCI-RAN) mapping tables configured on this system.

**Product**
HSGW

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show profile-id-qci-mapping table { all | name table_name } | | { grep grep_options | more } |
```

- **all**
  Displays information for all QCI-RAN mapping tables configured on this system.

- **name table_name**
  Displays information for an existing QCI-RAN table specified as an alphanumeric string of 1 through 63 characters.

- \{ \{ grep grep_options | more \} \}
  Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.
  For details on the usage of `grep` and `more`, refer to the *Regulating a Command’s Output* section in the *Command Line Interface Overview* chapter.

**Usage Guidelines**
Use this command to display the contents of a specific QCI-RAN mapping table or all mapping tables configured on this system.

**Examples**
The following command displays the contents of a QCI-RAN mapping table named `table1`:
```
show profile-id-qci-mapping table name table1
```
show ps-network

Displays statistics for the Packet Switched (PS)-network(s) instance configured on a chassis for HNB-GW service sessions.

Product
HNBGW

Privilege
Security Administrator, Administrator, Operator

Command Modes
Exec

The following prompt is displayed in the Exec mode:
[local] host_name#

Syntax Description
show ps-network { all | name ps_name } [ status ] [ | [ grep grep_options | more ]]

all
Displays status counters for all PS (packet switched) networks configured for HNB-GW service sessions on a chassis.

name ps_name
Displays status counters for a PS network configured for HNB-GW service specified as an alphanumeric string of 1 through 127 characters that is case sensitive

| [ grep grep_options | more ]
Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.
Refer to Regulating a Command's Output section of the Command Line Interface Overview chapter for details on the usage of grep and more.

Usage Guidelines
Use this command to display the status of any or all PS-network(s) instance configured on a chassis for HNB-GW service sessions.

Examples
The following command displays the output for PS network instance status named ps_1_hnb:
show ps-network name ps_1_hnb status
show ps-network

| Important | Output descriptions for commands are available in the *Statistics and Counters Reference.* |
show ps-network counters

Displays the session counter information for a PS Network associated with Home-NodeB Gateway (HNBGW) services configured and running on a system.

Product

HNBGW

Privilege

Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show ps-network counters [name ps_svc_name [sgsn sgsn_point_code]] | {grep grep_options | more }

name ps_svc_name
Filters the counter display based on an existing HNB-PS Network service name associated with an HNB-GW service running on system. ps_svc_name is an alphanumeric string of 1 through 63 characters.

sgsn sgsn_point_code
Filters the counter display filtered on the basis of SGSN address provided in the SS7 point code that is connected to a particular HNB-PS Network service. sgsn_point_code must be the address of an SGSN in SS7 point code notation.

| {grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the grep and more commands, refer to the Regulating a Command's Output section in Command Line Interface Overview chapter.

Usage Guidelines

Use this command to view the session counter information for HNB-PS Network services configured and SGSNs connected on a system.

Examples

The following command displays the counters for the HNB-PS Network service named hnb_ps_svc1:

show ps-network counters name hnb_ps_svc1
show ps-network counters

Important
Output descriptions for commands are available in the Statistics and Counters Reference.
show ps-network statistics

Displays the Packet Switched session statistics for Home-NodeB Gateway (HNB-GW) services configured and running on this system.

**Product**
HNBGW

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
show ps-network statistics [name ps_svc_name [sgsn sgsn_point_code]] [gtpu-only | ranap-only | sccp-only] [grep grep_options | more]
```

- **name ps_svc_name**
  Filters the session statistics display based on an existing HNB-PS Network service name that is associated with an HNB-GW service running on this system. `ps_svc_name` is an alphanumeric string of 1 through 63 characters.

- **sgsn sgsn_point_code**
  Filters the counter display filtered on the basis of SGSN address provided in the SS7 point code that is connected to a particular HNB-PS Network service. `sgsn_point_code` must be the address of an SGSN in SS7 point code notation.

- **gtpu-only**
  Filters the session statistics to display only GTP-U traffic for the specified HNB-PS Network service which is configured and associated with an HNB-GW service running on this system.

- **ranap-only**
  Filters the session statistics to display only Radio Access Network Application Protocol (RANAP) traffic for an HNB-PS Network service which is configured and associated with an HNB-GW service running on this system.
**show ps-network statistics**

**scgp-only**
Filters the session statistics to display only Signaling Connection Control Part (SCCP) traffic for the specified HNB-PS Network service which is configured and associated with an HNB-GW service running on this system.

```
| { grep grep_options | more }
```

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of the `grep` and `more` commands, refer to the Regulating a Command's Output section in Command Line Interface Overview chapter of the Command Line Interface Reference.

**Usage Guidelines**
Use this command to view the session statistics for overall session or in selected part of user session for HNB-GW services configured and running on this system.

**Examples**
The following command displays the session statistics for the HNB-PS Network service named `hnb_ps1`: `show ps-network statistics name hnbps1`

**Important**
Output descriptions for commands are available in the Statistics and Counters Reference.
**Exec Mode show Commands (Q-S)**

The Exec Mode is the initial entry point into the command line interface system. Exec mode `show` commands are useful in troubleshooting and basic system monitoring.

This chapter includes the commands `qci-qos-mapping` through `show system uptime`.

### Command Modes

**Exec**

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Important**

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

- `show qci-qos-mapping`, page 1410
- `show qos ip-dscp-iphb-mapping`, page 1412
- `show qos l2-mapping-table`, page 1413
- `show qos npu inter-subscriber traffic`, page 1414
- `show qos npu stats`, page 1415
- `show radius`, page 1416
- `show radius charging servers`, page 1418
- `show radius client`, page 1420
- `show radius counters`, page 1421
- `show rct stats`, page 1423
- `show resources`, page 1425
- `show rlf-context-statistics`, page 1426
- `show rlf-memcache-statistics`, page 1428
- `show rlf-template`, page 1429
• show rohc counters, page 1430
• show rohc statistics, page 1432
• show route-map, page 1434
• show rp, page 1435
• show rp service-option, page 1437
• show rp statistics, page 1438
• show rsvp counters, page 1440
• show rsvp statistics, page 1441
• show requirement pac daughtercard, page 1442
• show s102-service, page 1443
• show s4-sgsn statistics, page 1445
• show saegw-service, page 1446
• show samog-service, page 1448
• show sbc-service, page 1449
• show sbc statistics, page 1451
• show sccp-network, page 1453
• show sccp statistics, page 1455
• show sctp-param-template, page 1457
• show service all, page 1458
• show session counters historical, page 1459
• show session counters pcf-summary, page 1462
• show session disconnect-reasons, page 1463
• show session duration, page 1465
• show session progress, page 1468
• show session recovery status, page 1472
• show session setuptime, page 1474
• show session subsystem, page 1476
• show session trace, page 1479
• show session-event-record, page 1481
• show sf, page 1482
• show sgs-service, page 1483
• show s4-sgsn statistics, page 1485
• show sgsn fsm-statistics, page 1486
• show sgsn sesmgr, page 1487
• show sgsn-fast-path, page 1488
• show sgsn-map-app, page 1490
• show sgsn-mode, page 1491
• show sgsn-operator-policy, page 1492
• show sgsn-pool, page 1493
• show sgsn-service, page 1494
• show sgtp-service, page 1495
• show sgtpc statistics, page 1497
• show sgtpu statistics, page 1499
• show sgw-service, page 1501
• show sls-service, page 1503
• show sms statistics, page 1505
• show sndcp statistics, page 1507
• show snmp, page 1509
• show srp, page 1511
• show ss7-routing-domain, page 1513
• show ssh key, page 1516
• show subscribers, page 1517
• show subscribers samog-only, page 1566
• show subscribers wsg-service, page 1567
• show super-charger, page 1568
• show supplementary-service statistics, page 1569
• show support collection, page 1570
• show support details, page 1571
• show support record, page 1573
• show system uptime, page 1575
show qci-qos-mapping

Displays QoS Class Identifier-Quality of Service (QCI-QoS) mapping tables configured on this system.

| Product | ePDG
| HSGW
| P-GW
| SAEGW
| S-GW

| Privilege | Inspector

| Command Modes | Exec
The following prompt is displayed in the Exec mode:

[local] host_name#

| Syntax Description | show qci-qos-mapping table { all | name table_name } [ | { grep_options | more } ]

| Syntax Description | all
Displays information for all QCI-QoS mapping tables configured on this system.

| Syntax Description | name table_name
Displays information for an existing QCI-QoS mapping table specified as an alphanumeric string of 1 through 63 characters.

| Syntax Description | [ | { grep grep_options | more } ]
Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the grep and more commands, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

| Usage Guidelines | Use this command to display the contents of a specific QCI-QoS mapping table or all mapping tables configured on this system.
Examples

The following command displays the contents of a QCI-QoS mapping table named *table1*:

```
show qci-qos-mapping table name table1
```
show qos ip-dscp-iphb-mapping

Displays mapping QoS information in a packet to internal-qos marking.

**Product**
- ePDG
- HSGW
- P-GW
- SAEGW
- S-GW

**Privilege**
Inspector

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
show qos ip-dscp-iphb-mapping

**Usage Guidelines**
Use this command to display mapping QoS information in a packet to internal-qos marking.
show qos l2-mapping-table

Displays named table for the internal to L2 mapping values, like 802.1p and MPLS.

<table>
<thead>
<tr>
<th>Product</th>
<th>ePDG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HSGW</td>
</tr>
<tr>
<td></td>
<td>P-GW</td>
</tr>
<tr>
<td></td>
<td>SAEGW</td>
</tr>
<tr>
<td></td>
<td>S-GW</td>
</tr>
<tr>
<td>Privilege</td>
<td>Inspector</td>
</tr>
<tr>
<td>Command Modes</td>
<td>Exec</td>
</tr>
</tbody>
</table>

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

show qos l2-mapping-table { name table_name | system-default }

name table_name
Displays information for an existing QoS L2 mapping table.
table_name is an existing table specified as an alphanumeric string of 1 through 80 characters.

system-default
Displays information for the default system internal mapping to L2 values.

Usage Guidelines

Use this command to display named table for the internal to L2 mapping values, like 802.1p and MPLS.

Examples

The following command displays the contents of a QoS L2 mapping table named l2table:

show qos l2-mapping-table name l2table
show qos npu inter-subscriber traffic

This command is only supported on PACs running on ST16 platforms. It has been deprecated for use on ASR 5x00 platforms.
**show qos npu stats**

Displays Network Processing Unit (NPU) QoS statistics per priority queue for a particular processing card:

**Product**

GGSN

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show qos npu stats inter-subscriber traffic slot slot_num
```

**slot slot_num**

Displays statistics for the processing card identified by its slot number as an integer from 1 through 8 and 10 through 16 on the ASR 5000, or 1 through 4 and 7 through 10 on the ASR 5500.

**Usage Guidelines**

This command displays packet and byte counts per NPU QoS priority queue on a per-processing card basis. For additional information on the NPU QoS functionality, refer to the *System Administration Guide*.

---

**Important**

This functionality is not supported for use with the PDSN at this time.

---

**Examples**

The following command displays NPU QoS priority queue statistics for a processing card installed in chassis slot number 2:

```
show qos npu stats inter-subscriber traffic slot 2
```

---

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show radius

Displays and statistic information for RADIUS accounting and/or authentication.

**Product**
PDSN
HA
GGSN
ASN-GW

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show radius {accounting servers | authentication servers} [detail] [admin-status {enabled | disabled}]
|| || || || || || |||| || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || |
| \{ grep grep_options | more \}

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Display the RADIUS server information as part of periodic monitoring of the health of the system.

**Examples**

The following displays the information on configured accounting servers:

`show radius accounting server`

The following command displays detailed information for RADIUS accounting servers:

`show radius accounting servers detail`

The following command displays detailed information for RADIUS server group `star1` used for authentication:

`show radius authentication servers radius group star1 detail`

The following command displays detailed information for RADIUS server group `star1` used for accounting:

`show radius accounting servers radius group star1 detail`

---

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show radius charging servers

This command displays the RADIUS authentication and accounting servers or server group that are configured for use by charging services.

**Product**

| PDSN  
| HA  
| GGSN  
| ASN-GW |

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name# 
```

**Syntax Description**

```
show radius charging servers [radius group group_name] | | {grep grep_options | more} 
```

- **radius group group_name all**
  Displays all RADIUS counter information for an existing server group configured for use by charging services. 
  `group_name` is specified as an alphanumeric string of 1 through 63 characters.

  | {grep grep_options | more} |
  Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

  For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to display information about RADIUS servers or server group configured for use by Charging Services.

**Examples**

The following command displays RADIUS servers configured for Charging Services:

```
show radius charging servers 
```
Important

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show radius client

Displays information about the RADIUS client configured on the system.

Product

| PDSN | HA | GGSN | ASN-GW |

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show radius client status [ | { grep grep_options | more } ]

status

Displays a status summary for the RADIUS client.

| { grep grep_options | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the grep and more commands, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines

Configuring the RADIUS protocol on the system enables RADIUS client functionality. This command displays information pertaining to the status of the client.

Examples

The following command displays detailed information pertaining to the system's RADIUS client:

```
show radius client status
```

Important

Output descriptions for commands are available in the Statistics and Counters Reference.
show radius counters

Displays RADIUS server and statistic information for accounting and/or authentication.

**Product**

<table>
<thead>
<tr>
<th>PDSN</th>
</tr>
</thead>
<tbody>
<tr>
<td>HA</td>
</tr>
<tr>
<td>GGSN</td>
</tr>
<tr>
<td>ASN-GW</td>
</tr>
</tbody>
</table>

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

**Syntax Description**

```
show radius counters { all | dynamic-auth | radius group group_name | all | server ip_address | port number | summary | all-contexts | verbose | grep grep_options | more }

counters { all | server ip_address | port number }

all: Displays statistics for all servers.
server ip_address: Displays statistics for the server specified by its IPv4 address.
port number: Displays statistics for a port on the server specified as an integer from 0 through 65535.

radius group group_name all
Displays all RADIUS counter information for an existing server group specified as an alphanumeric string of 1 through 63 characters.
all: Displays statistics for all servers.

dynamic-auth
Displays Dynamic Authorization counters for configured RADIUS servers.

summary | all-contexts | verbose |

Displays a summary of RADIUS statistics for all the RADIUS servers configured in a specific context.
all-contexts: Displays a summary of RADIUS statistics for all RADIUS servers configured in all context. If verbose is also specified, the information is displayed in more detail.
Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Display the RADIUS server information as part of periodic monitoring of the health of the system.

**Examples**

The following command displays detailed information pertaining to the RADIUS server group `star1` with current context:

```
show radius counters radius group star1 all
```

The following displays the statistics for the server with IP address `10.2.3.4`, then just port `7777`, followed by all services.

```
show radius counters server 10.2.3.4
show radius counters server 10.2.3.4 port 7777
show radius counters all
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show rct stats

Displays statistics associated with Recovery Control Task (RCT) events, including migrations, switchovers and shutdowns. RCT statistics are associated with card-to-card session recovery activities.

Product

All products supporting the Session Recovery feature

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]\host_name#

Syntax Description

show rct stats [verbose] [ | { grep grep_options | more }]

[verbose]

Displays full details about RCT events, current status, time stamps and other associated information. This mode is only available if a session recovery event has occurred on the system. The default mode is to display a brief summary of RCT events.

| { grep grep_options | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the grep and more commands, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines

Use this command to display RCT statistics in Summary or Detailed (verbose) mode. The Detailed output includes the following information:

- Recovery action taken – Migration, Shutdown, Switchover
- Type of event – Planned or Unplanned
- From card to card – slot numbers
- Start time – YYYY-MM-DD+hh:mm:sss.sss
- Duration – seconds
- Card failure device (such as CPU\textit{n})
show rct stats

- Card failure reason
- Card is in usable state or not failed
- Recovery action status – Success or failure reason
- If recovery action failed, failure time stamp
- If recovery action failed, failure task facility name
- If recovery action failed, failure instance number

Examples

The following command displays detailed statistics for RCT events:

```
show rct stats verbose
```

Important

Output descriptions for `show` commands are available in the Statistics and Counters Reference. For additional information, see the System Administration Guide.
# show resources

Displays the resource information by CPU or session.

## Product
All

## Privilege
Security Administrator, Administrator, Operator, Inspector

## Command Modes
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

## Syntax Description
```
show resources { cpu | npu | session } [ | { grep grep_options | more } ]
```

- `cpu | npu | session`
  - `cpu`: Displays resource information by CPU.
  - `npu`: Displays resource information by network processing unit (NPU).
  - `session`: Displays resource information by session.

- `| { grep grep_options | more }`
  - Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.
  - For details on the usage of the `grep` and `more` commands, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

## Usage Guidelines
View resource utilization as part of troubleshooting systems which appear sluggish or are having excessive connection timeouts or other connection issues.

## Examples
The following display the resource information by CPU and session, respectively.

- `show resources cpu`
- `show resources session`

## Important
Output descriptions for commands are available in the Statistics and Counters Reference.
show rlf-context-statistics

Displays the statistics for all active RLF contexts.

**Product**
- GGSN
- P-GW

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show rlf-context-statistics {diamproxy [facility_num | [endpoint endpoint_name | peer-realm realm_name | peer-host host_name | ] ] | sessmgr [ gtpc-context-name gtpccontext_name | instance facility_num ] } [ | summary | verbose | | { grep grep_options | more } ]
```

- **facility_num**
  Displays the context information for the specified facility. `num` must be an integer from 1 through 16.

- **endpoint endpoint_name**
  Displays the context information only for the endpoint specified as a string of size ranging from 1 through 63 characters.

- **realm realm_name**
  Displays the context information only for the realm specified as a string of size ranging from 1 through 127 characters.

- **peer-host host_name**
  Displays the context information only for the host specified as a string of size ranging from 1 through 63 characters.

- **gtpc-context-name gtpccontext_name**
  Displays RLF statistics of GTPC services PGW and GGSN
instance facility_num
Displays the facility information for specific instance.

summary
Displays summary information.

verbose
Specifies to display detailed (all available) information. If not specified, concise information is displayed.
Displays the instance level stats. When multiple diams are active, an RLF context's instance is created on each diam or session manager for each peer.

| { grep grep_options | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.
For details on the usage of the grep and more commands, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to display RLF statistics for all active RLF contexts.
An RLF context is created only when –
- A peer is bound to a RLF template.
- The peer is in "OPEN" state.
Failure of any of these conditions will cause the RLF context to be deleted.

Examples
The following command displays RLF statistics for all active RLF contexts:
show rlf-context-statistics diams
show rlf-context-statistics sessmgr instance 1 gtpc-context-name ingress
show rlf-context-statistics sessmgr gtpc-context-name ingress
show rlf-memcache-statistics

Displays the memory used by RLF for processing the messages.

**Product**

- GGSN
- P-GW

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name# 
```

**Syntax Description**

```
show rlf-memcache-statistics { diamproxy facility_num| sessmgr | instance facility information for specific instance } | | | { grep grep_options | more } |
```

- `facility_num`
  - Displays the information for the specified facility. `num` must be an integer from 1 through 16.

- `| { grep grep_options | more }`
  - Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.
  - For details on the usage of the `grep` and `more` commands, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to display the memory used by RLF for processing the messages. The output will be displayed only if the memcache is used.

**Examples**

The following commands displays memory cache statistics for DIAMPROXY and session manager facility:

- `show rlf-memcache-statistics diamproxy`
- `show rlf-memcache-statistics sessmgr instance 1`
**show rlf-template**

Displays the statistics for all active RLF templates.

**Product**

GGSN

P-GW

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show rlf-template { all | name template_name } [ | { grep grep_options | more } ]
```

- **all**
  Displays the statistics information for all the configured RLF templates.

- **name template_name**
  Displays the statistics information for the specified RLF template. `template_name` must be an integer from 1 through 127 characters.

  ```
  | { grep grep_options | more }
  ```
  Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

  For details on the usage of the `grep` and `more` commands, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to display statistics for all or specified RLF template(s).

**Examples**

The following command displays statistics for all RLF templates:

```
show rlf-template all
```
show rohc counters

Displays Robust Header Compression (ROHC) counters for all active calls.

Product
- PDSN
- HSGW
- ASN-GW

Privilege
Security Administrator, Administrator, Operator, Inspector

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description
show rohc counters [ all | callid call_id | imsi imsi_num | ip-address ip_addr | msid msid_num | username user_name ] [ | { grep grep_options | more } ]

all
Displays all information.

callid call_id
Displays the information only for the call ID specified as a 4-byte hexadecimal number.

imsi imsi_num
Displays information for the specified IMSI (International Mobile Subscriber Identity). The IMSI is an up to 15-digit field which identifies the subscriber's home country and carrier: 3 digits of Mobile Country Code (MCC), 2 or 3 digits of Mobile Network Code (MNC), followed by the Mobile Subscriber Identification Number MSIN. Example: 123-45-678910234. May also be entered as 12345678910234.

ip-address ip_addr
Displays information only for the mobile subscriber IP address specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

msid msid_num
Displays information only for a mobile subscriber ID from 7 to 16 digits for an IMSI, MIN, or RMI.
username user_name
Displays radio-packet (R-P) interface information only for a specified username.

| { grep grep_options | more }
Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**
Use this command to display ROHC counters for all active calls.

**Examples**
The following command displays ROHC counters for all active calls:
`show rohc counters all`
show rohc statistics

Displays statistics and counters for Robust Header Compression (ROHC) IP header compression.

**Product**
- PDSN
- HSGW
- ASN-GW

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show rohc statistics [pdsn-service pdsnsvc_name | [asngw-service asngwsvc_name | [hsgw-service hsgwsvc_name] | | {grep grep_options | more }]
```

**Important**
Keywords available for this command are license-driven. For example, if a PDSN license is loaded, the **pdsn-service** option is visible.

- **pdsn-service pdsnsvc_name**
Displays ROHC statistics and counters for the an existing PDSN service specified as an alphanumeric string of 1 through 63 characters.

- **asngw-service asngwsvc_name**
Displays ROHC statistics and counters for an existing ASN-GW service specified as an alphanumeric string of 1 through 63 characters.

- **hsgw-service hsgwsvc_name**
Displays ROHC statistics and counters for an existing HSGW service specified as an alphanumeric string of 1 through 63 characters.

  ```
  | { grep grep_options | more }
  ```
  Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.
For details on the usage of the `grep` and `more` commands, refer to the "Regulating a Command’s Output" section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to display ROHC statistics for all services or for a specific ASN-GW, PDSN, or HSGW.

**Examples**

The following command displays ROHC statistics for the PDSN service named pdsn1:

```
show rohc statistics pdsn-service pdsn1
```

---

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*.  

---
show route-map

Displays entries for all route maps or a specific route map.

Product: All

Privilege: Security Administrator, Administrator, Operator, Inspector

Command Modes: Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description:

show route-map [ name route-map name ] | | { grep grep_options | more } |

name route-map name
Displays information for a route-map specified as an alphanumeric string of 1 through 79 characters.

| { grep grep_options | more } |

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the grep and more commands, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines: Use this command to see the rules configured in all route-maps for the current context.

Examples:

The following command displays the route-map information for prefix list Prefix100:

show route-map Prefix100

Refer to the match and set command descriptions in the Route-map Configuration Mode Commands chapter for descriptions of the various entries listed.
show rp

Displays radio-packet (R-P) interface statistics using the filtering options specified.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show rp [ counters | full | summary ] { all | callid call_id | msid ms_id | peer-address peer_ip_address | username user_name } { | { grep grep_options | more } }
```

- **counters | full | summary**
  Provides an optional modifier to the output for the desired level and type of information.
  - **counters**: Displays R-P protocol statistics.
  - **full**: Displays all available information.
  - **summary**: Displays only a summary of available information.
  These options are not available in conjunction with the keywords `statistics` or `service-option statistics`.

- **all | callid call_id | msid ms_id | peer-address peer_ip_address | username user_name**
  - **all**: Displays all R-P information.
  - **callid call_id**: Displays only the information for the call ID specified as a 4-digit hexadecimal number.
  - **msid ms_id**: Displays information only for a mobile subscriber ID specified by 7 to 16 digits for an IMSI, MIN, or RMI.
  - **peer-address peer_ip_address**: Displays R-P information for the peer IP address of the PCF specified in IPv4 dotted-decimal notation.
  - **username user_name**: Displays R-P information for the specified username.

  | { grep grep_options | more }

  Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.
For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

View the R-P interface statistics for the current context.

**Examples**

The following displays the summary for all connections.

```
show rp summary all
```

The following outputs the R-P interface detailed information for the user *isp1user1*.

```
show rp full username isp1user1
```

The following command displays the standard information for the call with ID *FF0E11CD*.

```
show rp callid ff0e11cd
```

The following displays the statistics summary for the R-P facility.

```
show rp
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show rp service-option

Displays the radio-packet (R-P) service option statistics using the filtering options specified.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show rp service-option statistics [number svc_option_num | pdsn-service pdsn_name] [ | {grep grep_options | more} ]
```

- **number svc_option_num | pdsn-service pdsn_name**
  
  Default: display statistics for all service option numbers and associated packet data services.

- **number svc_option_num**: Displays statistics for the specified service option number.

- **pdsn-service pdsn_name**: Displays statistics for the specified packet data service.

  | { grep grep_options | more } |

  Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

  For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command’s Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

View the R-P service option statistics for the current context.

**Examples**

The following displays the statistics for all service options.

```
show rp service-option statistics
```

The following displays the statistics for service option 5.

```
show rp service-option statistics number 5
```

The following command displays the statistics for all service options in collected for the packet data service `sampleService`.

```
show rp service-option statistics pdsn-service sampleService
```
show rp statistics

Displays the radio-packet (R-P) protocol statistics using the filtering options specified.

**Product**
PDSN

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
show rp statistics [hsgw-service hsgw-name] [pcf-summary [wf1]] [pdsn-service pdsn_name] [peer-address {peer_address | all}] [include-bcmcs] [verbose] [grep grep_options] [more]
```

- `hsgw-service hsgw_name`
  Specifies an eHRPD Serving Gateway service followed by the name of an HSGW service specified as an alphanumeric string of 1 through 63 characters.

- `pcf-summary [wf1]`
  Displays a session summary of Packet Control Function (PCF) statistics.
  The `wf1` option displays PCF statistics in wide-format number 1.

- `pdsn-service pdsn_name`
  Displays the statistics information for the pdsn-service specified as an alphanumeric string of 1 through 63 characters.

- `peer-address {peer_address | all}
  - `peer_address`: Displays statistics only for the peer specified by its IP address in IPv4 dotted-decimal notation.
  - `all`: Displays statistics for all peers.

- `verbose`
  Displays more detailed statistics.
| { grep grep_options | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

View the R-P statistics for the current context.

**Examples**

The following displays all collected R-P statistics.

```
show rp statistics
```

The following displays the R-P statistics associated with the peer address 10.2.3.4.

```
show rp statistics peer-address 10.2.3.4
```

The following command displays the R-P statistics for the packet data service `PCFnet`.

```
show rp statistics pdsn-service PCFnet
```

---

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
**show rsvp counters**

Displays Resource Reservation Protocol (RSVP) counters using the filtering options specified.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

[local] *host_name*#

**Syntax Description**

`show rsvp counters [ all | callid call_id | msid ms_id | username user_name ]`

- **all | callid call_id | msid ms_id | username user_name**
  - **all**: Displays all RSVP information.
  - **callid call_id**: Displays information only for the call ID specified as a 4-digit hexadecimal number.
  - **msid ms_id**: Displays information for a mobile subscriber ID specified a string of 7 to 16 digits for an IMSI, MIN, or RMI.
  - **username user_name**: Displays RSVP information only for the specified username.

**Usage Guidelines**

View the RSVP counters for the current context.

**Examples**

The following displays all collected RSVP counters.

`show rsvp counters all`
show rsvp statistics

Displays Resource Reservation Protocol (RSVP) statistics using the filtering options specified.

Product PDSN

Privilege Security Administrator, Administrator, Operator, Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

[local]\host_name#

Syntax Description

show rsvp counters [ pdsn-service service | sessmgr instance instance ]

pdsn-service service | sessmgr instance instance

pdsn-service service: Displays statistics for the service specified as an alphanumeric string of 1 through 63 characters.

sessmgr instance instance: Displays statistics for the specified session manager instance.

Usage Guidelines View the RSVP statistics for the current context.

Examples The following displays collected RSVP statistics for a sampleService. show rsvp statistics pdsn-service sampleService
show requirement pac daughtercard

Displays the system-level status indicating whether or not the encryption daughter card (EDC) is required on PACs within chassis.

Product

<table>
<thead>
<tr>
<th>PDSN</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGSN</td>
</tr>
<tr>
<td>ASN-GW</td>
</tr>
</tbody>
</table>

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]\host_name#

Syntax Description

show requirement pac daughtercard

Usage Guidelines

This command displays whether or not the EDC is required on PACs within the chassis.

Important

This command is not supported on all platforms

Examples

show requirement pac daughtercard

When the EDC requirement is enabled, the output of this command matches this example:

[local]chicago# show requirement pac daughtercard
The encryption daughtercard is required for all PACs
[local]chicago#

When the EDC requirement is disabled, the output of this command matches this example:

[local]chicago# show requirement pac daughtercard
The encryption daughtercard is not required for all PACs
[local]chicago#
show s102-service

Displays the configuration information for the S102 service(s).

Product MME

Privilege Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:
[local]host_name#

Syntax Description

show s102-service { all | name s102_service_name | statistics { all | name s102_service_name } }

all
Displays information for all S102 service configurations.

name s102_service_name
Displays configured information for the specified S102 service configuration.

s102_service_name Enter a string of 1 through 63 alphanumeric characters to identify the uniquely named S102 service.

statistics { all | name s102_service_name }
Generates statistical output indicating the status and activity of the interface for either all S102 services configured on the MME or for the specific named S102 service.

s102_service_name Enter a string of 1 through 63 alphanumeric characters to identify the uniquely named S102 service.

| { grep grep_options | more }
Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the grep and more commands, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter.

Usage Guidelines Use this command to verify the parameters set for one or all S102 service configurations.
Examples

The following commands displays the configuration for the S102 service named \texttt{s102test}:

\texttt{show s102-service name s102test}
show s4-sgsn statistics

Displays statistics related to S4 functionality on the SGSN.

**Product**

SGSN

**Privilege**

Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

**Syntax Description**

`show s4-sgsn statistics [ all | smgr-instance <instance_number> ]`

- **all**
  Show all S4-SGSN statistics from all session managers.

- **smgr-instance**
  Show the statistics for a session manager instance of the SGSN service. `<instance_number>` must be specified as an integer between 1 and 65535.

**Important**

If no option is specified, then S4-SGSN statistics from all session managers will be added up and the cumulative totals will be shown.

**Usage Guidelines**

Use this command to display information for S4-SGSN related services.

**Examples**

The following commands display and clear S4-SGSN-related statistics for all services on the system:

- `show s4-sgsn statistics all`
- `clear s4-sgsn statistics all`
show saegw-service

Displays configuration information and node-level statistics for System Architecture Evolution Gateway (SAEGW) services on this system.

**Product**
SAEGW

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:
[local] *host_name*#

**Syntax Description**

```
show saegw-service { all | name service_name | statistics { all | name service_name } } function { pgw [ interface { GnGp | S2a | S5S8 } ] | sgw } | | verbose } | | { grep grep_options | more } }
```

**all**
Displays configuration information for all SAEGW services configured on this system.

**name service_name**
Displays configuration information for an existing SAEGW service specified as an alphanumeric string of 1 through 63 characters.

**statistics { all | name service_name } } function { pgw [ interface { GnGp | S2a | S5S8 } ] | sgw } | | verbose }**
Displays node-level statistics for SAEGW.

**all:** Displays consolidated node-level statistics for all SAEGW services on the system.

**name service_name:** Displays node-level statistics for an existing SAEGW service specified as an alphanumeric string of 1 through 63 characters.

**function:** Displays node-level statistics of one of the following functions:

- **pgw:** Displays node-level statistics of P-GW function within SAEGW.
- **sgw:** Displays node-level statistics of S-GW function within SAEGW.

**interface:** Displays node-level statistics of P-GW function with respect to one of the following interfaces:

- **GnGp:** Displays node-level statistics of P-GW function with respect to GnGp interface.
• S2a: Displays node-level statistics of P-GW function with respect to S2a interface.
• S5S8: Displays node-level statistics of P-GW function with respect to S5S8 interface.

If `verbose` is also specified, the information is displayed in more detail.

```
| { grep grep_options | more }
```

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of `grep` and `more`, refer to the Regulating a Command's Output section in the Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to view configuration information and node-level statistics for SAEGW services on this system.

**Examples**
The following command displays configuration information for the SAEGW service named `saegw1`:

```
show saegw-service name saegw1
```
show samog-service

Displays configuration and/or statistical information for SaMOG services on this system.

**Product**
SaMOG

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Syntax Description**

```
show samog-service { all | name name | statistics [ name name ] } [ | { grep grep_options | more } ]
```

- **all**
  Displays all SaMOG services.

- **name name**
  Displays information for specific SaMOG service name.
  
  *name* is a string of size 1 to 63.

- **statistics**
  Displays Node level Statistics for SaMOG.

- **verbose**
  Specifies Detailed statistics.

  ```
  | { grep grep_options | more }
  ```

  Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

  For details on the usage of **grep** and **more**, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to display configuration and/or statistical information for SaMOG services on this system.

**Examples**

```
show samog-service all
```
**show sbc-service**

Displays information about SBC interfaces services configured on this system.

**Product**
MME

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show sbc-service { all | cbc-associations { all | sbc-service-name sbc_svc_name | path-info | summary | } | sbc-service-name sbc_svc_name } [ { grep grep_options | more } ]
```

| all |
| Displays information about all SBC interface services configured on this system.

| cbc-associations { all | sbc-service-name sbc_svc_name |
| Displays information about the SBC interface associations with the Cell Broadcast Centers (CBC).

| all |
| shows information about all CBC associations.

| sbc-service-name sbc_svc_name |
| shows information only for CBC associations for the SBC service name specified as an alphanumeric string of 1 through 63 characters.

| sbc-service-name sbc_svc_name |
| Displays information only for the SBC service specified as an alphanumeric string of 1 through 63 characters.

| grep grep_options | more |
| Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output section of the Command Line Interface Overview chapter.*

**Usage Guidelines**

Use this command to display information about SBC services configured on this system.

Refer to the **show sbc statistics** Exec Mode command to display statistics for SBC interface.
show sbc-service

Examples

The following command displays information about the CBC associations for the SBc service named sbc1:

`show sbc-service cbc-associations sbc-service-name sbc1`
show sbc statistics

Displays statistics about SBc interface services configured on this system.

**Product**
MME

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show sbc statistics { all | peer-id peer_id | sbc-service-name sbc_svc_name } [ verbose | { | grep grep_options | more } ]
```

- **all**
  Displays statistics for all SBc services configured on this system.

- **peer-id peer_id**
  Displays statistics for a Cell Broadcast Center (CBC) peer association specified as an integer value from 0 through 4294967295. Use the `show sbc-service sbc-associations all` command to display the available CBC association peer IDs.

- **sbc-service-name sbc_svc_name**
  Displays statistics for an SBc service specified as an alphanumeric string of 1 through 63 characters.

- **verbose**
  Displays expanded statistics.

- `{ grep grep_options | more }`
  Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

  For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command’s Output* section of the *Command Line Interface Overview* chapter.
Usage Guidelines

Use this command to display statistics about SBc services configured on this system.

Examples

The following command displays verbose (expanded) statistics for an SBc service named sbc1:

```
show sbc statistics sbc-service-name sbc1 verbose
```
show sccp-network

Displays SS7 Signaling Connection Control Part (SCCP) network configuration and status information.

Product
SGSN

Privilege
Security Administrator, Administrator, Operator, Inspector

Command Modes
Exec
The following prompt is displayed in the Exec mode:
[local]host_name#

Syntax Description
show sccp-network { ntk_index | all } [ status [ all | dpc ] ]

ntwk_index
Displays configuration and status information for the SCCP network configuration with the network index specified as an integer from 1 through 12.

all
Displays all available configuration and status information for all SCCP networks.

status all
Displays all status information for specified SCCP networks.

status dpc
Displays status information for the device in the SCCP network identified by the destination point-code (DPC).

Usage Guidelines
Use this command to display global SCCP statistics or to display SCCP statistics for a specified service or network.

Examples
The following command displays global SCCP statistics:
show sccp-network all

The following command displays information for an SCCP network configuration with the network index of 1:
show sccp-network 1
Output descriptions for commands are available in the Statistics and Counters Reference.
show sccp statistics

Displays SS7 Signaling Connection Control Part (SCCP) statistics for services that use the SCCP protocol.

Product
SGSN

Privilege
Inspector

Command Modes
Exec

The following prompt is displayed in the Exec mode:
[local]host_name#

Syntax Description
show sccp statistics [iups-service iups_srvc_name | map-service map_srvc_name | sccp-network ntkw_index [dpc dpc | ssn ssn | global-title-translation {address-map instance add_map_inst | association instance assoc_inst} | sessmgr instance sessmgr_inst | | | {grep grep_options | more}]

iups-service iups_srvc_name
Displays SCCP protocol statistics for an existing IuPS service in the current context specified as an alphanumeric string of 1 through 63 characters.

map-service map_srvc_name
Displays SCCP protocol statistics for the an existing Mobile Application Part (MAP) service in the current context specified as an alphanumeric string of 1 through 63 characters.

sccp-network ntkw_index
Displays SCCP protocol statistics for the SSCP network configuration with a network index specified as an integer from 1 through 12.

The following filters can be added to fine tune the display of SCCP network statistics:

• dpc dpc: Enter a standard pointcode address to limit the display of SCCP network statistics to those for the identified DPC.

• ssn ssn: Enter an integer from 1 to 255 to limit the display of SCCP network statistics to those for the identified subsystem number.

• global-title-translation address-map instance add_map_inst: Enter an integer from 1 to 4096 to limit the display of SCCP network statistics to those for the identified GTT address-map.

• global-title-translation association instance assoc_inst: Enter an integer from 1 to 16 to limit the display of SCCP network statistics to those for the identified GTT association.
• **sessmgr instance sessmgr_inst**: Enter an integer from 1 to 384 to limit the display of SCCP network statistics to those for the identified session manager.

**Usage Guidelines**

Use this command to display global SCCP statistics or to display SCCP statistics for a specified service or SCCP network.

**Examples**

The following command displays global SCCP statistics:

```
show sccp statistics
```

The following command displays SCCP statistics for the IuPS service named `iups-serv1`:

```
show sccp statistics iups-service iups-serv1
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show sctp-param-template

Displays configuration information for Stream Control Transmission Protocol (SCTP) parameter templates configured on this system.

Product  MME

Privilege  Inspector

Command Modes  Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

show sctp-param-template { all | name template_name } | | { grep grep_options | more } |

all
Displays configuration information for all SCTP parameter templates configured on this system.

name template_name
Displays configuration information for an existing SCTP parameter template specified as an alphanumeric string of 1 through 63 characters.

| { grep grep_options | more } |

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the grep and more commands, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter.

Usage Guidelines

Use this command to view configuration information for SCTP parameter templates on this system.

Examples

The following command displays configured parameters for an SCTP parameter template named sctp_pt3:

show sctp-param-template name sctp_pt3
show service all

Displays configuration information for all services currently configured on this system.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

show service all

**Usage Guidelines**

Use this command to view configuration information for all services configured on this system.

**Examples**

The following command displays information about all services configured on this system:

```
show service all
```
show session counters historical

Displays historical information for session-related counters based on data collected in bulk statistics.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

**Syntax Description**

show session counters historical { all | arrived | callops | connected | disconnected | failed | handoff | rejected | renewal } [ all-intervals | recent-intervals ] [ cumulative | incremental ] [ graph | table | 2g | 3g | 3g-ha | 4g | all | ehrpd | wifi ] [ | { grep grep_options | more } ]

**all**

Displays data for all counters either as a single, wide table or multiple graphs.

**arrived**

Displays only data for "total calls arrived" counters. This is based on the "sess-ttlarrived" statistic in the system schema.

**callops**

Displays data for all call operations. This is a calculated value based on the following formula:

(arrived + rejected + disconnected + failed + handoffs + renewals)

**connected**

Displays only data for "total calls connected" counters. This is based on the "sess-ttlconnected" statistic in the system schema.

**disconnected**

Displays only data for "total calls disconnected" counters. This is based on the "sess-ttldisconn" statistic in the system schema.
failed
Displays only data for "total calls failed" counters. This is based on the "sess-ttlfailed" statistic in the system schema.

handoff
Displays only data for "total handoffs" counters. This is based on the "sess-ttlhandoff" statistic in the system schema.

rejected
Displays only data for "total calls rejected" counters. This is based on the "sess-ttlrejected" statistic in the system schema.

renewal
Displays only data for "total renewal" counters. This is based on the "sess-ttlrenewal" statistic in the system schema.

| { grep grep_options | more }

Pipes (sends) the output of this command to the specified command. You must specify a command to which the output of this command will be sent.

For details on the usage of grep and more, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Output Options
The following output options are available for this command:

- **all-intervals**: Displays all available historical information from all samples. This filter is used by default.
- **cumulative**: Displays total data for all samples up to and including the last one. In this view, values increase over time.
- **graph**: Displays data in graphical form.
- **incremental**: Displays data changes for each specific sample. The data for each sample is the amount of change since the previous sample. This filter is used by default.
- **recent-intervals**: Displays historical information for only recent samples.
- **table**: Displays data in tabular form. This is the default view.

Access Technology Categories
The following options display session counters as categorized by access technology type:

- **all**: Displays session counters for all access technology categories.
- **2g**: Displays session counters for calls using 2G GERAN access technology.
- **3g**: Displays session counters for calls using 3G UTRAN access technology.
- **3g-ha**: Displays session counters for 3G-HA (High Availability) sessions.
- **4g**: Displays session counters for calls using 4G EUTRAN access technology.
- **ehrpd**: Displays session counters for eHRPD (evolved High Rate Packet Data) calls.
- **wifi**: Displays session counters for WiFi calls.

**Usage Guidelines**

This command provides the ability to track key session-related statistic information over time. This information can be used as part of system performance monitoring and capacity planning.

---

**Important**

The information provided in the output of this command requires that bulk statistics functionary be enabled on the system. Refer to the *System Administration Guide* for more information on configuring and enabling bulk statistics support.

The output of this command displays historical data collected at various sample intervals. The interval length is 15 minutes and is not user-configurable. Up to 192 samples (two days' worth of data) are maintained.

**Important**

Data collection is "best-effort" over these intervals. Data is preserved on the SMC or MIO card switchovers. As with all counters, certain session failures can cause inaccuracies with counters, including counters which appear to go backwards.

Each sample is identified by a timestamp that displays the approximate time the data was gathered. The timestamp is in the format YYYY:MM:DD:hh:mm:ss.

Data acquired during the sample may be marked with an "S" appended to the end of the timestamp or to the counter value. The "S" indicates that the data is suspect (potentially bad). Occurrences of this result from events like changes to the real time clock, which can cause an interval to be atypical length. Instances of suspect data should be rare. Additionally, there may be occasions in which a sample may be marked as "invalid". "invalid" identifies bad data, a situation that could result when the polling has not run long enough, or because of an unexpected error retrieving data.

Since baseline values must be obtained prior to collecting interval samples, the first interval of data will not be available until up to twice the interval period.

**Examples**

The following command displays cumulative total calls arrived information for the most recent intervals and displays the output in graphical format:

```
show session counters historical arrived recent-intervals cumulative graph
```

The following command displays historical data for all counters for all intervals and displays the output in tabular format:

```
show session counters historical all
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
**show session counters pcf-summary**

Displays the Packet Control Function (PCF) summary which include the number of calls, call types, and Tx/Rx packets/octets statistics.

**Product**

PDSN

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show session counters pcf-summary [ call-types ] [ data ] [ wfl ] [ pcf pcf_address ] [ | | { grep grep_options | more } ]
```

- **call-types**
  Displays the number of calls and the types of calls.

- **data**
  Displays the number of successful calls and Tx/Rx packets/octets statistics.

- **pcf pcf_address**
  Displays the given PCF summary for a particular address.

- **wfl**
  Displays the PCF summary in a single very wide line.

```
| | { grep grep_options | more } |
```

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the `grep` and `more` commands, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to display a summary of all PCFs.

**Examples**

```
show session counters pcf-summary
```
show session disconnect-reasons

Displays a list of the reasons for call disconnects and the number of calls disconnected for each reason.

**Product**

All

**Privilege**

Security Administrator, Administrator, Inspector, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show session disconnect-reasons [ buckets | gprs-only | mme-only | sgsn-only | verbose ] [ grep grep_options | more ]
```

- **buckets**
  
  Displays additional disconnect reasons in pre-configured bucket-intervals.

- **gprs-only**
  
  Only supported on the SGSN.
  
  This keyword limits the display to session disconnect reasons for the SGSN's 2G MM and PDP context disconnects.

- **mme-only**
  
  Displays session disconnect reasons for MME call disconnects.

- **sgsn-only**
  
  Only supported on the SGSN.
  
  Displays session disconnect reasons for the SGSN's 3G MM and PDP context disconnects.

- **verbose**
  
  List all disconnect reasons even if the values are zero (0).

**Important**

The `verbose` option is not supported for the `buckets` keyword.
| { grep grep_options | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to display a list of the reasons why calls were disconnected.

**Examples**

To view session disconnect statistics, enter the following command:

```
show session disconnect-reasons
```

To view a list of the disconnect reasons with verbose output, enter the following command:

```
show session disconnect-reasons verbose
```
show session duration

Displays session duration information for the current context filtered by the options specified.

Product All

Privilege Security Administrator, Administrator, Inspector, Operator

Command Modes Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show session duration [ session_filter ] | | { grep grep_options | more } }

session_filter

Specifies the name of the entity whose session duration information is to be filtered and displayed. This options are:

- apn apn_name: Displays session information for an existing Access Point Name (APN) specified as an alphanumeric string of 1 through 62 characters that is case sensitive.
- asn-peer-address ip_address: Displays session information for the ASN GW peer whose IP address is specified in IPv4 dotted-decimal notation.
- asngw-service service_name: Displays session information for the specified ASN-GW service.
- asnpc-peer-address ip_address: Displays session information for the Access Service Network Paging Controller (ASN PC) peer whose IP address is specified in IPv4 dotted-decimal notation.
- asnpc-service service_name: Displays session information for the specified ASN PC service.
- dhcp-server dhcp_address: Displays session information for the Dynamic Host Configuration Protocol (DHCP) server specified by its IP address in IPv4 dotted-decimal notation.
- epdg-service service_name: Displays session information for ePDG service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.
- fa fa_address: Displays session information for the foreign agent (FA) whose IP address is specified in IPv4 dotted-decimal notation.
- fa-service fa_name: Displays session information for the named foreign agent service.
- fng-service fng_name: Displays session information for the named Femto Network Gateway service.
- **ggsn-service** `ggsn_name`: Displays session information for an existing GGSN service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.
- **gprs-only**: Limits the display to the session information for the SGSN's 2G MM and PDP contexts.
- **ha ha_address**: Displays session information for the home agent specified by its IP address in IPv4 dotted-decimal notation.
- **ha-service ha_name**: Displays session information for the named home agent (HA) service.
- **hnbgw-only**: Displays session information for the HNB-GW service related sessions instances (such as HNB, IuPS, IuCS).
- **hsgw-service** `service_name`: Displays session information for an existing HSGW service specified as an alphanumeric string of 1 through 63 characters.
- **lma-service** `service_name`: Displays session information for an existing Local Mobility Anchor (LMA) service specified as an alphanumeric string of 1 through 63 characters.
- **mag-service** `service_name`: Displays session information for an existing Mobile Access Gateway (MAG) service specified as an alphanumeric string of 1 through 63 characters.
- **mme-service** `service_name`: Displays session information for an existing Mobility Management Entity (MME) service specified as an alphanumeric string of 1 through 63 characters.
- **pcc-service** `service_name`: Displays session information for an existing Policy and Charging Control service specified as an alphanumeric string of 1 through 63 characters.
- **pcf pcf_address**: Displays session information for the packet control function specified by its IP address in IPv4 dotted-decimal notation.
- **pdif-service** `service_name`: Displays session information for the named Packet Data Interworking Function service.
- **qci { all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | non-std } ***: Displays the length of time a dedicated bearer is established on the network for a given QCI. More than one QCI value can be specified.
- **pdsn-service** `pdsn_name`: Displays session information for the named packet data service.

If no PCF address or PDSN service is specified, the session information for all sessions is displayed.

- **pdsnclosedrp-service** `service_name`: Displays all L2TP tunnels in the specified Closed R-P service.
- **qci std_value [ all | non-std ]** Displays session duration information for a specified or all QoS Class Index (QCI) values. The standard QCI value is an integer from 1 through 9.
- **sgsn-address sgsn-address**: Displays session information for the SGSN specified by its IP address in IPv4 dotted-decimal notation.
- **sgsn-only**: Limits the display to the session information for the SGSN's 3G MM and PDP contexts.
- **sgw-service** `service_name`: Displays session information for an existing S-GW service specified as an alphanumeric string of 1 through 63 characters.
- **wsg-service** `service_name`: Displays session information for an existing Security Gateway (wsg-service) service specified as an alphanumeric string of 1 through 63 characters.
Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

View the session information to troubleshoot subscriber problems and for general monitoring for orphaned sessions.

**Examples**

The following commands display the duration for the session connected to the packet control function with address 10.2.3.4, packet data service `sampleService`, and for all sessions, respectively.

```
show session duration pcf 10.2.3.4
show session duration pdsn-service sampleService
show session duration
```
**show session progress**

Displays session progress information for the current context filtered by the options specified.

**Product**

All

**Privilege**

Security Administrator, Administrator, Inspector, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name# 
```

**Syntax Description**

```
show session progress [ apn apn_name | asn-peer-address ip_address | asngw-service service_name |
   asnpc-service service_name | asnpc-peer-address ip_address | dhcp-server dhcp_address | epdg-service
   service_name | fa fa_address | fa-service fa_name | ggsn-service ggsn_name | ha ha_address | ha-service
   ha_name | hsgw-service service_name | lma-service service_name | mag-service service_name |
   mipv6-service service_name | mme-address mme_address | pcc-address service_name | pcf { pcf_address
   pdfs-service service_name | pdsn-service pdsn_name service_name | pgw-address ip_address |
   saegw-service service_name | samog-service service_name | sgsn-address sgsn_address | sgw-service
   service_name | wsg-service service_name | | | { grep grep_options | more } ]
```

**apn apn_name**

Displays session information for an existing Access Point Name (APN) specified as an alphanumeric string of 1 through 62 characters that is case sensitive.

**asn-peer-address ip_address**

Displays session information for the Access Service Network-Gateway (ASN-GW) peer specified by its IP address in IPv4 dotted-decimal notation.

**asngw-service service_name**

Displays session information for an existing ASN-GW service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

**asnpc-service service_name**

Displays session information for an existing Access Service Network Paging Controller (ASN PC) service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.
**asnpc-peer-address ip_address**
Displays session information for the ASN PC peer specified by its IP address in IPv4 dotted-decimal notation.

**dhcp-server dhcp_address**
Displays session information for a Dynamic Host Configuration Protocol (DHCP) server specified by its IP address in IPv4 dotted-decimal notation.

**epdg-service service_name**
Displays session information for an existing Evolved Packet Data Gateway (ePDG) service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

**fa fa_address**
Displays session information for the foreign agent (FA) whose IP address is specified in IPv4 dotted-decimal notation.

**fa-service fa_name**
Displays session information for an existing FA service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

**ggsn-service ggsn_name**
Displays session information for an existing Gateway GPRS Support Node (GGSN) service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

**ha ha_address | ha-service**
Displays session information for the home agent specified by its IP address in IPv4 dotted-decimal notation.

**ha-service ha_name**
Displays session information for an existing Home Agent (HA) service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

**hsgw-service service_name**
Displays session information for an existing HRPD Serving Gateway (HSGW) service specified as an alphanumeric string of 1 through 63 characters that is case sensitive.

**lma-service service_name**
Displays session information for an existing Local Mobility Anchor (LMA) service specified as an alphanumeric string of 1 through 63 characters.

**mag-service service_name**
Displays session information for an existing Mobile Access Gateway (MAG) service specified as an alphanumeric string of 1 through 63 characters.
mipv6ha-service-service service_name
Displays session information for an existing Mobile Internet Protocol version 6 (MIPv6) Home Agent (HA) service specified as an alphanumeric string of 1 through 63 characters.

mme-address mme_address
Displays session progress information for the Mobility Management Entity (MME) specified by its IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

pcc-service service_name
Displays session information for an existing Policy Charging Control (PCC) service specified as an alphanumeric string of 1 through 63 characters.

pcf pcf_address
Displays session information for the Packet Control Function (PCF) specified by its IP address in IPv4 dotted-decimal notation.

pdif-service service_name
Displays session information for an existing Packet Data Interworking Function (PDIF) service specified as an alphanumeric string of 1 through 63 characters.

pdsn-service service_name
Displays session information for an existing Packet Data Serving Node (PDSN) service specified as an alphanumeric string of 1 through 63 characters.

pgw-address ip_address
Displays session progress information for the PDN-Gateway (P-GW) specified by its IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

saegw-service service_name
Displays session information for an existing System Architecture Evolution-Gateway (SAE-GW) service specified as an alphanumeric string of 1 through 63 characters.

samog-service service_name
Displays session progress information for an existing S2a Mobility over GTP (SaMOG) service specified as an alphanumeric string of 1 through 63 characters.

sgsn-address sgsn_address
Displays session information for the Serving GPRS Support Node (SGSN) specified by its IP address in IPv4 dotted-decimal notation.

sgw-service service_name
Displays session progress information for an existing Serving Gateway (S-GW) service specified as an alphanumeric string of 1 through 63 characters.
**wsg-service service_name**

Displays session progress information for an existing Wireless Security Gateway (WSG) service specified as an alphanumeric string of 1 through 63 characters.

`| { grep grep_options | more }`

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

View the session information to troubleshooting subscriber problems and for general monitoring for orphaned sessions.

**Examples**

The following commands display the status information for the session connected to the packet control function with address 10.2.3.4, packet data service `sampleService`, and for all sessions, respectively.

- `show session progress pcf 10.2.3.4`
- `show session progress pdsn-service sampleService`
- `show session progress`

**Important**

Output descriptions for this command are available in the *show session* chapter of the *Statistics and Counters Reference*. 
show session recovery status

Displays session recovery status information for the current context filtered by the options specified.

Product

All

Privilege

Security Administrator, Administrator, Inspector, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description

show session recovery status [ verbose ] | grep grep_options | more |

recovery status
Displays the current status of the system's ability to recover from a hardware or software fault that requires the recovery of home agent-based Mobile IP session(s).

verbose
Includes per-CPU Session Recovery status.

| grep grep_options | more |
Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the grep and more commands, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines

View the session information for troubleshooting subscriber problems and for general monitoring for orphaned sessions.

Examples

To display the session recovery status information, enter the following command:

show session recovery status

Adding the optional verbose keyword to this command provides more details.

show session recovery status verbose
Important: Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show session setuptime

Displays session setup time information for all sessions or sessions associated with the specified Access Gateway (AGW).

**Product**
- ePDG
- PDSN
- HNB-GW
- SGSN

**Privilege**
Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name# 
```

**Syntax Description**

```
show session setuptime [ epdg-only [ verbose ] | hnbgw-only | pcf pcf_address | gprs-only |
sgsn-address sgsn_address | sgsn-only | | | { grep grep_options | more } ]
```

[ epdg-only [ verbose ] hnbgw-only | mme-only | pcf pcf_address | gprs-only | sgsn-address sgsn_address |
 sgsn-only ]

Displays the call setup times aggregated into basic ranges of time.

- **epdg-only**: Display ePDG Session Statistics. **verbose**: Displays session setup times in verbose mode.
- **hnbgw-only**: Filters and displays the call setup information for HNB-GW calls only.
- **pcf pcf_address**: displays call setup data for the packet control function whose IP address is specified as `pcf_address`. `pcf_address` must be specified using IPv4 dotted-decimal notation. The call setup times for all PCFs is displayed when no specified PCF is specified.
- **gprs-only**: Displays 2G call setup data for the for the SGSN for the MM and PDP contexts.
- **sgsn-address sgsn_address**: Displays call setup times for the specified SGSN. `sgsn_address` is the IP address of the SGSN and must be expressed in IPv4 dotted-decimal notation. This keyword is used by the GGSN.
- **sgsn-only**: Displays 3G call setup data for the for the SGSN for the MM and PDP contexts.
| { grep grep_options | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the `grep` and `more` commands, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

View the session information to troubleshooting subscriber problems and for general monitoring for orphaned sessions.

When no keywords are specified, the information shown is cumulative for all sessions that have been facilitated by the system.

**Examples**

The following command shows setup time statistics for all sessions from the PCF at IP address 192.168.10.3: `show session setuptime pcf 192.168.10.3`
**show session subsystem**

Displays session information for system subsystems. If no keywords are specified, information for all subsystems is displayed.

**Product**

All

**Privilege**

Security Administrator, Administrator, Inspector, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] <host_name>
```
show session subsystem

- **gtpumgr**: GTP-U Demux Manager
- **hamgr**: Home Agent Manager
- **henbgwdemux**: Home eNodeB Gateway demux manager
- **henbgwmg**: Home eNodeB Gateway Manager
- **hnbgmgr**: HNBGW HNB Manager
- **imsimgr**: SGSN IMSI Manager
- **ipsgmgr**: IP Services Gateway Manager
- **l2tpdemux**: L2TP Demux Manager
- **l2tpmgr**: L2TP Manager
- **linkmgr**: SGSN/SS7 Master Manager
- **magmgr**: Mobile Access Gateway Manager
- **megadiammgr**: MegaDiameter Manager
- **mmedemux**: MME Demux Manager
- **mmemgr**: MME Manager
- **mmgr**: SGSN/SS7 Master Manager
- **pdgmgr**: PDG Manager
- **phsgwmg**: PHS Gateway Manager
- **phspcmgr**: PHS Paging Controller Manager
- **sessmgr**: Session Manager
- **sgtpcmgr**: SGSN GTP-C Manager

**all** | **instance** **id**: the keyword **all** indicates all instances of the specified facility are to be displayed whereas the keyword **instance** specifies a specific instance for which information is to be displayed where **id** must be specified as an integer from 0 through 4294967295. If all or instance is not specified summary statistics are displayed.

**verbose**
Displays everything the **show session subsystem** command displays with the exception that the Setup Time statistics are reported in 100 millisecond increments from 100 ms up to 9600 ms.

| { grep **grep_options** | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the **Regulating a Command's Output** section of the **Command Line Interface Overview** chapter.

**Usage Guidelines**
View the session information to troubleshooting subscriber problems and for general monitoring for orphaned sessions.
If this command is entered with no keywords, the information displayed is cumulative for all sessions facilitated by the system.

**Examples**

The following commands display the statistics information summarized for all sessions, then for the `famgr` facility (all sessions), and finally only for the session ID *127589* for the `hamgr` subsystem.

```
show session subsystem full
show session subsystem facility famgr all
show session subsystem facility hamgr instance 127589
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference.*
show session trace

Displays status and statistics for the session trace application.

Product

  - GGSN
  - MME
  - P-GW
  - SAEGW
  - S-GW

Privilege

  Inspector

Command Modes

  Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

show session trace { statistics | subscriber network-element { ggsn | mme | pgw | sgw } trace-ref value | tce-address ip_address tce-index num | tce-summary | trace-summary } [ | | { grep grep_options | more } ]

statistics

Displays summary statistics for the session trace subsystem.

subscriber network-element { ggsn | mme | pgw | sgw } trace-ref value

Displays status and statistics for a specified session trace using the network element type; GGSN, MME, P-GW, and S-GW, and a valid trace reference of 12 characters.

tce-address ip_address tce-index num

Displays status and statistics for an existing Trace Collection Entity (TCE) connection specified by its IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

tce-index num: Specifies a TCE index of the trace collection entity as an integer from 0 through 7.

tce-summary

Displays a summary of all active TCE connections.
trace-summary
Displays a summary of all active session traces.

| { grep grep_options | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the `grep` and `more` commands, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to display status and statistics for the session trace application.

Examples
The following command displays status and statistics for a subscriber session trace on a P-GW with a trace reference of 32223398765:

```
show session trace subscriber network-element pgw trace-ref 32223398765
```

The following command displays status and statistics for a subscriber session trace on an MME with a trace reference of 32221234567:

```
show session trace subscriber network-element mme trace-ref 32223398765
```

The following command displays status and statistics for a subscriber session trace on an GGSN with a trace reference of 1203398765:

```
show session trace subscriber network-element ggsn trace-ref 1203398765
```

Important
Output descriptions for commands are available in the Statistics and Counters Reference.
show session-event-record

Displays session event module statistics and file space usage information.

**Product**
- S-GW
- SAEGW

**Privilege**
- Operator

**Command Modes**
- Exec
  
The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show session-event-record { file-space-usage | statistics }
```

- **file-space-usage**
  Displays session event module file storage limits and capacities.

- **statistics**
  Displays session event module statistics regarding the handling and transfer of event records to an external collection server.

**Usage Guidelines**

View the session event information to troubleshoot handling and transfer problems and for general monitoring for file storage use.

**Examples**

The following command displays the file storage limit and use for all event modules on the system:

```
show session-event-record file-space-usage
```
show sf

Displays switch fabric task (SFT) information associated with packet processing cards.

<table>
<thead>
<tr>
<th>Product</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Privilege</td>
<td>Inspector</td>
</tr>
</tbody>
</table>

**Syntax Description**

`show sf stats sft [ historical ]`

- `historical`
  Displays historical information regarding SFT performance.

**Usage Guidelines**

Use this command to display information and statistics about the switch fabric task.

**Examples**

The following command displays statistics for the SFT:

`show sf stats sft`
show sgs-service

Displays information and statistics about Visitor Location Register (VLR) SGs interface services configured on this system.

Product MME

Privilege Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:
[local]host_name#

Syntax Description

show sgs-service { all | name name | offload-status [ service-name sgs_svc_name ] | statistics { all | name name } | vlr-status [ service-name sgs_svc_name ] | vlr-name name | full | wfl ] | | | { grep grep_options | more } ]

all
Displays information about all SGs interface services configured on this system.

name name
Displays information about an existing SGs service specified as an alphanumeric string of 1 through 63 characters.

offload-status sgs_svc_name
Displays statistics for all VLRs flagged for offload for an existing SGs service specified as an alphanumeric string of 1 through 63 characters.

statistics { all | name name }
Displays statistics for SGs services configured on this system.
all: Displays statistics for all SGs services configured on this system.
name name: Displays statistics for an existing SGs service specified as an alphanumeric string of 1 through 63 characters.

vlr-status [ service-name name ] | [ vlr-name name ] | full | wfl ] ]
Displays status information about VLRs configured in SGs services on this system.
**service-name** *sgs_svc_name*: Displays names and states of VLRs configured in an existing SGs service specified as an alphanumeric string of 1 through 63 characters.

**vlr-name** *name*: Displays the name and state of an existing VLR configured in SGs services on this system and specified as an alphanumeric string of 1 through 63 characters.

**full**: Displays additional information about VLRs configured in SGs services on this system. Additional information includes ports, addresses and peer IDs.

**wf1**: Displays the output in a tabular format.

```
| { grep grep_options | more }
```

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command’s Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to display information and statistics about SGs services configured on this system.

**Examples**

The following command displays statistics for an SGs service named *sgs3*:

```
show sgs-service name sgs3
```

The following command displays VLR status information for a configured VLR named *vlr-main*:

```
show sgs-service vlr-status vlr-name vlr-main
```
show s4-sgsn statistics

Displays statistics related to S4 functionality on the SGSN.

Product
SGSN

Privilege
Inspector

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local]<host_name>#

Syntax Description

show s4-sgsn statistics [ all | smgr-instance <instance_number> ]

all
Show all S4-SGSN statistics from all session managers.

smgr-instance
Show the statistics for a session manager instance of the SGSN service. <instance_number> must be specified as an integer between 1 and 65535.

Important
If no option is specified, then S4-SGSN statistics from all session managers will be added up and the cumulative totals will be shown.

Usage Guidelines
Use this command to display information for S4-SGSN related services.

Examples
The following commands display and clear S4-SGSN-related statistics for all services on the system:

show s4-sgsn statistics all
clear s4-sgsn statistics all
**show sgsn fsm-statistics**

The output of this command provides information on 3G SGSN (both Gn and S4) application FSM statistics.

**Product**
SGSN

**Privilege**
Inspector, Operator, Administrator, Security Administrator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
``` 

**Syntax Description**
```
show sgsn fsm statistics { umts-sm | umts-pmm | all }
```

- **umts-sm**
  Displays 3G Session Management Access Side FSM statistics.

- **umts-pmm**
  Displays 3G Mobility Management PMM FSM statistics.

- **all**
  Displays all SGSN application FSM statistics.

**Usage Guidelines**
Use this command to track 3G SGSN (both Gn and S4) application FSM statistics. The SGSN application FSM statistics will help collect the FSM usage information to quantify which events / state collisions happen most often in the field.

**Examples**
Enter this command to display all SGSN FSM statistics:
```
show sgsn fsm statistics all
```
show sgsn sessmgr

Displays session manager (SessMGR) statistics specific to the SGSN service.

**Product**
SGSN

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show sgsn sessmgr { all | instance smgr_inst }
```

- **all**
  Displays all SessMGR statistics specific to the system's SGSN services.

- **instance smgr_inst**
  Displays the statistics for a session manager instance of the SGSN service specified as an integer between 1 and 1000000.

**Usage Guidelines**
Use this command to display information for SGSN services.

**Examples**
The following command displays SGSN SessMGR statistics for all SGSN services on the system:

```
show sgsn sessmgr all
```
**show sgsn-fast-path**

Displays information related to SGSN fast-path.

---

**Note**

This command is not supported by SGSN from software release 16.2 onwards as the NPU FastPath feature is not supported by SGSN from the 16.2 release.

---

**Product**

SGSN

**Privilege**

Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show sgsn-fast-path statistics [ all | smgr-instance smgr_inst ] [ | { grep grep_options | more } ]
```

- **all**
  
  Displays fast-path statistics for all session managers.

- **smgr-instance smgr_inst**
  
  For releases prior to 14.0, this keyword displays the fast-path statistics for a session manager instance specified as an integer between 1 and 65535.

  For releases 14.0 and higher, this keyword displays the fast-path statistics for a session manager instance specified as an integer between 1 and 384.

  ```
  | { grep grep_options | more } |
  ```

  Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

  For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command’s Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to display statistics for SGSN fast-path configurations.
Examples

The following command displays fast-path statistics for all SGSN session managers:

```bash
show sgsn sessmgr all
```
show sgsn-map-app

Displays collected statistics for the SGSN Mobile Application Part (MAP).

**Product**
SGSN

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]\host_name#
```

**Syntax Description**

```
show sgsn-map-app statistics [ | { grep grep_options | more } ]
```

- `all`
  Displays collected statistics for the SGSN MAP application.

  ```
  | { grep grep_options | more }
  ```
  Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

  For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**
Use this command to display statistics for the SGSN MAP application.

**Examples**
The following command displays SGSN MAP statistics:

```
show sgsn-map-app statistics
```
**show sgsn-mode**

Displays the SGSN global configuration.

**Product**
SGSN

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show sgsn-mode[ | { grep grep_options | more } ]
```

| { grep grep_options | more } |

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**
Use this command to display the configuration created with the commands in the SGSN Global Configuration mode.

**Examples**
The following command displays the SGSN global configuration:

```
show sgsn-mode
```
show sgsn-operator-policy

This command has been deprecated. Refer to the `show operator-policy` command.
**show sgsn-pool**

Displays collected pooling statistics for either GPRS services or SGSN services.

**Product**
SGSN

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name# 
```

**Syntax Description**
```
show sgsn-pool statistics { gprs-service srvc_name | sgsn-service srvc_name } { nri-value nri_value | peer-non-broadcast-lac lac rac rac | target-load-in-progress | smgr-instance smgr_instance | target-nri target_nri | target-offloaded-to-peer | target-nri target_nri } | { grep grep_options | more } 
```

- Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

- For details on the usage of the **grep** and **more** commands, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to display the collected statistics for pooling in either GPRS or SGSN services. The outputs can be filtered to focus the statistics displayed.

**Examples**
The following command displays the:
```
show sgsn-pool statistics sgsn-service sgsn1 nri-value 3
```
show sgsn-service

Displays information about the configured SGSN services in the current context.

**Product**
SGSN

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```bash
[local] host_name#
```

**Syntax Description**

```
show sgsn-service { all | name srvc_name }
```

- **all**
  Displays information for all SGSN services in the current context.

- **name srvc_name**
  Displays information for an existing SGSN service specified as an alphanumeric string of 1 through 63 characters.

**Usage Guidelines**
Use this command to display information for SGSN services.

**Examples**
The following command displays information for all SGSN services in the current context:

```
show sgsn-service all
```

The following command displays information for an SGSN service in the current context that is named `sgsn1`:

```
show sgsn-service name sgsn1
```

**Important**
Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show sgtp-service

Displays information about the configured GPRS Tunnelling Protocol (SGTP) services in the current context, including GTP-C and GTP-U operational configuration.

**Product**
SGSN
PDG/TTG
MME

**Privilege**
Inspector

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:

```bash
[local]host_name#
```

**Syntax Description**

```

all [gtpu-table]
Displays configuration information for all of the SGTP services defined for the current context.

gtpu-table: Limits the output to GTPU information for all SGTP services.

ggnsn-table [smgr-instance srvc_name]
Displays GGSN information configured for the SGTP service(s) in the current context.

smgr-instance srvc_name enter an integer from 1 through 384 to limit the GGSN output to information for a specific session manager.

mbms-bearers
This keyword is specific to the SGSN and is not yet supported.

name srvc_name [gtpu-table]
Displays information for the specified SGTP service in the current context. srvc_name must be an alphanumeric string of 1 through 63 characters that identifies a configured SGTP service.

gtpu-table: Limits the output to GTPU information for a specific SGTP service.
sgsn-table
Displays SGSN information configured for the SGTP service(s) in the current context.

**Usage Guidelines**
Use this command to control the display of SGTP services information.

**Examples**
The following command displays information for all SGTP services in the current context:
```bash
show sgtp-service all
```
The following command displays the GGSN information in SGTP services in the current context:
```bash
show sgtp-service ggsn-table
```
The following command displays the SGSN information in SGTP services in the current context:
```bash
show sgtp-service sgsn-table
```

**Important**
Output descriptions for commands are available in the *Statistics and Counters Reference*. 
**show sgtpc statistics**

Displays all statistics, for SGSN GPRS Tunnelling Protocol (SGTP) interface parameters, collected since the last restart or last use of a `clear` command.

**Product**
- SGSN
- PDG/TTG
- MME

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
show sgtpc statistics [ all | gsn-address ipv4_address | sgtp-service sgtp_srvc_name ] [ verbose ] [ { grep grep_options | more } ]
```

- **all**
  Displays configuration information for all of the SGTP services defined for the current context.

- **gsn-address ipv4_address**
  Displays statistics for an SGSN specified by its IP address in IPv4 dotted-decimal notation. This must be an existing and active interface.

- **sgtp-service sgtp_srvc_name**
  Displays statistics for an existing SGTP service specified as an alphanumeric string from 1 through 63 characters.

- **verbose**
  Causes the system to displays more detailed level of statistics.

  ```
  [ { grep grep_options | more } ]
  ```

  Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.
For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to display information for SGSN services.

**Examples**

The following command displays statistics for the SGTP service named *sgtp1*:

```
show sgtpc statistics sgtp-service sgtp1
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 

show sgtpu statistics

Displays all transmission and reception statistics for pre-defined and active GTP-U interfaces collected since the last restart or last use of a clear command.

Product
SGSN
PDG/TTG

Privilege
Inspector

Command Modes
Exec
The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description
show sgtpu statistics [ggsn-address ipv4_address | gprs-service gprs_srvc_name nsei nse_id | iups-bind-address ipv4_address | iups-service iups_srvc_name | recovered-values | rnc-address ipv4_address | sgtp-service sgtp_srvc_name | | {grep grep_options | more} ]

ggsn-address ipv4_address
Displays statistics for the GGSN specified by its IP address in IPv4 dotted-decimal notation.

gprs-service gprs_srvc_name nsei nse_id
Displays NSEI-based GTPU statistics associated with an existing GPRS service specified as an alphanumeric string of 1 through 63 characters.

nsei nse_id: Specifies a GPRS NSEI as an integer from 0 through 65535.

iups-bind-address ipv4_address
Displays SGSN GPRS Tunneling Protocol (SGTP) statistics for an Iu GTPU interface specified by its IP address in IPv4 dotted-decimal notation.

iups-service iups_srvc_name
Displays statistics for an existing IuPS service specified as an alphanumeric string of 1 through 63 characters.

recovered-values
Only displays recovered values for key KPI counters that were backed-up.
**rnc-address ipv4_address**
Displays statistics for a Radio Network Controller (RNC) identified by its IP address in IPv4 dotted-decimal notation.

**sgtp-service sgtp_srvc_name**
Displays statistics for an existing SGTP service specified as an alphanumeric string of 1 through 63 characters.

```
| { grep grep_options | more }
```
Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**
Use this command to display statistics for the SGTPU interface.

**Examples**
The following command displays GPTP-U statistics for the traffic between an SGSN and a connected RNC:
```
show sgtpu statistics rnc-address 123.1.2.3
```
**show sgw-service**

Displays configuration settings and/or service statistics for Serving Gateway (S-GW) services on this system.

**Product**

S-GW
SAEGW

**Privilege**

Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

* [local]host_name#

**Syntax Description**

```
show sgw-service { all | name service_name | statistics { all | name service_name | rac rac | tac tac | apn apn_name } } [ | { grep grep_options | more } ]
```

- **all**
  Displays configuration information for all S-GW services configured on this system.

- **name service_name**
  Displays configuration information for an existing S-GW service specified as an alphanumeric string of 1 through 63 characters.

- **statistics { all | name service_name }**
  - **all**: Displays statistics for all S-GW services on this system or for a specified service.
  - **name service_name**: Displays statistics for an existing S-GW service specified as an alphanumeric string of 1 through 63 characters.

- **rac rac**
  Specifies the Routing Area Code per 3GPP standards in TS 29.274. This will provide statistics for the SGW service associated with this rac.
  This entry must be an integer from 0 to 65535.
  There is no default setting.
**tac tac**
Specifies the Tracking Area Code per 3GPP standards in TS 29.274. This will provide statistics for the SGW service that is associated with this tac.
This entry must be an integer from 0 to 65535.
There is no default setting.

**apn apn_name**
Specifies a configured APN name that is associated with the specified SGW service.
This entry must be an alphanumeric string of 1 to 62 characters. This will provide statistics for the SGW service associated with this apn.
There is no default setting.

```bash
| { grep grep_options | more }
```
Indicates the output of the command is to be piped (sent) to the command specified.
A command to send output to must be specified.
For details on the usage of the grep and more commands, refer to the Regulating a Command's Output section in the Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to view configuration settings and/or service statistics for S-GW services on this system.

**Examples**
The following command displays service statistics for the S-GW service named sgw1:
```
show sgw-service statistics name sgw1
```
show sls-service

Displays information and statistics about SLs interface services configured on this system.

Product MME

Privilege Inspector

Command Modes Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description show sls-service { all | name svc_name | peers [ all | esmlc-id esmlc-id ] | statistics [ name svc_name [ sls | sctp ] | [ sls | sctp ] [ esmlc-id esmlc-id ] ] | { grep grep_options | more } }

all
Displays information about all SLs interface services configured on this system.

name svc_name
Displays information about an existing SLs service specified as an alphanumeric string of 1 through 63 characters.

peers [ all | esmlc-id esmlc-id ]
Displays configuration information of the E-SMLC peers that are connected to the SLs service.

all: Displays statistics for all E-SMLC peers.

esmlc-id esmlc-id: Displays statistics for an existing E-SMLC peer specified as an integer value from 0 through 255.

statistics [ name svc_name [ sls | sctp ] | [ sls | sctp ] [ esmlc-id esmlc-id ]
Displays all statistics for SLs services configured on this system.

name name: Displays all statistics for an existing SLs service specified as an alphanumeric string of 1 through 63 characters.

sls: Filters output to show only SLs interface related statistics.

sctp: Filters output to show only SCTP related statistics.
esmlc-id: Displays all statistics for an existing E-SMLC peer specified as an integer value from 0 through 255.

| \{ grep grep_options | more \} |

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the `grep` and `more` commands, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to display information and statistics about SLs services configured on this system.

**Examples**

The following command displays all statistics for an SLs service named `sls1`:

```
show sls-service name sls1
```
show sms statistics

Displays traffic statistics for the Short Message Service (SMS).

**Product**
SGSN

**Privilege**
Inspector

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show sms statistics [ gprs-only | name map_srvc | recovered-values | sgsn-only ] [ verbose ] [ | { grep grep_options | more } ]
```

- **gprs-only**
  Displays only GPRS access type SMS statistics.

- **name map_srvc**
  Displays statistics for an existing MAP service specified as an alphanumeric string of 1 through 63 characters.

- **recovered-values**
  Only displays recovered values for key KPI counters that were backed-up.

- **sgsn-only**
  Displays only UMTS access type SMS statistics.

- **verbose**
  Causes the system to display more detailed level of statistics.

```
| { grep grep_options | more }
```

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.
**Usage Guidelines**
Use this command to display traffic statistics for the SMS services.

**Examples**
Use the following command to display SMS statistics for 3G traffic:
```
show sms statistics sgsn-only
```

**Important**
Output descriptions for commands are available in the *Statistics and Counters Reference.*
show sndcp statistics

Displays statistics for the packet traffic going through the Subnetwork Dependent Convergence Protocol (SNDCP) layer.

**Product**
SGSN

**Privilege**
Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:
[local]host_name#

**Syntax Description**
```
show sndcp statistics [ gprs-service srvc_name | [ verbose ] | [ { grep grep_options } | more ] ]
```

- **gprs-service srvc_name**
  Displays statistics for an existing GPRS service specified as an alphanumeric string of 1 through 63 characters.

- **verbose**
  Displays a more detailed level of statistics.

- **| { grep grep_options | more }**
  Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.
  For details on the usage of the `grep` and `more` commands, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**
Use this command to display SNDCP traffic statistics. Include the `gprs-service` keyword to filter the output to statistics for only one GPRS service.

**Examples**
Use the following command to display all SNDCP layer traffic statistics:
```
show sndcp statistics verbose
```

Use the following command to display SNDCP layer traffic statistics for the `test1` GPRS service:
```
show sndcp statistics gprs-service test1
```
show sndcp statistics

---

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference.*
show snmp

Displays information on the Simple Network Management Protocol (SNMP) servers and interfaces.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show snmp { accesses | communities | notifies | server | transports | trap { history | url | varbind | verbose } | statistics { verbose | wide } } [ | { grep grep_options | more } ]
```

- **accesses**
  Displays SNMP server usage statistics.

- **communities**
  Displays SNMP community strings.

- **notifies**
  Displays SNMP event trap and notification statistics.

- **server**
  Displays SNMP server configuration information.

- **transports**
  Displays trap destination configuration information.

- **trap { history | url | varbind | verbose } | statistics { verbose | wide }**

  - **history**: Displays SNMP event trap history. **trap history** Displays up to 5,000 time-stamped trap records stored in a buffer. The buffer may be cleared by entering the `clear snmp history` command.

  - **statistics**: Displays SNMP event trap and notification statistics.

  - **url pathname**: Redirects output to a file.
**show snmp**

**varbind**: Displays varbind-based output which is easier to parse, but harder for an operator to read.

**verbose**: Displays rows for every defined trap, even if never generated.

**wide**: Displays trap statistical data in excess of 80 columns.

```
| { grep grep_options | more }
```

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command’s Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Display SNMP information as part of system verification and troubleshooting.

**Examples**

The following commands display the usage statistics, community string information, event trap and notification data, server information, and trap destination configuration, respectively.

- `show snmp communities`
- `show snmp transport`
- `show snmp server`
- `show snmp accesses`
- `show snmp notifies`
- `show snmp trap history`

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show srp

Displays the Service Redundancy Protocol (SRP) information.

Product

All products that support Interchassis Session Recovery (ICSR)

Privilege

Security Administrator, Administrator, Operator, Inspector

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description

show srp { audit-statistics [ all | instance number ] [ message-level | session-level ] | call-loss statistics | checkpoint statistics [ active | debug-info | standby ] [ verbose ] } | info | monitor [ all ] | authentication-probe | bfd | bgp | diameter | statistics } | [ grep grep_options | more ]

- **audit-statistics [ all | instance number ] [ message-level | session-level ]**
  - Displays statistics of external audit.
  - **all**: Displays information for all Session Managers.
  - **instance number**: Displays information for an instance number of Session Manager, specified as an integer from 1 through 4294967295.
  - **message-level**: Displays message-level statistics.
  - **session-level**: Displays session-level statistics.

- **call-loss statistics**
  - Displays history of lost calls during switchover.

- **checkpoint statistics [ active | standby ] [ verbose ]**
  - The **statistics** keyword displays checkpointing statistics on session redundancy data (session managers, current call recovery records, etc.).
  - **active**: Displays information for the active chassis.
  - **standby**: Displays information for the standby chassis.
  - **verbose**: Displays cumulative information for all session managers in tabular output.
info
Displays Service Redundancy Protocol information (context, chassis state, peer, connection state, etc.).

monitor [ all | authentication-probe | bfd | bgp | diameter ]
Displays SRP monitor information.
all: Displays monitor information for all types (authentication-probe, bgp, and diameter).
authentication-probe: Displays authentication probe monitor information.
bfd: Displays BFD monitor information.
bgp: Displays BGP monitor information.
diameter: Displays Diameter monitor information.

statistics
Displays SRP statistics (hello messages sent, configuration validation, resource messages, switchovers, etc.).

| { grep grep_options | more }
Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the grep and more commands, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter.

Usage Guidelines
The output of this command may be considered as part of a periodic system auditing program by verifying the Service Redundancy Protocol performance. For more information, refer to the Interchassis Session Recovery appendix of the System Administration Guide and the Service Redundancy Protocol Configuration Mode chapter of this guide.

Examples
The following commands display Service Redundancy Protocol information:
show srp audit-statistics
show srp call-loss statistics
show srp checkpoint statistics
show srp info
show srp monitor
show srp statistics

Important
Output descriptions for commands are available in the Statistics and Counters Reference.
show ss7-routing-domain

This command displays the configuration information for the defined Signalling System #7 (SS7) routing domains. Since SS7 routing domains encompass a large number of operational parameters, this command enables you to narrow your displays to specific protocol parameters on a specific link.

**Product**
SGSN

**Privilege**
Security Administrator, Administrator, Inspector, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name #
```

**Syntax Description**

```
show ss7-routing-domain { all | ss7rd_id } { m3ua | mtp2 | mtp3 | qsaal | routes | adjacent | | sctp asp { all | instance asp_id } | sscf }
show ss7-routing-domain ss7rd_id m3ua { statistics { gen | peer-server { all | id peer-server_id peer-server-process { all | instance psp_instance } } } | status { address-translation-table | destination-point-code { all | ss7_dpc } | gen | peer-server peer-server_id | peer-server-process instance psp_id | verbose } }
show ss7-routing-domain 1 sscf { statistics linkset { all | id linkset_id link { all | id link_id } } | status linkset { all | id linkset_id link { all | id link_id | verbose } } }
```

**ss7-routing-domain { all | ss7rd_id }**

- **all**: Displays information for all SS7 routing domains.
- **ss7rd_id**: Displays information for the SS7 routing domain ID specified as an integer from 1 through 12.

**m3ua**
Displays statistics and status information for the SS7 MTP3 User Adaptation Layer (M3UA) in the specified SS7 routing domain.

**mtp2**
Displays statistics and status information for the SS7 Message Transfer Part-2 (MTP2) in the specified SS7 routing domain.

**mtp3**
Displays statistics and status information for the SS7 Message Transfer Part-3 (MTP3) in the specified SS7 routing domain.
qsaal
Displays statistics and status information for the Service Specific Connection-Oriented Protocol (SSCOP) sub-layer of the Quasi Signaling Application Adaptation Layer (QSAAL) in the specified SS7 routing domain.

routes [ adjacent ]
Displays the destination point code (DPC) routing table.
adjacent: If this keyword is used with the routes keyword, access is provided to the statistics and status information for configured adjacent point codes.

sctp asp { all | instance asp_id }  
Provides access to the status or statistics for the Stream Control Transmission Protocol (SCTP) application server processes (ASP) in the specified SS7 routing domain for all or a specified SCTP ASP instance.
• all: Displays the information for all SCTP application server process instances for a specific SS7 routing domain.
• instance asp_id: Displays the information for an SCTP application server process instance specified as an integer from 1 through 4.

sscf
Displays statistics and status information for the Service Specific Coordination Function (SSCF [q.2140]) in the specified SS7 routing domain.

peer-server [ all | id peer-server_id ]
Filters the information for the specific protocol in the SS7 routing domain for all or a specific peer server ID.
• all: Displays the information for all peer servers for a specific protocol.
• id peer-server_id: Indicates the specific linkset identifier as an integer from 1 through 49.

peer-server-process [ all | instance instance_id ]
Filters the information for the specific protocol in the SS7 routing domain for all or a specific instance of peer-server process.
• all: Displays the information for all peer server process instances for a specific protocol.
• instance instance_id: Specifies a peer server process instance as an integer from 1 through 4.

destination-point-code [ all | dest_point_code ]
Filters the information for the specific protocol in the SS7 routing domain for all or a specific DPC.
• all: Displays the information for all DPCs in the SS7 routing domain.
• dest_point_code: Specifies a DPC in the SS7 routing domain.

gen
Displays general information for the specific protocol in the specified SS7 routing domain.
verbose

Enables the display of maximum information for a protocol.

linkset [ all | id linkset_id ]

Filters the information for the specific protocol in SS7 routing domain for all or a specific link set.

- **all**: Displays the information for all linkset for a specific protocol.
- **id linkset_id**: Specifies a linkset identifier as an integer from 1 through 49.

link [ all | id link_id ]

Filters the information for a specified protocol in the SS7 routing domain for all or a specific link set.

- **all**: Displays the information for all links for a specific protocol.
- **id link_id**: Specifies a linkset identifier as be an integer from 1 through 16.

**Usage Guidelines**

Use this command to display the SS7 routing domain and different layer protocol information for SGSN service.

**Examples**

Displays the information/statistics for all SCTP application server processes of peer server ID 17 and peer server process instance 1 in SS7 routing domain 12:

```
show ss7-routing-domain 12 sctp asp all status peer-server id 17 peer-server-process instance 1
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show ssh key

Displays the secure shell (SSH) public key information.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name$ 
```

**Syntax Description**

```
show ssh key [ type { v1-rsa | v2-rsa | v2-dsa } ]
```

- `type { v1-rsa | v2-rsa | v2-dsa }`
  
  Specifies the type of SSH key information to display. If type is not specified, information for all types is displayed.
  
  - **v1-rsa**: SSH v1 RSA host key only (obsolete)
  - **v2-rsa**: SSH v2 DSA host key only
  - **v2-dsa**: SSH v2 RSA host key only

**Usage Guidelines**

Displays the secure shell key information for all types to verify installed keys.

**Examples**

The following command displays information for all SSH v1 and SSH v2 keys:

```
show ssh key
```

The following command shows information for only SSH v2 RSA host keys:

```
show ssh key type v2-rsa
```
show subscribers

Displays information for subscriber sessions that are defined by specified keywords. Command keywords are base commands that display distinctive types of data. Filter keywords are a superset of command keywords that modify or filter the output of the base commands.

---

**Important**

Not all filter keywords are available for all command keywords. CLI Help displays available filter keywords based on: the platform type (ASR 5000 or ASR 5500), the products that are licensed to run on the platform, and the preceding command keyword and subsequent filter keywords.

---

**Product**

All

**Privilege**

Security Administrator, Administrator, Inspector, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**

```
show subscribers [command_keyword] [filter_keywords] [grep grep_options | more ]
```

**command_keyword**

The following keywords are base commands that each have a distinct display output. Only one command keyword can be entered on the command line.

**aaa-configuration**

Displays Authentication Authorization and Accounting (AAA) configuration information for subscriber sessions defined by the specified filter keywords. The following filter keywords are valid with this command:

- active, active-charging-service, all, apn, asnp-peer-address, asngw-service, asnp-service, bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, dormant, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipse-only, ha-service, hbgw-access-service, hbgw-only, hcgw-service, idle-time, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-address, l3-tunnel-remote-address, lac, lac-service, lma-service, lns, lns-service, long-duration-time-left, mag-service, mpd-udp-tunnel-only, mpd-v6ha-service, mme-address, mme-service, msa, msa-only network-requested, network-type, pcf, pdg-service, pds-f-service, pgw-address, plmn-type, profile-id, profile-name, qci, rx-data, slu-state, sl-b Proto, session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service, tx-data, username, verbose, grep, more
access-flows { accounting | dynamic | pre-provisioned | static }

Shows the ip-flows for the subscribers defined by the specified filter keywords.

- **accounting**: displays the accounting type of access flows for a subscriber.
- **dynamic**: displays the dynamic type of access flows for a subscriber.
- **pre-provisioned**: displays the pre-provisioned type of access flows for a WiMAX subscriber.
- **static**: displays the static type of access flows for a subscriber.

The following filter keywords are valid with this command:

active, active-charging-service, all, apn, asn-peer-address, asngw-service, asnp-c-service, callid, card-num, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, dormant, epdg-address, epdg-service, fa, fa-service, flow-type, ggsn-service, gprs-service, gsm-traffic-class, ha, ha-ipsec-only, ha-service, hnbgw-access-service, hnbgw-only, hgsw-service, idle-time, imsi, ip-address, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-address, l3-tunnel-remote-address, lac, lac-service, lma-service, lns, lns-service, long-duration-time-left, mag-service, mip-udp-tunnel-only, mme-address, mme-service, msid, msisdn, network-requested, network-type, pcf, pdg-service, pdif-service, pdsn-service, pdsnclsdosp-service, pgw-address, plmn-type, rulebase, rx-data, session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service, tpo, tx-data, username, verbose, grep, more

access-type { lxcdma | ehrpd | lte | undetermined | wcdma | wifi | wired }

Displays active subscribers using a specific type of UE.

- **lxcdma**: 1XCDMA – Wireless CDMA 1x high speed internet service
- **ehrpd**: eHRPD – Enhanced High Rate Packet Data
- **evdo**: EvDO – EVolution-Data Optimized
- **lte**: LTE – Long Term Evolution
- **undetermined
- **wcdma**: WCDMA – Wideband Code Division Multiple Access
- **wifi**: WiFi – Wireless local area network
- **wired

The following filter keywords are valid with this command:

access-type, bearer-establishment, bng-service, callid, card-num, configured-idle-timeout, domain, ebi, enodeb-address, fa, firewall, fw-and-nat, gtp-version, gtpu-bind-address, gtpu-service, ha, hnbgw-service, idle-time, imsi-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, long-duration-time-left, mipv6ha-service, msid, nat, network-type, profile-id, profile-name, qci, rx-data, slu-state, security-type, session-time-left, sgw-address, smgr-instance, tx-data, ue-type, username, grep, more

active

Displays active subscribers. When no Filter Keywords are specified, the output is a summary of all active subscribers. When Filter Keywords are specified, the percentage is displayed as graphs in which one is displayed using a high sampling rate, a 10-second interval between samples, and a low sampling rate, a 15-minute interval between samples.

The following filter keywords are valid with this command:

apn, asn-peer-address, asngw-service, asnp-c-service, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, ebi,
active-charging-service acs_service

Displays information for subscribers being processed by the active charging service specified as an alphanumeric string of 1 through 15 characters.

The following filter keywords are valid with this command:
active-charging-service, bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, configured-idle-timeout, connected-time, ebi, enodeb-address, epdg-address, epdg-service, fa, firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsecc-only, ha-service, hbgw-access-service, hagw-service, idle-time, imei, imsi, im-auth-service, imsi, ip-address, ip-pool, ipv6-address, ipv6-prefix, 13-tunnel-local-addr, 13-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service, long-duration-time-left, mag-service, mme-address, mme-service, msd, msisdn, nat, nemo-only, network-requested, pcf, pdg-service, pdsf-service, psdn-service, pdnclosedrp-service, pgw-address, plmn-type, profile-id, profile-name, qci, rx-data, slu-state, session-time-left, sgsn-address, sgsn-service, smgr-instance, sgw-address, sgw-service, tpo, tx-data, username, grep, more

activity

Displays subscriber link activity percentage. When no Filter Keywords are specified, the output is a summary of all subscriber activity. When Filter Keywords are specified, the link activity percentage is displayed as graphs in which one is displayed using a high sampling rate, a 10-second interval between samples, and a low sampling rate, a 15-minute interval between samples.

The following filter keywords are valid with this command:
active, all, apn, asn-peer-address, asngw-service, asnpc-service, bearer-establishment, bng-service, callid, card-num, cbb-policy, configured-idle-timeout, connected-time, dhcp-server, dormant, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsecc-only, ha-service, hbgw-access-service, hagw-service, idle-time, imei, im-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, 13-tunnel-local-addr, 13-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service, long-duration-time-left, mag-service, mme-address, mme-service, msd, msisdn, nat, nemo-only, network-requested, pcf, pdg-service, pdsf-service, psdn-service, pdnclosedrp-service, pgw-address, plmn-type, profile-id, profile-name, qci, rx-data, session-time-left, sgsn-address, sgsn-service, smgr-instance, sgw-address, sgw-service, smgr-instance, tx-data, username, grep, more

all ip_address

Displays all current subscribers who have either active or dormant sessions.

apn apn_string

Displays subscribers currently facilitated by the Access Point name (APN) configured on the SGSN or GGSN.

The following filter keywords are valid with this command:
active-charging-service, apn, bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, dormant, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsecc-only, ha-service, hbgw-access-service, hagw-service, idle-time, imei, im-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, 13-tunnel-local-addr, 13-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service, long-duration-time-left, mip-udp-tunnel-only, mipv6ha-service, msd, nat, nemo-only network-requested, network-type, pcf, psdn-service, plmn-type, profile-id, profile-name, qci, rx-data, slu-state, s5proto, session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service, smgr-instance, tx-data, username, verbose, grep, more
asn-peer-address ip_address
Displays information for subscribers on an ASN-GW trusted peer.

ip_address is the IP address of the ASN-GW peer server expressed in IPv4 dotted-decimal notation.

The following filter keywords are valid with this command:

- asn-peer-address
- asngw-service
- bearer-establishment
- bng-service
- callid
- card-num
- configured-idle-timeout
- connected-time
- ebi
- enodeb-address
- fa
- fa-service
- firewall
- full
- fw-and-nat
- gtp-version
- gtpu-bind-address
- gtpu-service
- ha
- idle-time
- ims-auth-service
- imsi
- ip-address
- ip-alloc-method
- ip-pool
- ipv6-address
- ipv6-prefix
- l3-tunnel-local-address
- l3-tunnel-remote-address
- long-duration-time-left
- mipv6ha-service
- msid
- nat
- network-type
- profile-id
- profile-name
- qci
- rx-data
- slu-state
- s5-proto
- session-time-left
- sgw-address
- smgr-instance
- tx-data
- username
- grep
- more

asngw-only service_name
Displays ASN-GW specific context information for the session.

The following filter keywords are valid with this command:

- aaa-configuration
- access-flows
- active
- activity
- all
- asn-peer-address
- asngw-service
- bearer-establishment
- bng-service
- callid
- card-num
- configured-idle-timeout
- connected-time
- counters
- data-rate
- dormant
- ebi
- enodeb-address
- fa
- fa-service
- firewall
- full
- fw-and-nat
- gtp-version
- gtpu-bind-address
- gtpu-service
- ha
- idle-time
- ims-auth-service
- imsi
- ip-address
- ip-alloc-method
- ip-pool
- ipv6-address
- ipv6-prefix
- l3-tunnel-local-address
- l3-tunnel-remote-address
- long-duration-time-left
- mipv6ha-service
- msid
- nat
- network-type
- policy
- profile-id
- profile-name
- qci
- rx-data
- slu-state
- s5-proto
- session-time-left
- sgw-address
- smgr-instance
- subscription
- summary
- tft
- tx-data
- username
- wf1
- grep
- more

asngw-service service_name
Displays counters for subscribers accessing the ASN-GW service.

service_name must be an existing service and be from 1 to 63 alphanumeric characters.

The following filter keywords are valid with this command:

- asn-peer-address
- asngw-service
- bearer-establishment
- bng-service
- callid
- card-num
- configured-idle-timeout
- connected-time
- ebi
- enodeb-address
- fa
- fa-service
- firewall
- full
- fw-and-nat
- gtp-version
- gtpu-bind-address
- gtpu-service
- ha
- idle-time
- ims-auth-service
- imsi
- ip-address
- ip-alloc-method
- ip-pool
- ipv6-address
- ipv6-prefix
- l3-tunnel-local-address
- l3-tunnel-remote-address
- long-duration-time-left
- mipv6ha-service
- msid
- nat
- network-type
- profile-id
- profile-name
- qci
- rx-data
- slu-state
- s5-proto
- session-time-left
- sgw-address
- smgr-instance
- tx-data
- username
- grep
- more

asnpc-service service_name
Displays counters for subscribers accessing the ASN Paging Controller and Location Registry service.

service_name must be an existing Access Service Network Paging Controller (ASN PC) service and be from 1 to 63 alphanumeric characters.

The following filter keywords are valid with this command:

- all
- counters all
- full
- summary
- grep
- more

bandwidth-policy policy_name
Show information for subscribers associated with the specified Active Charging bandwidth policy. Must be followed by the name of an existing bandwidth policy specified as an alphanumeric string of 1 through 63 characters.

The following filter keywords are valid with this command:

- access-type
- active-charging-service
- bandwidth-policy
- bearer-establishment
- bng-service
- callid
- card-num
- cbp-policy
- configured-idle-timeout
- connected-time
- domain
- ebi
- enodeb-address
- epdg-address
- epdg-service
- fa
- firewall
- fw-and-nat
- gtp-version
- gtpu-bind-address
- gtpu-service
- ha
- hnbgw-service
- hagw-service
- idle-time
- ims-auth-service
- imsi
- ip-address
- ip-alloc-method
- ip-pool
- ipv6-address
- ipv6-prefix
- l3-tunnel-local-address
- l3-tunnel-remote-address
- long-duration-time-left
- mipv6ha-service
- msid
- nat
- network-type
- profile-id
- profile-name
- qci
- rx-data
- slu-state
- s5-proto
- session-time-left
- sgw-address
- smgr-instance
- summary
- tft
- tx-data
- username
- grep
- more
bearer-establishment \{ direct-tunnel | normal | pending \}

Selects Bearer Establishment type defined by the specified filter keywords.

- **direct-tunnel**: Select subscribers having direct tunnel established with the Radio Network Controller (RNC).
- **normal**: Select subscribers having bearer established with SGSN.
- **pending**: Select subscribers for whom bearer is not fully established.

The following filter keywords are valid with this command:


bng-service \{ service \}

Displays current configuration the specified Broadband Network Gateway (BNG) service.

The following filter keywords are valid with this command:


callid \{ id \}

Displays subscriber information for the call ID specified as an 8-byte hexadecimal number.

The following filter keywords are valid with this command:

card-num card_num

The slot number of the processing card by which the subscriber session is processed. The slot number is an integer from 1 through 7 and 10 through 16 on the ASR 5000, or 1 through 4 and 7 through 10 on the ASR 5500.

The following filter keywords are valid with this command:
apn, asn-peer-address, asngw-service, asnpn-service, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout, connected-time, cpu-num, css-delivery-sequence, css-service, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fx-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsecc-only, ha-service, hnbwg-access-service, hsgw-service, idle-time, imei, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, 13-tunnel-local-addr, 13-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service, long-duration-time-left, mag-service, mip-udp-tunnel-only, mip6ha-service, mme-address, mme-service, msid, msisdn, nat, nemo-only, network-requested, network-type, pcf, pgd-service, pdif-service, pdsn-service, pdsnrclosedrp-service, pgw-address, plmn-type, rx-data, slu-state, s5proto, session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service, smgr-instance, tx-data, username, grep, more

cbb-policy policy_name

Show information for subscribers associated with the specified Active Charging Content Based Billing (CBB) policy. Must be followed by the name of an existing Active Charging CBB policy specified as an alphanumeric string of 1 through 63 characters.

The following filter keywords are valid with this command:
active, active-charging-service, all, apn, bw-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, dormant, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fx-and-nat, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsecc-only, ha-service, hnbwg-access-service, hsgw-service, idle-time, imei, imsi, imsi-auth-service, lns, lns-service, long-duration-time-left, mag-service, mip-udp-tunnel-only, mip6ha-service, mme-address, mme-service, msid, midsdn, nat, nemo-only, network-requested, network-type, pcf, pgd-service, pdif-service, pdsn-service, pdsnrclosedrp-service, pgw-address, plmn-type, rx-data, slu-state, s5proto, session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service, smgr-instance, tx-data, username, verbose, grep, more

ccoa-only

Displays current configuration for all MIP-HA subscribers that registered with a collocated COA only. The following filter keywords are valid with this command:
access-type, active-charging-service, bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, dormant, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fx-and-nat, ggsn-service, gsm-traffic-class, gtpu-bind-address, gtpu-service, ha, ha-ipsecc-only, ha-service, hnbwg-access-service, hsgw-service, idle-time, imei, imsi, imsi-auth-service, lac, lac-service, lma-service, lns, lns-service, long-duration-time-left, mag-service, mip-udp-tunnel-only, mip6ha-service, mme-address, mme-service, msid, nemo-only, network-requested, network-type, pcf, pdg-service, pdif-service, pdsn-service, plmn-type, profile-id, profile-name, qci, rx-data, slu-state, s5proto, session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service, smgr-instance, tpo, tx-data, username, grep, more

configuration { all | username name }

Displays current configuration for all subscribers or a specified subscriber.

configured-idle-timeout [ < | > | greater-than | less-than | value

Shows the idle timeout that is configured for the specified subscriber. A value of 0 (zero) indicates that the subscribers idle timeout is disabled.

- `<`: Filters output so that only information less than the specified value is displayed.
• ">": Filters output so that only information greater than the specified value is displayed.
• "greater-than": Filters output so that only information greater than the specified value is displayed.
• "less-than": Filters output so that only information less than the specified value is displayed.
• "value": Used in conjunction with ">", "less-than", If no other filtering options are specified only output matching "value" is displayed. If "value" is not specified all data is displayed. "value" must be an integer from 0 through 4294967295.

congestion_mgmt { not-required | required }

Shows the current subscribers for which congestion management is not-required or required. The following filter keywords are valid with this command:

active-charging-service, apn, asn-peer-address, asngw-service, asnpc-service, bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, configured-idle-timeout, congestion_mgmt, connected-time, ebi, enodeb-address, epdg-service, fa, fa-service, firewall, fw-and-nat, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsecc-only, ha-service, hnbgw-service, hnbgw-access-service, hagw-service, idle-time, lms-auth-service, lmsl, interface-type, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac-service, lma-service, lns, lns-service, long-duration-time-left, mag-service, mpv6ha-service, mmegw-service, mme-service, msid, nat, network-type, pcap, pgw-address, plmn-type, profile-id, profile-name, qci, rulebase, rx-data, slu-state, s5proto, saegw-service, session-time-left, sgw-address, sgw-service, smgr-instance, tsp, tx-data, username, wsg-service

connected-time [ < | > | greater-than | less-than ] value

Shows how long the subscriber has been connected.
• <: Filters output so that only information less than the specified value is displayed.
• <: Filters output so that only information less than the specified value is displayed.
• >: Filters output so that only information greater than the specified value is displayed.
• "greater-than": Filters output so that only information greater than the specified value is displayed.
• "less-than": Filters output so that only information less than the specified value is displayed.
• "value": Used in conjunction with <, >, greater-than, less-than, If no other filtering options are specified only output matching "value" is displayed. If "value" is not specified all data is displayed. "value" must be an integer from 0 through 4294967295.

counters

Shows the counters associated with the subscriber. The following filter keywords are valid with this command:

access-type, active, active-charging-service, all, apn, asn-peer-address, asngw-service, asnpc-service, bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, dna-proxy, domain, dormant, ebi, enodeb-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsecc-only, ha-service, hnbgw-access-service, hnbgw-service, hagw-service, idle-time, imei, lms-auth-service, lmsl, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac-service, lma-service, lns, lns-service, long-duration-time-left, mag-service, mipv6ha-service, mmegw-service, mme-service, msid, msisdn, nat, nemo-only, network-requested, network-type, pcap-service, pcap, pdg-service, pdif-service, pdsn-service, pdsn-close-rsp-service, pgw-address, plmn-type, profile-id, profile-name, qci, rulebase, rx-data, slu-state, s5proto, security-type, session-time-left, sgw-address, sgw-service, sgw-address, sgw-service, smgr-instance, tsp, tx-data, ue-type, username, grepmore
css-delivery-sequence

This is a restricted keyword. In StarOS 9.0 and later, this keyword is obsoleted.

Important

css-service csssvc_name

This is a restricted keyword. In StarOS 9.0 and later releases, this keyword is obsolete.

Important

data-rate

Displays subscriber throughput data. **This keyword is best used for individual subscriber output.**

The following filter keywords are valid with this command:

- `access-type`, `active`, `active-charging-service`, `all`, `apn`, `asn-peer-address`, `asngw-service`, `asnpo-service`, `bandwidth-policy`, `bearer-establishment`, `bng-service`, `callid`, `card-num`, `cbr-policy`, `ccoa-only`, `configured-idle-timeout`, `connected-time`, `dhcp-server`, `domain`, `dormant`, `ebi`, `enodeb-address`, `epdg-address`, `epdg-service`, `fa`, `fa-service`, `firewall`, `fw-and-nat`, `ggsn-service`, `gprs-service`, `graph`, `gsm-traffic-class`, `gtp-version`, `gtpu-bind-address`, `gtpu-service`, `ha`, `ha-ipse-only`, `ha-service`, `henbgw-access-service`, `high`, `hnbgw-service`, `hsgw-only`, `hngw-service`, `idle-time`, `imei`, `ims-auth-service`, `imsi`, `ip-address`, `ip-alloc-method`, `ip-pool`, `ipv6-address`, `ipv6-prefix`, `l3-tunnel-local-addr`, `l3-tunnel-remote-addr`, `lac`, `lac-service`, `lma-service`, `lns`, `lns-service`, `long-duration-time-left`, `low`, `mag-service`, `mipv6ha-service`, `mme-address`, `mme-service`, `msid`, `msisdn`, `network-requested`, `network-type`, `pcc-service`, `pcf`, `pdg-service`, `pdef-service`, `pdns-service`, `pdsnclosedrp-service`, `pgw-address`, `plmn-type`, `profile-id`, `profile-name`, `qci`, `rulebase`, `rx-data`, `siu-state`, `s5-proto`, `security-type`, `session-time-left`, `sgsn-address`, `sgsn-service`, `sgw-address`, `sgw-service`, `smgr-instance`, `summary`, `tpo`, `tx-data`, `ue-type`, `username`, `verbose`, `grep`, `more`

**debug-info { callid id | msid id | username name }**

Displays internal call troubleshooting information for subscriber sessions defined by the specified keywords.

- **callid id**: Displays subscriber information for the call specified by `id`. The call ID must be specified as an 8-digit hexadecimal number.

- **msid id**: Displays information for the mobile user identified by `id`. `id` must be from 7 to 16 digits specified as an IMSI, MIN, or RMI. Wildcard characters `$` and `*` are allowed. The `*` wildcard matches multiple characters and the `$` wildcard matches a single character. If you do not want the wildcard characters interpreted as a wildcard enclose them in single quotes (`'`). For example; `'S'`.

- **username name**: Displays information for connections for the subscriber identified by `name`. The user must have been previously configured. `name` must be a sequence of characters and/or wildcard characters (`'$'` and `'*'`) from 1 to 127 characters. The `*` wildcard matches multiple characters and the `$` wildcard matches a single character. If you do not want the wildcard characters interpreted as wildcard enclose them in single quotes (`'`). For example; `'S'`.

**dhcp-server ipv4_address**

Displays subscribers based on a specific DHCP server where their IP address was allocated. Must be followed by IP address of the server, using IPv4 dotted-decimal notation.

The following filter keywords are valid with this command:

- `apn`, `bearer-establishment`, `bng-service`, `callid`, `card-num`, `ccoa-only`, `configured-idle-timeout`, `connected-time`, `dhcp-server`, `ebi`, `epdg-address`, `epdg-service`, `fa`, `fa-service`, `firewall`, `fw-and-nat`, `ggsn-service`, `gsm-traffic-class`, `gtp-version`, `gtpu-bind-address`, `gtpu-service`,
Exec Mode show Commands (Q-S)

show subscribers

ha, ha-ipsec-only, ha-service, idle-time, imei, imsi-auth-service, imsi, ip-address, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lns, lns-service, long-duration-time-left, msid, maisd, nat, nemo-only, network-requested, pcf, psdn-service, psdn-closedrp-service, plmn-type, profile-id, profile-name, qci, rx-data, slu-state, session-time-left, sgsn-address, sgsn-service, smgr-instance, tpo, tx-data, username, grep, more

domain name
Displays all subscribers with an Address-of-Record (AoR) from the specified domain. name is an alphanumeric string of 1 through 79 characters.

The following filter keywords are valid with this command:
access-type, active-charging-service, all, apn, asngw-service, asnpc-service, bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbp-policy, configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address, fa, firewall, fw-and-nat, ggsn-service, graph, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, hnbgw-service, ha-gw-only, ha-gw-service, idle-time, imsi-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service, long-duration-time-left, mag-service, mip-ps-fallback-only, mipv6-service, mme-address, mme-service, msid, maisd, nat, nemo-only, network-requested, network-type, pcc-service, profile-id, profile-name, qci, rulebase, rx-data, slu-state, s5-proto, security-type, session-time-left, sgw-address, smgr-instance, summary, tpo, tx-data, ue-type, username, grep, more

dormant number
Displays all dormant subscribers, those registered but not transmitting/receiving data.

The following filter keywords are valid with this command:
access-type, active-charging-service, apn, asngw-service, asnpc-service, bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbp-policy, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, hnbgw-access-service, hnbgw-service, hsgw-service, idle-time, imei, imsi-auth-service, imsi, ip-address, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service, long-duration-time-left, mag-service, mip-ps-fallback-only, mipv6-service, mme-address, mme-service, msid, maisd, nat, nemo-only, network-requested, network-type, pcc-service, pcf, pdg-service, pf-service, psdn-service, psdn-closedrp-service, pgw-address, plmn-type, profile-id, profile-name, qci, rulebase, rx-data, slu-state, security-type, session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service, smgr-instance, tpo, tx-data, ue-type, username, grep, more

ebi number
Displays subscribers based on an EPS bearer identity. number specifies the EBI number and must be an integer value from 5 to 15.

The following filter keywords are valid with this command:
access-type, active-charging-service, apn, asngw-service, asnpc-service, bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbp-policy, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, domain, ebi, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, hnbgw-access-service, hnbgw-service, hsgw-service, idle-time, imei, imsi-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service, long-duration-time-left, mag-service, mipv6-service, mme-address, mme-service, msid, maisd, nat, nemo-only, network-requested, network-type, pcc-service, pcf, pdg-service, pf-service, psdn-service, psdn-closedrp-service, pgw-address, plmn-type, profile-id, profile-name, qci, rulebase, rx-data, slu-state, s5-proto, security-type, session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service, smgr-instance, tx-data, ue-type, username, grep, more
enodeb-address ip_address

Displays subscribers based on the eNodeB to which they are attached. ip_address must be a valid IP address of an existing eNodeB specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

The following filter keywords are valid with this command:
access-type, active-charging-service, apn, asn-peer-address, asngw-service, asnpc-service, bandwidth-policy, bearer-establishment, bng-service, callid, card-num, ccb-policy, cca-only, configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, hnbgw-access-service, hnbgw-service, hsgw-service, idle-time, imei, ima-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service, long-duration-time-left, mag-service, mme-address, mme-service, msid, mtsdn, nat, nemo-only, network-requested, network-type, pco-service, pcf, pdg-service, pdif-service, pdas-service, pgw-address, plmn-type, profile-id, profile-name, qci, rx-data, s1u-state, s5 proto, security-type, session-time-left, sgsn-address, sgw-address, sgw-service, smgr-instance, tx-data, ue-type, username, grep, more

epdg-address ipv4_ipv6_address

Displays subscribers connected to the specified ePDG peer specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

The following filter keywords are valid with this command:
epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, hnbgw-access-service, hnbgw-service, hsgw-service, idle-time, imei, ima-auth-service, imsi, interface-type, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service, long-duration-time-left, mip-udp-tunnel-only, mipv6ha-service, mme-address, mme-service, msid, mtsdn, nat, nemo-only, network-requested, network-type, pcf, pdg-service, pdif-service, pdas-service, pgw-address, plmn-type, profile-id, profile-name, qci, rx-data, s1u-state, s5 proto, session-time-left, sgsm-address, sgw-address, sgw-service, smgr-instance, tpo, tx-data, username, wsg-service, grep, more

fa ipv4_address

Displays subscribers for a specified Peer Foreign Agent. Must be followed by the IP address of a Remote FA, in IPv4 dotted-decimal notation.

The following filter keywords are valid with this command:
access-type, active-charging-service, apn, asn-peer-address, asngw-service, asnpc-service, bandwidth-policy, bearer-establishment, bng-service, callid, card-num, ccb-policy, cca-only, configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, hnbgw-access-service, hnbgw-service, hsgw-service, idle-time, imei, ima-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service, long-duration-time-left, mag-service, mipv6ha-service, mme-address, mme-service, msid, mtsdn, nat, nemo-only, network-requested, network-type, pcc-service, pcf, pdg-service, pdif-service, pdas-service, pgw-address, plmn-type, profile-id, profile-name, qci, rulebase, rx-data, s1u-state, s5 proto, security-type, session-time-left, sgsm-address, sgw-address, sgw-service, smgr-instance, tpo, tx-data, ue-type, username, grep, more

epdg-only

Displays epdg-specific context information for the session.

The following filter keywords are valid with this command:
all, callid, card-num, configured-idle-timeout, connected-time, counters, data-rate, full, gtp-version, gtpu-bind-address, gtpu-service, idle-time, ip-address, ipv6-prefix,
EPDG-Service

Displays subscribers for a specified Evolved Packet Data Gateway service. Must be followed by EPDG service name expressed as an alphanumeric string of 1 through 63 characters.

The following filter keywords are valid with this command:

- all, callid, card-num, configured-idle-timeout, connected-time, counters, data-rate, epdg-address, epdg-service, full, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, long-duration-time-left, mag-service, mip-udp-tunnel-only, mipv6a-service, msid, msisdn, nat, nemo-only, network-requested, network-type, pcf, pdif-service, pdn-service, pgw-address, plmn-type, policy, profile-id, profile-name, qci, rx-data, session-time-left, smgr-instance, subscription, summary, tft, tx-data, username, grep, more

FA-Only

Displays FA-specific context information for the session.

The following filter keywords are valid with this command:

- aaa-configuration, access-flows, active, activity, all, asn-peer-address, asngw-service, asnpc-service, bearer-establishment, callid, card-num, ccoa-only, configuration, configured-idle-timeout, connected-time, counters, data-rate, dhcp-server, dormant, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, full, fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, long-duration-time-left, mag-service, mip-udp-tunnel-only, mipv6a-service, msid, msisdn, nat, nemo-only, network-requested, network-type, pcf, pdif-service, pdn-service, pgw-address, plmn-type, policy, profile-id, profile-name, qci, rx-data, session-time-left, smgr-instance, subscription, summary, tft, tx-data, username, wfi, grep, more

FA-Service

Displays subscribers for a specified Foreign Agent service. Must be followed by FA service name expressed as an alphanumeric string of 1 through 63 characters.

The following filter keywords are valid with this command:

- aaa-configuration, access-flows, active, activity, all, asn-peer-address, asngw-service, asnpc-service, bearer-establishment, callid, card-num, ccoa-only, configuration, configured-idle-timeout, connected-time, counters, data-rate, dhcp-server, dormant, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-only, fa-service, firewall, full, fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, henbgw-access-service, idle-time, imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, long-duration-time-left, mag-service, mip-udp-tunnel-only, mipv6a-service, msid, msisdn, nat, nemo-only, network-requested, network-type, pcf, pdif-service, pdsn-service, pgw-address, plmn-type, policy, profile-id, profile-name, qci, rx-data, session-time-left, smgr-instance, subscription, summary, tft, tx-data, username, wfi, grep, more

Firewall

Displays information for subscribers based on whether or not firewall processing is required.

The following filter keywords are valid with this command:

- apn, asn-peer-address, asngw-service, asnpc-service, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, ebi, epdg-address, epdg-service, fa, fa-service, firewall, full, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, henbgw-access-service, ha-service, hsgw-service, idle-time, imei, imsi, ip-address, ip-alloc-method, ip-pool, ipv4, ipv6, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service, long-duration-time-left, mag-service, mme-address, mme-service, msid, msisdn, nat, nemo-only, network-requested, network-type, pcf, pdg-service, pdif-service, pdsn-service, pgw-address, plmn-type, policy, profile-id, profile-name, qci, rx-data,
show subscribers

slu-state, s5-proto, session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service, smgr-instance, tpo, tx-data, username, grep, more

**fng-only**

Displays Femto Network Gateway (FNG) context information for the session.

The following filter keywords are valid with this command:

- aaa-configuration
- access-flows
- active
- activity
- all
- bearer-establishment
- bng-service
- callid
- card-num
- configured-idle-timeout
- connected-time
- counters
- data-rate
- dormant
- ebi
- enodeb-address
- epdg-address
- epdg-service
- fa
- fa-service
- firewall
- fng-service
- full
- fw-and-nat
- gtp-version
- gtpu-bind-address
- gtpu-service
- ha
- henbgw-access-service
- idle-time
- ims-auth-service
- imsi
- ip-address
- ip-alloc-method
- ip-pool
- ipv6-address
- ipv6-prefix
- l3-tunnel-local-addr
- l3-tunnel-remote-addr
- long-duration-time-left
- mipv6ha-service
- msid
- nat
- network-type
- pdif-service
- policy
- profile-id
- profile-name
- qci
- rx-data
- slu-state
- s5-proto
- session-time-left
- sgw-address
- smgr-instance
- subscription
- summary
- tft
- tx-data
- username
- wfi
- grep
- more

**fng-service service_name**

Displays information for subscribers accessing the specified FNG service.

*service_name* must be an existing service expressed as an alphanumeric string of 1 through 63 characters.

The following filter keywords are valid with this command:

- bearer-establishment
- bng-service
- callid
- card-num
- configured-idle-timeout
- connected-time
- ebi
- enodeb-address
- epdg-address
- epdg-service
- fa
- fa-service
- firewall
- fng-service
- full
- fw-and-nat
- gtp-version
- gtpu-bind-address
- gtpu-service
- ha
- henbgw-access-service
- idle-time
- ims-auth-service
- imsi
- ip-address
- ip-alloc-method
- ip-pool
- ipv6-address
- ipv6-prefix
- l3-tunnel-local-addr
- l3-tunnel-remote-addr
- long-duration-time-left
- mipv6ha-service
- msid
- nat
- network-type
- pdif-service
- policy
- profile-id
- profile-name
- qci
- rx-data
- session-time-left
- sgw-address
- smgr-instance
- subscription
- summary
- tft
- tx-data
- username
- wfi
- grep
- more

**full**

Shows all available subscriber information. The following filter keywords are valid with this command:

- access-type
- active
- active-charging-service
- all
- apn
- asn-peer-address
- asngw-service
- asnpg-service
- bandwidth-policy
- bearer-establishment
- bng-service
- callid
- card-num
- ccb-policy
- ccoa-only
- configured-idle-timeout
- connected-time
- dhcp-server
- domain
- dormant
- ebi
- enodeb-address
- epdg-address
- epdg-service
- fa
- fa-service
- firewall
- fw-and-nat
- ggsn-service
- gprs-service
- gsm-traffic-class
- gtp-version
- gtpu-bind-address
- gtpu-service
- ha
- ha-ipsec-only
- ha-service
- henbgw-access-service
- hnbgw-service
- hsgw-service
- idle-time
- imei
- ims-auth-service
- imsi
- ip-address
- ip-alloc-method
- ip-pool
- ipv6-address
- ipv6-prefix
- l3-tunnel-local-addr
- l3-tunnel-remote-addr
- lac
- lac-service
- lns
- lns-service
- long-duration-time-left
- mag-service
- mip-udp-tunnel-only
- mipv6ha-service
- mme-address
- mme-service
- msid
- network-requested
- network-type
- pcc-service
- pcf
- pdg-service
- pdif-service
- psdn-service
- pdnclosedrp-service
- pgw-address
- plmn-type
- profile-id
- profile-name
- qci
- rulebase
- rx-data
- slu-state
- alproto
- security-type
- session-time-left
- sgsn-address
- sgsn-service
- sgw-address
- sgw-service
- smgr-instance
- tpo
- tx-data
- ue-type
- username
- grep
- more

**fw-and-nat policy fw_nat_policy**

*Important*

This option is customer-specific and is only available in StarOS 8.1.

Displays information for subscribers using an existing Firewall-and-NAT policy specified as an alphanumeric string of 1 through 15 characters.

**ggsn-only**

Displays only GGSN-specific subscriber context information.
The following filter keywords are valid with this command:

- aaa-configuration, access-flows, active, activity, all, apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout, connected-time, counters, data-rate, dhcp-server, dormant, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, full, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-only, long-duration-time-left, mip-udp-tunnel-only, mipv6ha-service, maid, maidsn, nat, nemo-only, network-requested, network-type, pcf, pdsn-service, plmn-type, policy, profile-id, profile-name, qci, rx-data, slu-state, s5 proto, session-time-left, sgsn-address, sgw-address, smgr-instance, subscription, summary, tft, tx-data, username, wfl, grep, more

**ggsn-service srvce_name**

Displays only subscribers for a specified GGSN service. Must be followed by the GGSN service name expressed as an alphanumeric string of 1 through 63 characters.

The following filter keywords are valid with this command:

- apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, dormant, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, full, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-only, long-duration-time-left, mip-udp-tunnel-only, mipv6ha-service, maid, maidsn, nat, nemo-only, network-requested, network-type, pcf, pdsn-service, plmn-type, policy, profile-id, profile-name, qci, rx-data, slu-state, s5 proto, session-time-left, sgsn-address, sgw-address, smgr-instance, subscription, summary, tft, tx-data, username, grep, more

**gsm-traffic-class { background | conversational | interactive }**

Displays subscribers associate with the specified 3GPP QoS traffic class.

The following filter keywords are valid with this keyword:

- apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, full, fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lns, lns-only, long-duration-time-left, mip-udp-tunnel-only, mipv6ha-service, maid, maidsn, nat, nemo-only, network-requested, network-type, pcf, pdsn-service, plmn-type, policy, profile-name, qci, rx-data, slu-state, s5 proto, session-time-left, sgsn-address, sgw-address, smgr-instance, tx-data, username, grep, more

**gprs-only**

This keyword is specific to the SGSN and only displays 2G SGSN subscriber information.

The following filter keywords are valid with this keyword:

- aaa-configuration, active, active-charging-service, activity, all, apn, callid, card-num, configured-idle-timeout, connected-time, counters, data-rate, full, ggsn-address, gprs-service, gsm-traffic-class, idle-time, imsi, maid, maidsn, partial, plmn-type, profile-name, rx-data, session-time-left, summary, tx-data, wide-format, grep, more

**gprs-service srvce_name**

Enter the name of the configured 2G GPRS service to display subscriber information specific to the named GPRS service for the SGSN.

*srvce_name* must be an alphanumeric string of 1 through 63 characters that identifies a configured GPRS service.
The following filter keywords are valid with this command:
- `apn`
- `bearer-establishment`
- `bng-service`
- `callid`
- `card-num`
- `ccoa-only`
- `configured-idle-timeout`
- `connected-time`
- `dhcp-server`
- `dormant`
- `ebi`
- `enodeb-address`
- `epdg-address`
- `epdg-service`
- `fa`
- `fa-service`
- `firewall`
- `fw-and-nat`
- `ggsn-service`
- `gsm-traffic-class`
- `gtp-version`
- `gtpu-bind-address`
- `gtpu-service`
- `ha`
- `ha-ipsecc-only`
- `ha-service`
- `idle-time`
- `imei`
- `ip-address`
- `ip-alloc-method`
- `ip-pool`
- `ipv6-address`
- `ipv6-prefix`
- `l3-tunnel-local-addr`
- `l3-tunnel-remote-addr`
- `lac`
- `lacc-service`
- `lns`
- `lns-service`
- `long-duration-time-left`
- `mip-udp-tunnel-only`
- `mipv6a-service`
- `msid`
- `msisdn`
- `nat`
- `nemo-only`
- `network-requested`
- `network-type`
- `pcf`
- `pdan-service`
- `plmn-type`
- `profile-id`
- `profile-name`
- `qci`
- `rx-data`
- `slu-state`
- `s5proto`
- `session-time-left`
- `sgsn-address`
- `sgw-address`
- `smgr-instance`
- `tx-data`
- `username`
- `grep`
- `more`

`gsm-traffic-class { background | conversational | interactive | streaming }`

Displays information for subscriber traffic that matches the specified 3GPP traffic class.

- **background**: 3GPP QoS background class.
- **conversational**: 3GPP QoS conversational class.
- **interactive**: 3GPP QoS interactive class. Must be followed by a traffic priority.
- **streaming**: 3GPP QoS streaming class.

The following filter keywords are valid with this command:
- `apn`
- `bearer-establishment`
- `bng-service`
- `callid`
- `card-num`
- `ccoa-only`
- `configured-idle-timeout`
- `connected-time`
- `dhcp-server`
- `fa`
- `fa-service`
- `firewall`
- `fw-and-nat`
- `ggsn-service`
- `gprs-service`
- `gsm-traffic-class`
- `gtp-version`
- `gtpu-bind-address`
- `gtpu-service`
- `ha`
- `ha-ipsecc-only`
- `ha-service`
- `idle-time`
- `imei`
- `ims-auth-service`
- `ip-address`
- `ip-alloc-method`
- `ip-pool`
- `ipv6-address`
- `ipv6-prefix`
- `l3-tunnel-local-addr`
- `l3-tunnel-remote-addr`
- `lac`
- `lacc-service`
- `lns`
- `lns-service`
- `long-duration-time-left`
- `mipv6a-service`
- `msid`
- `msisdn`
- `nat`
- `nemo-only`
- `network-requested`
- `network-type`
- `pcf`
- `pdan-service`
- `plmn-type`
- `profile-id`
- `profile-name`
- `qci`
- `rx-data`
- `slu-state`
- `s5proto`
- `session-time-left`
- `sgsn-address`
- `sgw-address`
- `smgr-instance`
- `tx-data`
- `username`
- `grep`
- `more`

`gtp-version { 0 | 1 }`

Displays the specific GTP version number. Must be followed by one of the supported GTP versions (0 or 1).

The following filter keywords are valid with this command:
- `apn`
- `bearer-establishment`
- `bng-service`
- `callid`
- `card-num`
- `ccoa-only`
- `configured-idle-timeout`
- `connected-time`
- `dhcp-server`
- `fa`
- `fa-service`
- `firewall`
- `fw-and-nat`
- `ggsn-service`
- `gprs-service`
- `gsm-traffic-class`
- `gtp-version`
- `gtpu-bind-address`
- `gtpu-service`
- `ha`
- `henbgw-access-service`
- `hsgw-service`
- `idle-time`
- `imei`
- `ims-auth-service`
- `imsi`
- `ip-address`
- `ip-alloc-method`
- `ip-pool`
- `ipv6-address`
- `ipv6-prefix`
- `l3-tunnel-local-addr`
- `l3-tunnel-remote-addr`
- `lac`
- `lacc-service`
- `lns`
- `lns-service`
- `long-duration-time-left`
- `mag-service`
- `mipv6a-service`
- `msid`
- `msisdn`
- `nat`
- `network-type`
- `nri`
- `nsi`
- `pdg-service`
- `pdif-service`
- `plmn-type`
- `profile-id`
- `profile-name`
- `qci`
- `rx-data`
- `slu-state`
- `s5proto`
- `session-time-left`
- `sgsn-service`
- `sgw-address`
- `smgr-instance`
- `tx-data`
- `username`
- `grep`
- `more`

`gtpu-bind-address ipv4_address`

Displays the subscribers associated with the specified GTPU service bind address. Must be followed by an IPv4 address in dotted decimal notation.

The following filter keywords are valid with this command:
- `access-type`
- `active-charging-service`
- `apn`
- `asn-peer-address`
- `asngw-service`
- `asnpc-service`
- `bandwidth-policy`
- `bearer-establishment`
- `bng-service`
- `callid`
- `ccoa-only`
- `configured-idle-timeout`
- `connected-time`
- `dhcp-server`
- `domain`
- `ebi`
- `enodeb-address`
- `epdg-address`
- `epdg-service`
- `fa`
- `fa-service`
- `firewall`
- `fw-and-nat`
- `ggsn-service`
- `gprs-service`
- `gsm-traffic-class`
- `gtp-version`
- `gtpu-bind-address`
- `gtpu-service`
- `ha`
- `ha-ipsecc-only`
- `ha-service`
- `henbgw-access-service`
- `hnbgw-service`
- `hsgw-service`
- `idle-time`
- `imei`
- `ims-auth-service`
- `imsi`
- `ip-address`
- `ip-alloc-method`
- `ip-pool`
- `ipv6-address`
- `ipv6-prefix`
- `l3-tunnel-local-addr`
- `l3-tunnel-remote-addr`
- `lac`
- `lacc-service`
- `lns`
- `lns-service`
- `long-duration-time-left`
- `mag-service`
- `mipv6a-service`
- `msid`
- `msisdn`
- `nat`
- `nemo-only`
- `network-requested`
- `network-type`
- `nri`
- `nsi`
- `pdg-service`
- `pdif-service`
- `plmn-type`
- `profile-id`
- `profile-name`
- `qci`
- `rx-data`
- `slu-state`
- `s5proto`
- `session-time-left`
- `sgsn-service`
- `sgw-address`
- `smgr-instance`
- `tx-data`
- `username`
- `grep`
- `more`
show subscribers

gtpu-service svc_name
Displays the subscribers associated with an existing GTPU service specified as an alphanumeric string of 1 through 63 characters.

The following filter keywords are valid with this command:
access-type, active-charging-service, apn, asn-peer-address, asngw-service, asnpc-service, bandwidth-policy, bearer-establishment, bng-service, calld, card-num, ccb-policy, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipse-only, ha-service, henbgw-access-service, hnbgw-service, hsgw-service, idle-time, imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, 13-tunnel-local-addr, 13-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service, long-duration-time-left, mag-service, mip-udp-tunnel-only, mipv6a-service, mme-address, mme-service, msid, msisdn, nat, nemo-only, network-requested, network-type, pcc-service, pcf, pdg-service, pdif-service, pdsn-service, pgw-address, plmn-type, profile-id, profile-name, qci, rulebase, rx-data, slu-state, s5-proto, security-type, session-time-left, sgsn-address, sgw-address, sgw-service, smgr-instance, tx-data, ue-type, username, grep, more

ha ipv4_address
Displays the subscribers associated with the specified Peer Home Agent. Must be followed by the IP address of a Remote HA in IPv4 dotted-decimal notation.

The following filter keywords are valid with this command:
access-type, active-charging-service, apn, asn-peer-address, asngw-service, asnpc-service, bandwidth-policy, bearer-establishment, bng-service, calld, card-num, ccb-policy, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipse-only, ha-service, henbgw-access-service, hnbgw-service, hsgw-service, idle-time, imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, 13-tunnel-local-addr, 13-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service, long-duration-time-left, mag-service, mip-udp-tunnel-only, mipv6a-service, mme-address, mme-service, msid, msisdn, nat, nemo-only, network-requested, network-type, pcc-service, pcf, pdg-service, pdif-service, pdsn-service, pgw-address, plmn-type, profile-id, profile-name, qci, rulebase, rx-data, slu-state, s5-proto, security-type, session-time-left, sgsn-address, sgw-address, sgw-service, smgr-instance, tx-data, ue-type, username, grep, more

ha-ipse-only
Displays MIPHA subscribers with subscriber IPSec tunnel only.

The following filter keywords are valid with this command:
apn, bearer-establishment, bng-service, calld, card-num, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipse-only, ha-service, idle-time, imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, 13-tunnel-local-addr, 13-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service, long-duration-time-left, mip-udp-tunnel-only, mipv6a-service, mme-address, mme-service, msid, msisdn, nat, nemo-only, network-requested, network-type, pcc-service, pcf, pdg-service, pdif-service, pdsn-service, pgw-address, plmn-type, profile-id, profile-name, qci, rulebase, rx-data, slu-state, s5-proto, security-type, session-time-left, sgsn-address, sgw-address, sgw-service, smgr-instance, tx-data, ue-type, username, grep, more

ha-service svc_name
Displays the subscribers associated with an existing Home Agent service specified as an alphanumeric string of 1 through 63 characters.
The following filter keywords are valid with this command:
apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout, 
connected-time, dhcp-server, ebi, enodeb-address, epdg-address, fa, fa-service, 
firewall, fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address, 
gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imsi, ims-auth-service, imsi, 
ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, 13-tunnel-local-addr, 
13-tunnel-remote-addr, lac, lac-service, ins, ins-service, long-duration-time-left, 
imp-udp-tunnel-only, mipv6ha-service, msid, msisdn, nat, nemo-only, network-requested, 
network-type, pcf, pdan-service, plmn-type, profile-id, profile-name, qci, rx-data, slu-state, 
s5-proto, session-time-left, sgsn-address, sgw-address, smgr-instance, tx-data, username, 
grep, more

henbgw-access-services svc_name
Displays specific configured HENBGW access service information. This must be followed by HENBGW 
access service name.
The following filters/keywords are valid with this command:
bearer-establishment, bng-service, callid, card-num, configured-idle-timeout, congestion_mgmt, 
connected-time, ebi, enodeb-address, epdg-address, fa, fa-service, firewall, fng-service, w-and-nat, gtp-version, gtpu-bind-address, gtpu-service, ha, henbgw-access-service, 
 henbgw-service, idle-time, ims-auth-service, imsi, interface-type, ip-address, 
ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, 13-tunnel-local-addr, 
13-tunnel-remote-add, long-duration-time-left, mipv6ha-service, msid, nat, network-type, 
pcp, profile-id, profile-name, qci, rx-data, slu-state, s5-proto, session-time-left, 
smgr-instance, subscription, summary, tft, tx-data, username, wfi, grep, more

henbgw-only
Displays specific HENBGW information for the session.
The following filters/keywords are valid with this command:
aaa-configuration, access-flows, active, active, activity, all, bearer-establishment, bng-service, 
callid, card-num, configured-idle-timeout, congestion_mgmt, connected-time, counters, 
data-rate, dormant, ebi, enodeb-address, epdg-address, fa, fa-service, firewall, fng-service, 
full, fw-and-nat, gtp-version, gtpu-bind-address, gtpu-service, ha, henbgw-access-service, 
 henbgw-service, idle-time, ims-auth-service, imsi, interface-type, ip-address, 
ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, 13-tunnel-local-addr, 
13-tunnel-remote-add, long-duration-time-left, mipv6ha-service, msid, nat, network-type, 
pcp, policy, profile-id, profile-name, qci, rx-data, slu-state, s5-proto, session-time-left, 
smgr-instance, subscription, summary, tf, tx-data, username, wfi, grep, more

hnbgw-only
Displays HNB-GW subscriber session information.
The following filters/keywords are valid with this command:
aaa-configuration, access-flows, access-type, active, active-charging-service, activity, 
bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, 
configured-idle-timeout, connected-time, counters, data-rate, domain, ebi, enodeb-address, 
epdg-address, epdg-service, fa, firewall, full, fw-and-nat, gtp-version, gtpu-bind-address, 
gtpu-service, ha, henbgw-access-service, hnb-service, idle-time, ims-auth-service, imsi, 
ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, 13-tunnel-local-addr, 
13-tunnel-remote-add, long-duration-time-left, mipv6ha-service, msid, nat, network-type, 
pcc-service, policy, profile-id, profile-name, qci, rulebase, rx-data, slu-list, s5-proto, security-type, 
session-time-left, sgsn-address, sgsn-service, sgw-address, smgr-instance, 
subscription, summary, tpo, tx-data, ue-type, username, wfi, grep, more

hnbgw-service svc_name
Displays subscriber information based on the HNB-GW service name. 
svc_name must be an existing HNB-GW service expressed as an alphanumeric string of 1 through 63 characters. 
The following filters/keywords are valid with this command:
access-type, active-charging-service, bandwidth-policy, bearer-establishment, bng-service, 
callid, card-num, cbb-policy, configured-idle-timeout, connected-time, domain, ebi,
enodeb-address, epdg-address, epdg-service, fa, firewall, full, fw-and-nat, gtp-version, gtpu-bind-address, gtpu-service, ha, henbgw-access-service, hnbgw-service, idle-time, ime-auth-service, imsi, ip-address, ip-ajax-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, long-duration-time-left, mipv6ha-service, msid, nat, network-type, pcc-service, profile-id, profile-name, qci, rulebase, rx-data, slu-state, s5-proto, security-type, session-time-left, sgsn-address, sgsn-service, agw-address, smgr-instance, tpo, tx-data, ue-type, username, grep, more

**hsgw-only**

Displays HSGW subscriber session information.

The following filters/keywords are valid with this command:

- aaa-configuration, access-flows, active, active-charging-only, all, bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, configured-idle-timeout, connected-time, counters, data-rate, dormant, ebi, enodeb-address, epdg-address, epdg-service, fa, firewall, full, fw-and-nat, gtp-version, gtpu-bind-address, gtpu-service, ha, hsgw-service, idle-time, ims-auth-service, imsi, ip-address, ip-ajax-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, long-duration-time-left, mag-service, mipv6ha-service, msid, nat, network-type, pgw-address, policy, profile-id, profile-name, qci, rulebase, rx-data, slu-state, s5-proto, session-time-left, sgsn-address, smgr-instance, subscription, summary, tft, tx-data, username, wf1, grep, more

**hsgw-service svc_name**

Displays subscriber information based on the HSGW service name. `svc_name` must be an existing HSGW service expressed as an alphanumeric string of 1 through 63 characters.

**hsgw-service svc_name**

Displays subscriber information based on the HSGW service name. `svc_name` must be an existing HSGW service expressed as an alphanumeric string of 1 through 63 characters.

The following filters/keywords are valid with this command:

- active-charging-service, bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, configured-idle-timeout, connected-time, ebi, enodeb-address, epdg-address, epdg-service, fa, firewall, full, fw-and-nat, gtp-version, gtpu-bind-address, gtpu-service, ha, hsgw-service, idle-time, ims-auth-service, imsi, ip-address, ip-ajax-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, long-duration-time-left, mag-service, mipv6ha-service, msid, nat, network-type, pgw-address, policy, profile-id, profile-name, qci, rulebase, rx-data, slu-state, s5-proto, session-time-left, sgsn-address, smgr-instance, subscription, summary, tft, tx-data, username, wf1, grep, more

**idle-time**

Displays current configuration for all subscribers within the specified idle-time interval.

- `<`: Filters output so that only information less than the specified value is displayed.
- `<`: Filters output so that only information less than the specified value is displayed.
- `>:` Filters output so that only information greater than the specified value is displayed.
- `greater-than`: Filters output so that only information greater than the specified value is displayed.
- `less-than`: Filters output so that only information less than the specified value is displayed.
- `value`: Used in conjunction with `<`, `>`, greater-than, less-than. If no other filtering options are specified only output matching `value` is displayed. If `value` is not specified all data is displayed. `value` must be an integer from 0 through 4294967295.

The following filter keywords are valid with this command:

- epdg-address, epdg-service
imei imei_number

Displays subscribers having the specified International Mobile Equipment Identity (IMEI/IMEISV) Number. Must be followed by IMEI number.

The following filter keywords are valid with this command:
apn, bearer-establishment, bng-service, calld, card-num, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipse-only, ha-service, idle-time, imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, 13-tunnel-local-addr, 13-tunnel-remote-addr, lac, lac-service, lns, lns-service, long-duration-time-left, mip-udp-tunnel-only, mipv6ha-service, mme-address, mme-service, msid, msidn, nat, nemo-only, network-requested, network-type, pcf, pdn-service, plmn-type, profile-id, profile-name, qci, rx-data, slu-state, s5-proto, session-time-left, sgsn-address, sgw-address, smgr-instance, tx-data, username, grep, more

imsi_auth-service svc_name

Displays subscriber information based on the IMS authentication service name. svc_name must be an existing service expressed as an alphanumeric string of 1 through 63 characters.

The following filters/keywords are valid with this command:
access-type, active-charging-service, asn-peer-address, asngw-service, asnpac-service, bandwidth-policy, bearer-establishment, bng-service, calld, card-num, ccb-policy, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service, gtpu-bind-address, gtpu-service, ha, ha-ipse-only, ha-service, hnbgw-access-service, hnbgw-service, hsgw-service, idle-time, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, 13-tunnel-local-addr, 13-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service, long-duration-time-left, mag-service, mtp-up-tunnel-only, mipv6ha-service, mme-address, mme-service, msid, msidn, nat, nemo-only, network-requested, network-type, pcc-service, pcf, pdg-service, pdif-service, pdn-service, pgw-address, plmn-type, profile-id, profile-name, qci, rulebase, rx-data, slu-state, s5-proto, security-type, session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service, smgr-instance, tpo, tx-data, ue-type, username, grep, more

imsi imsi

Displays information specific to one subscriber or group of subscribers. Enter 1 to 15 digits to identify a specific subscriber's IMSI (International Mobile Subscriber Identity).

The following filters/keywords are valid with this command:
access-type, active-charging-service, apn, asn-peer-address, asngw-service, asnpac-service, bandwidth-policy, bearer-establishment, bng-service, calld, card-num, ccb-policy, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipse-only, ha-service, hnbgw-access-service, hnbgw-service, hsgw-service, idle-time, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, 13-tunnel-local-addr, 13-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service, long-duration-time-left, mag-service, mtp-up-tunnel-only, mipv6ha-service, mme-address, mme-service, msid, msidn, nat, nemo-only, network-requested, network-type, nsapi, pcc-service, pcf, pdg-service, pdif-service, pdn-service, pgw-address, plmn-type, profile-id, profile-name, qci, rulebase, rx-data, slu-state, s5-proto, security-type, session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service, smgr-instance, tpo, tx-data, ue-type, username, grep, more

interface-type { S2aGTP | S2bGTP | S5S8GTP }

Specifies subscriber type as either S2a (eHRPD), S2b (ePDG) or S5/S8 (PMIPv6/GTP).

The following filter keywords are valid with this command:
apn, bearer-establishment, bng-service, calld, card-num, ccoa-only, configured-idle-timeout, congestion_mgmt, connected-time, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipse-only,
ha-service, henbgw-access-service, idle-time, imei, ims-auth-service, imsi, interface-type, ip-address, ip-alloc-method, ip-pool, ipv4-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lns, lns-service, long-duration-time-left, mip-udp-tunnel-only, mipv6ha-service, mme-address, mme-service, maid, msisdn, nat, nemo-only, network-requested, network-type, pcf, pcp, pdsn-service, plmn-type, profile-id, profile-name, qci, rx-data, slu-state, s5-proto, session-time-left, sgsn-address, sgw-address, smgr-instance, tx-data, username, wsg-service, grep, more

ip-address ipv4_address
Displays the subscribers associated with the specified IPv4 address. Must be followed by the IP address in IPv4 dotted-decimal notation.

The following filter keywords are valid with this command:
access-type, active-charging-service, apn, asn-peer-address, asngw-service, asnpc-service, bandwidth-policy, bearer-establishment, bng-service, callid, card-num, ccb-policy, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, domain, ebi, endodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, hnbgw-access-service, hnbgw-service, hsgw-service, idle-time, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv4-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service, long-duration-time-left, mag-service, mip-udp-tunnel-only, mipv6ha-service, mme-address, mme-service, maid, msisdn, nat, nemo-only, network-requested, network-type, nsapi, pcc-service, pcf, pgd-service, pdif-service, psdn-service, pgw-address, plmn-type, profile-id, profile-name, qci, rulebase, rx-data, slu-state, s5-proto, security-type, session-time-left, sgsn-address, sgw-service, sgw-address, sgw-service, sme-instance, tpo, tx-data, ue-type, username, grep, more

ip-alloc-method {aaa-assigned | dhcp | relay-agent | proxy-client | | dynamic-pool | l2tp-lns-assigned | mip-ha-assigned | ms-provided-static | not-ms-provided-static | static pool}
Displays the specific IP Allocation Method. Must be followed by one of the IP Allocation Methods:
- **aaa-assigned**: Selects subscribers whose IP addresses were assigned by AAA.
- **dhcp**: Selects subscribers whose IP addresses were assigned by DHCP
- **relay-agent**: Selects subscribers whose IP addresses were assigned by the DHCP Relay Agent
- **proxy-client**: Selects subscribers whose IP addresses were assigned by the DHCP Proxy Client
- **dynamic-pool**: Selects subscribers whose IP addresses were assigned from a dynamic IP address pool.
- **l2tp-lns-assigned**: Selects subscribers whose IP addresses were assigned by the Layer 2 Tunneling Protocol (LT2P) Network Server.
- **mip-ha-assigned**: Selects subscribers whose IP addresses were assigned by the Mobile IP Home Agent.
- **ms-provided-static**: Selects subscribers whose IP addresses were provided by the Mobile Station.
- **not-ms-provided-static**: Selects subscribers whose IP addresses were not provided by the Mobile Station.
- **static-pool**: Selects subscribers whose IP addresses were assigned from a static IP address pool.

The following filter keywords are valid with this command:
access-type, active-charging-service, apn, asn-peer-address, asngw-service, asnpc-service, bandwidth-policy, bearer-establishment, bng-service, callid, card-num, ccb-policy, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, domain, ebi, endodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, hnbgw-access-service, hnbgw-service, hsgw-service, idle-time, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv4-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service,
Display subscriber information based on the IP pool name. **ip_pool_name** must be an existing IP pool name expressed as an alphanumeric string of 1 through 31 characters.

The following filter keywords are valid with this command:
- access-type
- active-charging-service
- apn
- asn-peer-address
- asngw-service
- asnpc-service
- bandwidth-policy
- bearer-establishment
- bng-service
- callid
- card-num
- cbb-policy
- ccoa-only
- configured-idle-timeout
- connected-time
- dhcp-server
- domain
- ebi
- enodeb-address
- epdg-address
- epdg-service
- fa
- fa-service
- firewall
- fw-and-nat
- ggsn-service
- gprs-service
- gsm-traffic-class
- gtp-version
- gtpu-bind-address
- gtpu-service
- ha
- ha-ipsec-only
- ha-service
- ha-service
- hbgw-access-service
- hbgw-service
- hsgw-service
- idle-time
- imsi
- ip-address
- ip-alloc-method
- ip-pool
- ipv6-address
- ipv6-prefix
- 13-tunnel-local-addr
- 13-tunnel-remote-addr
- lac
- lac-service
- lma-service
- lns
- lns-service
- long-duration-time-left
- mag-service
- mip-up-tunnel-only
- mipv6ha-service
- mme-address
- mme-service
- msid
- msisdn
- nat
- nemo-only
- network-requested
- network-type
- nsapi
- pcc-service
- pcf
- pdg-service
- pdif-service
- pdsn-service
- pgw-address
- plmn-type
- profile-id
- profile-name
- qci
- relay-agent
- rulebase
- rx-data
- slu-state
- s5-proto
- security-type
- session-time-left
- sgsn-address
- sgsn-service
- sgw-address
- sgw-service
- sgsn-service
- sgw-service
- smgr-instance
- tpo
- tx-data
- ue-type
- username
- grep
- more

**ipcf-only**

Displays Intelligent Policy Control Function (IPCF) subscriber session information.

**ipsg-only**

Displays IP Services Gateway (IPSG) subscriber session information.

The following filter keywords are valid with this command:
- epdg-address
- epdg-service

**ipv6-address ipv6_address**

Displays the subscribers associated with the specified IPv6 address. Must be followed by the IP address in IPv8 colon-separated-hexadecimal notation.

The following filter keywords are valid with this command:
- apn
- asn-peer-address
- asngw-service
- asnpc-service
- bearer-establishment
- bng-service
- callid
- card-num
- ccoa-only
- configured-idle-timeout
- connected-time
- dhcp-server
- ebi
- enodeb-address
- epdg-address
- epdg-service
- fa
- fa-service
- firewall
- fw-and-nat
- ggsn-service
- gprs-service
- gsm-traffic-class
- gtp-version
- gtpu-bind-address
- gtpu-service
- ha
- ha-ipsec-only
- ha-service
- hsgw-service
- idle-time
- imei
- ims-auth-service
- imsi
- ip-address
- ip-alloc-method
- ip-pool
- ipv6-address
- ipv6-prefix
- 13-tunnel-local-addr
- 13-tunnel-remote-addr
- lac
- lac-service
- lma-service
- lns
- lns-service
- long-duration-time-left
- mag-service
- mip-up-tunnel-only
- mipv6ha-service
- mme-address
- mme-service
- msid
- msisdn
- nat
- nemo-only
- network-requested
- network-type
- nsapi
- pcc-service
- pcf
- pdg-service
- pdif-service
- pdsn-service
- pgw-address
- plmn-type
- profile-id
- profile-name
- qci
- rulebase
- rx-data
- slu-state
- s5-proto
- security-type
- session-time-left
- sgsn-address
- sgsn-service
- sgw-address
- sgw-service
- smgr-instance
- tpo
- tx-data
- ue-type
- username
- grep
- more

**ipv6-prefix ipv6_prefix**

Displays the subscribers associated with the specified IPv6 address prefix. Must be followed by an IPv6 address prefix in the format xx:xx:xx::/len

The following filter keywords are valid with this command:
- access-type
- active-charging-service
- apn
- asn-peer-address
- asngw-service
- asnpc-service
- bandwidth-policy
- bearer-establishment
- bng-service
- callid
- card-num
- cbb-policy
- ccoa-only
configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address,
epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service,
gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only,
ha-service, hnbgw-service, hsgw-service, idle-time, imas-auth-service, imai, ip-address,
ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
13-tunnel-remote-addr, lac, lac-service, ima-service, ins, ins-service,
long-duration-time-left, mag-service, mip-up-tunnel-only, mipv6ha-service, mme-address,
mme-service, msid, msisdn, nat, nemo-only, network-requested, network-type, naapi,
pcc-service, pcf, pdg-service, pdif-service, pdsn-service, pgw-address, plmn-type, profile-id,
profile-name, qci, rulebase, rx-data, slu-state, s5.proto, security-type, session-time-left,
sgsn-address, sgsn-service, sgw-address, sgw-service, smgr-instance, tpo, tx-data, ue-type,
username, grep, more

l3-tunnel-local-addr ipv4_address

Displays subscriber information based on the layer 3 tunneling interface. Must be followed by an IP address of the local interface, using IPv4 dotted-decimal notation.

The following filter keywords are valid with this command:
access-type, active-charging-service, apn, asngw-service, asnpc-service,
bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only,
configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address,
epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service,
gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only,
ha-service, hnbgw-service, hsgw-service, idle-time, imas-auth-service, imai, ip-address,
ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
13-tunnel-remote-addr, lac, lac-service, ima-service, ins, ins-service,
long-duration-time-left, mag-service, mip-up-tunnel-only, mipv6ha-service, mme-address,
mme-service, msid, msisdn, nat, nemo-only, network-requested, network-type, naapi,
pcc-service, pcf, pdg-service, pdif-service, pdsn-service, pgw-address, plmn-type, profile-id,
profile-name, qci, rulebase, rx-data, slu-state, s5.proto, security-type, session-time-left,
sgsn-address, sgsn-service, sgw-address, sgw-service, smgr-instance, tpo, tx-data, ue-type,
username, grep, more

l3-tunnel-remote-addr ipv4_address

Displays subscriber information based on the layer 3 tunneling interface. Must be followed by an IP address of the remote interface, using IPv4 dotted-decimal notation.

The following filter keywords are valid with this command:
access-type, active-charging-service, apn, asngw-service, asnpc-service,
bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only,
configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address,
epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service,
gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only,
ha-service, hnbgw-service, hsgw-service, idle-time, imas-auth-service, imai, ip-address,
lac-only
Displays subscriber information based on the L2TP Access Concentrator (LAC) context information for the session.

lac-service <svc_name>
Displays subscriber information based on an existing LAC service name expressed as an alphanumeric string of 1 through 63 characters.

The following filter keywords are valid with this command:
apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lns, lns-service, local-tunnel-id, long-duration-time-left, mip-udp-tunnel-only, mipv6a-service, msid, msisdn, nat, nemo-only, network-requested, network-type, pcf, pdan-service, plmn-type, profile-id, profile-name, qci, remote-tunnel-id, rx-data, slu-state, s5-proto, session-time-left, sgsn-address, sgw-address, smgr-instance, tx-data, username, grep, more

lma-only
Displays Local Mobility Anchor (LMA) specific context information for the session.

lma-service <svc_name>
Displays subscriber information based on the LMA service name. <svc_name> must be an existing LMA service expressed as an alphanumeric string of 1 through 63 characters.

lns ipv4_address
Displays subscriber information based on the L2TP Network Server (LNS). Must be followed by the IP address of an LNS in IPv4 dotted-decimal notation.

The following filter keywords are valid with this command:
apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lns, lns-service, local-tunnel-id, long-duration-time-left, mip-udp-tunnel-only, mipv6a-service, msid, msisdn, nat, nemo-only, network-requested, network-type, pcf, pdan-service, plmn-type, profile-id, profile-name, qci, remote-tunnel-id, rx-data, slu-state, s5-proto, session-time-left, sgsn-address, sgw-address, smgr-instance, tx-data, username, grep, more

lns-only
Displays LNS specific information only.

lns-service <svc_name>
Displays subscriber information based on an existing L2TP Network Server (LNS) service name expressed as an alphanumeric string of 1 through 63 characters.
The following filter keywords are valid with this command:

- bearer-establishment, bng-service, callid, card-num, configured-idle-timeout, connected-time,
- ebi, enodeb-address, epdg-address, epdg-service, fa, firewall, fw-and-nat, gtp-version,
- gtpu-bind-address, gtpu-service, ha, idle-time, ims-auth-service, imsi, ip-address,
- ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
- long-duration-time-left, mipv6ha-service, msid, nat, network-type, profile-id, profile-name,
- qci, remote-tunnel-id, rx-data, slu-state, s5-proto, session-time-left, sgw-address,
- smgr-instance, tx-data, username, grep, more

**long-duration-time-left | < | > | greater-than | less-than | value**

Shows how much time is left for the maximum duration of a specified subscriber session.

- `<`: Filters output so that only information less than the specified value is displayed.
- `>`: Filters output so that only information greater than the specified value is displayed.
- `greater-than`: Filters output so that only information greater than the specified value is displayed.
- `less-than`: Filters output so that only information less than the specified value is displayed.
- `value`: Used in conjunction with `<`, `>`, greater-than, less-than. If no other filtering options are specified only output matching `value` is displayed. If `value` is not specified all data is displayed. `value` must be an integer from 0 through 4294967295.

**mag-only**

Displays Mobile Access Gateway (MAG) subscriber session information.

**mag-service svc_name**

Displays subscriber information based on the Mobile Access Gateway (MAG) service name. `svc_name` must be an existing MAG service expressed as an alphanumeric string of 1 through 63 characters.

**mip-udp-tunnel-only**

Displays Mobile IP Home Agent (MIP-HA) subscriber information for subscribers that negotiated MIP-UDP tunnels.

The following filter keywords are valid with this command:

- apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout,
- connected-time, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service,
- firewall, fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address,
- gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imei, ins-auth-service, imsi,
- ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
- l3-tunnel-remote-addr, lac, lac-service, lns, lns-service, long-duration-time-left,
- mip-udp-tunnel-only, mipv6ha-service, msid, msisdn, nat, nemo-only, network-requested, network-type, pcf, pdns-service, plmn-type, profile-id, profile-name, qci, rx-data, slu-state,
- s5-proto, session-time-left, sgsn-address, sgw-address, smgr-instance, tx-data, username,
- grep, more

**mipv6ha-only**

Displays MIP-HA-IPv6 context information for the session.
The following filters/keywords are valid with this command:

aaa-configuration, access-flows, access-type, active, active-charging-service, activity, 
all, apn, asn-peer-address, asngw-service, asnpc-service, bandwidth-policy, 
bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only, 
configured-idle-timeout, connected-time, counters, data-rate, dhcp-server, domain, dormant, 
ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, full, fw-and-nat, 
ggsn-address, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, 
ha, ha-ipsec-only, ha-service, hnbw-service, hagw-service, idle-time, imei, 
lms-auth-service, lmsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, 
l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service, 
long-duration-time-left, mag-service, mipv6a-service, mme-address, mme-service, msid, 
nat, network-requested, network-type, pcc-service, pcf, pdg-service, pdiv-service, 
pgw-address, policy, profile-id, profile-name, qci, rulebase, rx-data, slu-state, s5-proto, 
security-type, session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service, 
smgr-instance, subscription, summary, tft, tpo, tx-data, ue-type, username, wfi, grep, more 

mipv6a-service svc_name

Displays subscriber information based on an existing MIP Home Agent IPv6 service name expressed as an 
alphabetical string of 1 through 63 characters.

The following filter keywords are valid with this command:

access-type, active-charging-service, apn, asn-peer-address, asngw-service, asnpc-service, 
bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, ccoa-only, 
configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address, 
epdg-address, epdg-service, fa, fa-service, firewall, full, fw-and-nat, ggsn-address, 
gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, 
ha-service, hnbw-service, hagw-service, idle-time, imei, 
mms-auth-service, lmsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, 
l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service, 
long-duration-time-left, mag-service, mipv6a-service, mme-address, mme-service, msid, 
nat, network-requested, network-type, pcc-service, pcf, pdg-service, pdiv-service, 
pgw-address, policy, profile-id, profile-name, qci, rulebase, rx-data, slu-state, s5-proto, 
security-type, session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service, 
smgr-instance, subscription, summary, tft, tpo, tx-data, ue-type, username, wfi, grep, more

mme-address

Displays subscriber information based on the Mobility Management Entity (MME) IP address. ip_address 
must be an existing MME IP address and be entered in IPv4 dotted-decimal notation or IPv6 
colon-separated-hexadecimal notation.

The following filter keywords are valid with this command:

bearer-establishment, bng-service, callid, card-num, configured-idle-timeout, connected-time, 
ebi, enodeb-address, epdg-address, epdg-service, fa, firewall, full, fw-and-nat, gtp-version, 
gtpu-bind-address, gtpu-service, ha, ha-time, imei, 
mms-auth-service, lmsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, 
l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service, 
long-duration-time-left, mag-service, mme-address, mme-service, msid, 
nat, network-requested, network-type, profile-id, profile-name, qci, rx-data, slu-state, s5-proto, 
security-type, session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service, 
smgr-instance, subscription, summary, tft, tpo, tx-data, ue-type, username, wfi, grep, more

mme-only

Displays MME subscriber session information.

mme-service svc_name: Displays subscriber information based on the MME service name. svc_name must 
be an existing MME service expressed as an alphabetical string of 1 through 63 characters.

mme-address ip_address: Displays subscriber information based on the MMM IP address. ip_address must 
be an existing MMM IP address entered in IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal 
notation.

The following filter keywords are valid with this command:

bearer-establishment, bng-service, callid, card-num, configured-idle-timeout, connected-time, 
ebi, enodeb-address, epdg-address, epdg-service, fa, firewall, full, fw-and-nat, gtp-version,
mseg-only

Important This keyword is not supported in this release.

mseg-service mseg_service_name

Important This keyword is not supported in this release.

msid msid

For this SGSN-specific keyword, enter the MSID (Mobile Station IDentifier) to display information specific to one subscriber's equipment by entering the MSID.

The following filter keywords are valid with this command:
apn, asn-peer-address, asngw-service, asnpc-service, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipseco-only, ha-service, ha-ipsec-only, ha-service, ha-ipseco-only, ha-service, hsgw-service, idle-time, imei, imsi, ims-auth-service, ip-address, ip-alloc-method, ip overwhelms me and can't read the rest of the text.
configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, hnbgw-service, hmgw-service, idle-time, imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service, long-duration-time-left, mag-service, mip-up-tunnel-only, mipv6ha-service, mme-address, mme-service, msid, msisdn, nat, nat-ip, nat-realm, nemo-only, network-requested, network-type, pcc-service, pcf, pdg-service, pdif-service, pdsn-service, pgw-address, plmn-type, profile-id, profile-name, qci, rulebase, rx-data, slu-state, s5-proto, security-type, session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service, smgr-instance, tpo, tx-data, ue-type, usage-time, username, grep, more

nemo-only
Displays information on MIP-HA subscribers that are mobile routers (Network Mobility).
The following filter keywords are valid with this command:
apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lns, lns-service, long-duration-time-left, mip-up-tunnel-only, mipv6ha-service, msid, msisdn, nat, nemo-only, network-requested, network-type, pcf, pdg-service, pdif-service, pdsn-service, pgw-address, plmn-type, profile-id, profile-name, qci, rulebase, rx-data, slu-state, s5-proto, security-type, session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service, smgr-instance, tpo, tx-data, ue-type, usage-time, username, grep, more

network-requested
Selects the currently active subscribers whose sessions were initiated by a GGSN network requested to create a PDP context.
The following filter keywords are valid with this command:
access-type, active-charging-service, apn, bandwidth-policy, bearer-establishment, bng-service, callid, card-num, ccb-policy, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, domain, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, hnbgw-service, hmgw-service, idle-time, imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lns, lns-service, long-duration-time-left, mip-up-tunnel-only, mipv6ha-service, msid, msisdn, nat, nemo-only, network-requested, network-type, nsapi, pcc-service, pcf, pdg-service, pdif-service, plmn-type, profile-id, profile-name, qci, rulebase, rx-data, slu-state, s5-proto, security-type, session-time-left, sgsn-address, sgsn-service, sgw-address, sgw-service, smgr-instance, tpo, tx-data, ue-type, username, grep, more

network-type { gre | ipip | ipsec | ipv4 | ipv4-pmipv6 | ipv4v6 | ipv4v6-pmipv6 | ipv6 | ipv6-pmipv6 | l2tp | mobile-ip | proxy-mobile-ip }
Selects the currently active subscribers based on network service access type.
• gre: Generic Routing Encapsulation
• ipip: IP-in-IP
• ipsec: IPSec
• ipv4: IPv4 only
• ipv4-pmipv6: IPv4 and/or Proxy Mobile IPv6 (PMIP)
• ipv4v6: IPv4 and/or IPv6
• ipv4v6-pmipv6: IPv4, IPv6 and/or Proxy Mobile IPv6
• ipv6: IPv6 only
The following filter keywords are valid with this command:
apn, asn-peer-address, asngw-service, asnpc-service, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, hagw-service, idle-time, imei, lms-auth-service, lmsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service, long-duration-time-left, mag-service, mipv6ha-service, mme-address, mme-service, msid, midsn, nat, nemo-only, network-requested, network-type, pcf, pdg-service, pdif-service, pdsn-service, pgw-address, plmn-type, profile-id, profile-name, qci, rx-data, slu-state, s5-proto, session-time-left, sgsn-address, sgw-address, sgw-service, smgr-instance, tx-data, username, grep, more

**pcc-service name**
Displays statistics for users associated with an existing Policy and Charging Control (PCC) service name expressed as an alphanumeric string of 1 through 63 characters.

**pcf [< | > | less-than | greater-than] ipv4_address [< | > | less-than | greater-than] ipv4_address**
Displays information for subscribers connected via the packet control function (PCF) with a specific or range of IP addresses. The address must be specified using IPv4 dotted-decimal notation.

- `<`: Filters output so that only information less than the specified IPv4 address value is displayed.
- `>`: Filters output so that only information greater than the specified IPv4 address value is displayed.
- `less-than`: Filters output so that only information less than the specified IPv4 address value is displayed.
- `greater-than`: Filters output so that only information greater than the specified IPv4 address value is displayed.

Note: It is possible to define a limited range of IP addresses by using the less-than and greater-than options to define minimum and maximum values.

The following filter keywords are valid with this command:
<, apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, hagw-service, idle-time, imei, lms-auth-service, lmsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, less-than, lns, lns-service, long-duration-time-left, mipv6ha-service, mme-address, msid, msisdn, nat, nemo-only, network-requested, network-type, pcf, pdsn-service, plmn-type, profile-id, profile-name, qci, rx-data, slu-state, s5-proto, session-time-left, sgsn-address, sgw-address, sgw-service, smgr-instance, tx-data, username, grep, more

**pdg-only**
Displays a summary of PDG subscriber statistics.

The following filters/keywords are valid with this command:
aaa-configuration, access-flows, active, activity, all, apn, bearer-establishment, bng-service, callid, card-num, configured-idle-timeout, connected-time, counters, data-rate, dormant, ebi, enodeb-address, epdg-address, epdg-service, fa, firewall, full, fw-and-nat,
gtp-version, gtpu-bind-address, gtpu-service, ha, idle-time, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, long-duration-time-left, mipv6ha-service, mайд, nat, network-type, pdg-service, policy, profile-id, profile-name, qci, rx-data, slu-state, s5-proto, session-time-left, sgw-address, smgr-instance, subscription, summary, tft, tx-data, username, wfi, grep, more

**pdg-service name**

Displays statistics for users associated with an existing Packet Data Gateway (PDG) service name expressed as an alphanumeric string of 1 through 63 characters.

The following filters/keywords are valid with this command:

bearer-establishment, bng-service, callid, card-num, configured-idle-timeout, connected-time, ebi, enodeb-address, epdg-address, epdg-service, fa, firewall, fng-service, fw-and-nat, gtp-version, gtpu-bind-address, gtpu-service, ha, idle-time, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, long-duration-time-left, mipv6ha-service, mайд, nat, network-type, pdg-service, profile-id, profile-name, qci, rx-data, slu-state, s5-proto, session-time-left, sgw-address, smgr-instance, subscription, summary, tft, tx-data, username, wfi, grep, more

**pdif-only**

Displays a summary of Packet Data Interworking Function (PDIF) subscriber statistics.

The following filters/keywords are valid with this command:

aaa-configuration, access-flows, active, activity, all, apn, bearer-establishment, bng-service, callid, card-num, configured-idle-timeout, connected-time, dormant, ebi, enodeb-address, epdg-address, epdg-service, fa, service, firewall, fng-service, full, fw-and-nat, gtp-version, gtpu-bind-address, gtpu-service, ha, idle-time, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, long-duration-time-left, mipv6ha-service, mайд, nat, network-type, pdg-service, profile-id, profile-name, qci, rx-data, slu-state, s5-proto, session-time-left, sgw-address, smgr-instance, subscription, summary, tft, tx-data, username, wfi, grep, more

**pdif-service name**

Displays connection statistics for users associated with a specific PDIF service name.

The following filters/keywords are valid with this command:

bearer-establishment, bng-service, callid, card-num, configured-idle-timeout, connected-time, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fng-service, fw-and-nat, gtp-version, gtpu-bind-address, gtpu-service, ha, idle-time, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, long-duration-time-left, mipv6ha-service, mайд, nat, network-type, pdg-service, profile-id, profile-name, qci, rx-data, slu-state, s5-proto, session-time-left, sgw-address, smgr-instance, subscription, summary, tft, tx-data, username, wfi, grep, more

**pdsn-only**

Displays a summary of Packet Data Serving Node (PDSN) subscriber statistics.

The following filters/keywords are valid with this command:

aaa-configuration, access-flows, active, activity, all, apn, bandwidth-policy, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout, connected-time, counts, connected-time, data-rate, dhcp-server, dormant, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, full, fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ipsec-only, ha-service, idle-time, imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lns, lns-service, long-duration-time-left, mip-udp-tunnel-only, mipv6ha-service, mайд, nat, nemo-only, network-requested, network-type, pcf, pdsn-service, plmn-type, policy, profile-id, profile-name, qci, rx-data, slu-state, s5-proto, session-time-left, sgsn-address, sgsn-service, sgw-address, smgr-instance, subscription, summary, tft, tpo, tx-data, username, wfi, grep, more
pdsn-service name
Displays statistics for users associated with an existing PDSN service name expressed as an alphanumeric string of 1 through 63 characters.

The following filter keywords are valid with this command:
apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lns, lns-service, long-duration-time-left, mag-address, mip-udp-tunnel-only, mipv6ha-service, msid, msidn, nat, nemo-only, network-requested, network-type, pcf, pdsn-service, plmn-type, profile-id, profile-name, qci, rx-data, slu-state, s5-proto, session-time-left, sgsn-address, sgw-address, smgr-instance, tx-data, username, grep, more

pgw-address ip_address
Displays information about the subscribers connected to the specified P-GW.

ip_address must be specified by its IP address using dotted-decimal notation for IPv4 or colon separated notation for IPv6.

The following filters/keywords are valid with this command:
active-charging-service, apn, bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, configured-idle-timeout, connected-time, ebi, enodeb-address, epdg-address, epdg-service, fa, firewall fw-and-nat, gtp-version, gtpu-bind-address, gtpu-service, ha, idle-time, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, long-duration-time-left, mag-service, mipv6ha-service, msid, nat, network-type, pgw-address, pgw-address, plmn-type, profile-id, profile-name, qci, rulebase, rx-data, slu-state, s5-proto, saegw-service, session-time-left, sgw-address, sgw-service, smgr-instance, tx-data, username

pgw-only
Displays PDN-Gateway (P-GW) subscriber session information.

The following filters/keywords are valid with this command:
all, apn, callid, card-num, ebi, epdg-address, epdg-address, full, imsi, interface-type, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, network-type, pgw-service, plmn-type, profile-name, qci, sgw-address, smgr-instance, summary

- epdg-address ip_address: Displays subscriber information based on the ePDG IP address. ip_address must be an existing ePDG IP address.
- interface-type: Interface type of subscriber.
  S2aGTP: Interface type S2a GTP.
  S2bGTP: Interface type S2b GTP.
  S5S8GTP: Interface type S5/S8 GTP.
- pgw-service svc_name: Displays subscriber information based on the P-GW service name. svc_name must be an existing P-GW service expressed as an alphanumeric string of 1 through 63 characters.
- qci number: Displays subscriber session information based on the QoS Class Identifier (QCI) value assigned to the subscriber. number must be an integer value from 0 to 9.
- sgw-address ip_address: Displays subscriber information based on the S-GW IP address. ip_address must be an existing S-GW IP address.
plmn-type | home | roaming | visiting |

Displays subscriber information based on the type of Public Land Mobile Network (PLMN).

- **home**: For GGSN/PGW, shows all the subscribers of charging type HOME.
- **roaming**: For GGSN/PGW, shows all the subscribers of charging type ROAMING.
- **visiting**: For GGSN/PGW, shows all the subscribers of charging type VISITING.

The following filter keywords are valid with this command:
apn, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, idle-time, imei, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service, long-duration-time-left, mip-udp-tunnel-only, mipv6ha-service, msid, misedn, nat, nemo-only, network-requested, network-type, pcf, pdn-service, plmn-type, profile-id, profile-name, qci, rx-data, s1u-state, s5-proto, session-time-left, sgsn-address, sgw-address, smgr-instance, tx-data, username, grep, more

**policy**

Displays the current policies associated with the subscriber session.

The following filter keywords are valid with this command:
access-type, active-charging-service, all, apn, asngw-service, asnpc-service, bandwidth-policy, bearer-establishment, bng-service, callid, card-num, chbb-policy, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, domain, dormant, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, hnbgw-service, hagw-service, idle-time, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service, long-duration-time-left, mag-service, mip-up-tunnel-only, mipv6ha-service, mme-address, mme-service, msid, misedn, nat, nemo-only, network-requested, network-type, nsapi, pcc-service, pcf, pdg-service, pdif-service, pdns-service, pgw-address, plmn-type, profile-id, profile-name, qci, rulebase, rx-data, s1u-state, s5-proto, security-type, session-time-left, sgsn-address, sgw-address, sgw-service, smgr-instance, tpo, tx-data, ue-type, username, grep, more

**profile-id id_number**

Displays subscriber session information based on the profile-id granted for the flow. **id_number** must be an integer from 0 to 4294967295.

**profile-name name**

Displays subscriber session information based on an existing policy profile name expressed as an alphanumeric string of 1 through 63 characters.

**qci number**

Displays subscriber session information based on the QoS Class Identifier (QCI) value assigned to the subscriber. **number** must be an integer value from 0 to 9.

**rulebase name**

Displays subscriber session information based on the named Active Charging System rulebase. **name** must be an alphanumeric string of 1 through 63 characters.
rx-data | < | > | greater-than | less-than | value

The number of bytes received by the specified subscriber.

- `<`: Filters output so that only information less than the specified value is displayed.
- `>`: Filters output so that only information greater than the specified value is displayed.
- `greater-than`: Filters output so that only information greater than the specified value is displayed.
- `less-than`: Filters output so that only information less than the specified value is displayed.
- `value`: Used in conjunction with `<`, `>`, greater-than, less-than. If no other filtering options are specified only output matching `value` is displayed. If `value` is not specified all data is displayed. `value` must be an integer from 0 through 18446744073709551615.

s1u-state { active | idle | idle-active }

Displays session information based on the subscriber's S1-U state. The S1-U interface is the interface from the eNodeB to the S-GW.

- `active`: Displays session information for subscribers with an S1-U state set to active.
- `idle`: Displays session information for subscribers with an S1-U state set to idle.
- `idle-active`: Displays session information for subscribers with an S1-U state set to idle-active.

s5-proto { gtp | pmip }

Displays subscriber session information based on the S5 interface protocol used. This interface provides user plane tunneling and tunnel management between S-GW and P-GW. Choose either GPRS Tunneling Protocol (GTP) or Proxy Mobile IPv6 (PMIP).

saegw-only

Displays System Architecture Evolution Gateway (SAEGW) subscriber session information.

The following filters/keywords are valid with this command:

aaa-configuration, access-flows, active, active-charging-service, activity, all, apn, bandwidth-policy, bearer-establishment, bng-service, callid, card-num, cbb-policy, co-located, configured-idle-timeout, connected-time, counters, data-rate, dormant, ebi, enodeb-address, epdg-address, epdg-service, fa, firewall, full, fw-and-nat, gtp-version, gtpu-bind-address, gtpu-service, ha, idle-time, ims-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac-service, lma-service, lns, long-duration-time-left, mipv6ha-service, mtd, nat, network-type, pgw-address, pgw-anchored, plmn-type, policy, profile-id, profile-name, qci, rulebase, rx-data, slu-state, s5-proto, saegw-service, session-time-left, sgw-address, sgw-anchored, smgr-instance, subscription, summary, tft, tx-data, username, wf1

- `co-located`: Shows only co-located subscribers which have both S-GW and P-GW functions.
- `pgw-anchored`: Shows only PGW-anchored subscribers.
- `saegw-service svc_name`: Displays subscriber information based on the SAEGW service name. `svc_name` must be an existing SAEGW service expressed as an alphanumeric string of 1 through 63 characters.
- `sgw-anchored`: Shows only SGW-anchored subscribers.

saegw-service svc_name

Displays subscriber information based on the SAEGW service name.
**svc** _name_ must be an existing SAEGW service expressed as an alphanumeric string of 1 through 63 characters.

The following filters/keywords are valid with this command:
- active-charging-service
- apn
- bandwidth-policy
- bearer-establishment
- bng-service
- callid
- card-num
- cbb-policy
- configured-idle-timeout
- connected-time
- ebi
- enodeb-address
- epdg-address
- epdg-service
- fa
- firewall
- fw-and-nat
- gtp-version
- gtpu-bind-address
- gtpu-service
- ha
- id-time
- ims-auth-service
- imsi
- ip-address
- ip-alloc-method
- ip-pool
- ipv6-address
- ipv6-prefix
- l3-tunnel-local-addr
- l3-tunnel-remote-addr
- lac-service
- lma-service
- lns
- long-duration-time-left
- mipv6ha-service
- maid
- nat
- network-type
- pgw-address
- plmn-type
- profile-id
- profile-name
- qci
- rulebase
- rx-data
- slu-state
- s5-proto
- saegw-service
- session-time-left
- sgw-address
- smgr-instance
- tx-data
- username

**security-type** { ipsec | tls }

Displays subscriber information based on the specified type of security.
- **ipsec**: IPSec
- **tls**: Transport Layer Security

**session-time-left**[< | > | greater-than | less ] value

How much session time is left for the specified subscriber.
- `<`: Filters output so that only information less than the specified value is displayed.
- `>`: Filters output so that only information greater than the specified value is displayed.
- **greater-than**: Filters output so that only information greater than the specified value is displayed.
- **less-than**: Filters output so that only information less than the specified value is displayed.
- **value**: Used in conjunction with `<`, `>`, greater-than, less-than. If no other filtering options are specified only output matching value is displayed. If value is not specified all data is displayed. value must be an integer from 0 through 4294967295.

**sgsn-address ipv4_address**

This SGSN-only keyword displays only subscriber context information for the specified interface. Must be followed by the IP address of the interface, using IPv4 dotted-decimal notation.

The following filter keywords are valid with this command:
- apn
- callid
- card-num
- connected-time
- idle-time
- gprs-service
- gsm-traffic-class
- gtp-version
- imsi
- msid
- msisdn
- nri
- nsei
- sgsn-service
- smgr-instance

**sgsn-only**

This SGSN-only keyword displays only 3G SGSN-specific subscriber context information.

The following filter keywords are valid with this command:
- aaa-configuration
- active
- active-charging-service
- activity
- all
- apn
- callid
- card-num
- configured-idle-timeout
- connected-time
- counters
- data-rate
- fa
- full
- ggsn-address
- gsm-traffic-class
- idle-time
- imei
- imsi
- maid
- partial
- plmn-type
- profile-name
- rnc
- rx-data
- session-time-left
- sgsn-service
- summary
- tx-data
- wide-format
- grep
- more

**sgsn-service service_name**

For this SGSN-only keyword, enter the name of the configured 3G SGSN service to display subscriber information specific to the named SGSN service.
The following filter keywords are valid with this command:
apn, bearer-establishment, bng-service, callid, card-num, configured-idle-timeout, 
connected-time, ebi, enodeb-address, epdg-address, epdg-service, fa, firewall, fw-and-nat,
gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, idle-time,
imsi, imei, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix,
l3-tunnel-local-addr, l3-tunnel-remote-addr, long-duration-time-left, mipv6ha-service, msid,
msisdn, nat, network-type, nr, plmn-type, profile-id, profile-name, qci, rx-data, slu-state,
s5-proto, session-time-left, sgsn-service, sgw-address, smgr-instance, tx-data, username,
grep, more

**sgw-address ip_address**
For this MME-only keyword, enter the IP address of the peer S-GW to display information about the subscribers connected to the specified S-GW. *ip_address* must be specified by its IP address using IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation.

**sgw-only**
Displays S-GW subscriber session information.
The following filters/keywords are valid with this command:
all, full, summary

- **sgw-service svc_name**: Displays subscriber information based on an existing S-GW service specified as an alphanumeric string of 1 through 63 characters.

- **pgw-address ip_address**: Displays subscriber information based on an existing P-GW specified by its IP address in IPv4 dotted-decimal notation.

**sgw-service svc_name**
Displays subscriber information based on an existing S-GW service specified as an alphanumeric string of 1 through 63 characters.
The following filter keywords are valid with this command:
epdg-address, epdg-service,

**smgr-instance instance_id**
Displays subscription information associated with the Session Manager identifier express as an integer from 1 through 4294967295.
The following filter keywords are valid with this command:
epdg-address, epdg-service,

**subscription { aor address | callid id | full }**
Displays subscription information for defined subscribers, based on defined parameters.

- **aor address**: Clears session(s) by Address of Record.

- **callid id**: Specifies a Call Identification Number as an 8-digit hexadecimal number.

- **full**: Displays all available information.
**summary**

Displays only a summary of the subscriber information. The following filter keywords are valid with this command:

access-type, active, active-charging-service, activity, all, asn-peer-address, asngw-service, asnpc-service, apn, bandwidth-policy, bearer-establishment, callid, card-num, cbb-policy, configured-idle-timeout, connected-time, dhcp-server, domain, dormant, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-service, hnbgw-service, hsgw-service, idle-time, ima-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, lac, lac-service, lma-service, lns, lns-service, long-duration-time-left, mag-services, mme-address, mme-service, msg-service, msid, maidsn, nat, network-requested, network-type, pcc-service, pcf, pdg-service, pdif-service, pdn-service, pdnsclosedpd-service, pgw-address, plmn-type, profile-id, qci, rulebase, rx-data, slu-state, s5-proto, security-type, session-time-left, sgsn-address, sgw-address, sgw-service, smgr-instance, tx-data, ue-type, username, grep, more

**tft**

Displays the current Traffic Flow Template (TFT) associated with the subscriber session.

The following filter keywords are valid with this command:

active, all, apn, asn-peer-address, asngw-service, asnpc-service, bearer-establishment, bng-service, callid, card-num, ccoa-only, configured-idle-timeout, connected-time, dhcp-server, dormant, ebi, enodeb-address, epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, ggsn-service, gprs-service, gsm-traffic-class, gtp-version, gtpu-bind-address, gtpu-service, ha, ha-ipsec-only, ha-service, hsgw-service, idle-time, imei, ima-auth-service, imsi, ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr, l3-tunnel-remote-addr, lac, lac-service, lma-service, lns, lns-service, long-duration-time-left, mag-service, mip-udp-tunnel-only, mipv6ha-service, mme-address, mme-service, msid, maidsn, nat, nemo-only, network-requested, network-type, pcf, pdg-service, pdif-service, pdns-service, pgw-address, plmn-type, profile-id, profile-name, qci, rulebase, rx-data, slu-state, s5-proto, security-type, session-time-left, sgsn-address, sgw-address, sgw-service, smgr-instance, tx-data, username, grep, more

**tx-data | < > | greater-than | less-than | value**

The number of bytes transmitted by the specified subscriber.

- `<`: Filters output so that only information less than the specified value is displayed.
- `> `: Filters output so that only information greater than the specified value is displayed.
- `greater-than`: Filters output so that only information greater than the specified value is displayed.
- `less-than`: Filters output so that only information less than the specified value is displayed.
- `value`: Used in conjunction with `<`, `>`, greater-than, less-than. If no other filtering options are specified only output matching `value` is displayed. If `value` is not specified all data is displayed. `value` must be an integer from 0 through 18446744073709551615.

The following filter keywords are valid with this command:

epdg-address, epdg-service,

**ue-type { ims | non-ims }**

Displays information for the subscribers based on User Equipment type.

- `ims`: IP Multimedia Subsystem
- `non-ims`: UE other than IMS
The following filter keywords are valid with this command:
access-type, active-charging-service, bandwidth-policy, bearer-establishment, callid,
card-num, cbb-policy, configured-idle-timeout, connected-time, domain, ebi, enodeb-address,
epdg-address, epdg-service, fa, fa-service, firewall, fw-and-nat, gprs-service, gtp-version,
gtpu-bind-address, gtpu-service, ha, hnbgw-service, idle-time, imsi-auth-service, imsi,
ip-address, ip-alloc-method, ip-pool, ipv6-address, ipv6-prefix, l3-tunnel-local-addr,
l3-tunnel-remote-addr, long-duration-time-left, msid, nat, network-type, pcc-service,
profile-id, qci, rulebase, rx-data, s1u-state, s5-proto, security-type, session-time-left,
sgw-address, smgr-instance, tx-data, ue-type, username, grep, more

username name
Displays information for connections for the subscriber identified by name. The user must have been previously
configured. name must be a sequence of characters and/or wildcard characters ('$' and '*') from 1 to 127
characters. The * wildcard matches multiple characters and the $ wildcard matches a single character. If you
do not want the wildcard characters interpreted as a wildcard enclose them in single quotes ('). For example;
'$'.

The following filter keywords are valid with this command:
epdg-address, epdg-service,
wfl
Displays subscriber information in wide format number 1. Wide format number 1 includes the following
information for each listed subscriber session:
• Access Type
• Access Technology
• Call State
• Link Status
• Network Type
• Call ID
• MSID
• Username
• IP Address
• Time-Idle
• Access Peer Address
• Service Address
• Network Peer Address
• Connect Time

The following filter keywords are valid with this command:
epdg-address, epdg-service,

filter_keywords
The following keywords are filters that modify or filter the output of the Command Keywords. Not all filters
are available for all Command Keywords. Multiple Filter Keywords can be entered on a command line.
When multiple Filter Keywords are specified, the output conforms to all of the Filter Keywords specifications.
For example; if you enter the following command:

```
show subscribers counters ip-pool pool1 card-num 1
```

Counters for all subscriber sessions that were assigned an IP address from the IP pool named pool1 and also are being processed by the processing card in slot 1 is displayed. Information for all other subscribers is not displayed.

**active**

Only display information for those subscribers who currently have active sessions.

**active-charging-service acs_service**

Displays information for subscribers being processed by the active charging service specified as an alphanumeric string of 1 through 15 characters.

**activity**

Displays subscriber link activity percentage.

**all**

If no keywords are specified before `all`, information for all subscribers is displayed. If keywords are specified before `all`, all information is displayed with no further options being allowed.

**apn name**

Displays subscribers currently facilitated by the access point name (APN) configured on the SGSN or GGSN.

**asngw-only**

Displays counters for subscribers accessing the ASN-GW service only.

**asnpc-only**

Displays counters for subscribers accessing the ASN Paging Controller and Location Registry service only.

**bandwidth-policy policy_name**

Displays information for subscribers associated with the specified Active Charging bandwidth policy.

**bearer-establishment { direct-tunnel | normal | pending } id**

Displays subscriber information for selected bearer establishment type.

**bng-service servc_name**

Displays the current configuration for the specified Broadband Network Gateway (BNG) service.

**callid id**

Displays subscriber information for the call ID specified as an 8-byte hexadecimal number.
card-num card_num
The slot number of the processing card by which the subscriber session is processed. The slot number is an integer from 1 through 7 and 10 through 16 on the ASR 5000, or 1 through 4 and 7 through 10 on the ASR 5500.

cbb-policy policy_name
Displays information for subscribers associated with the specified Active Charging Content Based Billing (CBB) policy.

ccoa-only
Displays the subscribers that registered a MIP with CoA directly with the HA. This option is only valid when a MIPHA session license is enabled.

configuration { all | username name }
Displays current configuration for all subscribers or a specified subscriber.

configured-idle-timeout [ < | > | greater-than | less-than ] value
Shows the idle timeout that is configured for the specified subscriber. A value of 0 (zero) indicates that the subscribers idle timeout is disabled.

<: Filters output so that only information less than the specified value is displayed.
>: Filters output so that only information greater than the specified value is displayed.

greater-than: Filters output so that only information greater than the specified value is displayed.

less-than: Filters output so that only information less than the specified value is displayed.

value: Used in conjunction with <, >, greater-than, less-than. If no other filtering options are specified only output matching value is displayed. If value is not specified all data is displayed. value must be an integer from 0 through 4294967295.

connected-time [ < | > | greater-than | less-than ] value
Shows how long the subscriber has been connected. <: Filters output so that only information less than the specified value is displayed.

• <: Filters output so that only information less than the specified value is displayed.

• >: Filters output so that only information greater than the specified value is displayed.

• greater-than: Filters output so that only information greater than the specified value is displayed.

• less-than: Filters output so that only information less than the specified value is displayed.

• value: Used in conjunction with <, >, greater-than, less-than. If no other filtering options are specified only output matching value is displayed. If value is not specified all data is displayed. value must be an integer from 0 through 4294967295.

counters keyword
Displays the specified counter for the subscribers.
**cpu-num number**
Displays information for calls processed through the specified CPU number.

**dhcp-server address**
Displays subscribers currently accessing the system that have been provided an IP address by the DHCP server specified by its address. GGSN only.

**dns-proxy**
Displays all subscribers associated with a DNS proxy.

**domain name**
Displays all subscribers with an Address-of-Record (AoR) from the specified domain. name is an alphanumeric string of 1 through 79 characters.

**dormant**
Shows information for subscriber sessions that are dormant (not transmitting or receiving data).

**dormant**
Shows information for subscriber sessions that are dormant (not transmitting or receiving data).

**ebi number**
Displays subscribers based on an EPS bearer identity number.

**enodeb-address ip_address**
Displays subscribers based on the eNodeB to which they are attached.

**epdg-address ip_address**
Displays information of subscribers connected to the specified ePDG address in IPv4 dotted-decimal notation or IPv6 (::) notation.

**epdg-service service_name**
Displays information of subscribers of ePDG service specified as an alphanumeric string of 1 through 63 characters.

**fa address**
Displays information for subscribers connected to the foreign agent specified by its IP address in IPv4 dotted-decimal notation.

**fa-only**
Only display FA-specific context information.

**fa-service name**
Displays information for subscribers connected to the named foreign agent (FA) service.
firewall { not-required | required }
Displays information for the specified subscribers:

- **not-required**: Subscribers for whom firewall processing is not required.
- **required**: Subscribers for whom firewall processing is required.

firewall-policy fw_policy_name
This keyword is obsolete.

full
Displays all available information for subscribers.

fw-and-nat policy fw_nat_policy

This option is customer-specific and is only available in StarOS 8.1.
Displays information for subscribers using an existing Firewall-and-NAT policy specified as an alphanumeric string of 1 through 15 characters.

ggsn-address ip_address
Displays information for subscribers connected to an existing GGSN specified by its IP address in IPv4 dotted-decimal notation. SGSN only.

ggsn-preservation-mode
Displays information for subscribers connected to the GGSN service with preservation mode enabled. GGSN only.

ggsn-service name
Displays information for subscribers connected to the named GGSN service. This keyword is for GGSN only.

gprs-only
Displays only 2G SGSN subscribers content. SGSN only.

gprs-service srvc_name
Displays subscriber information for the named 2G GPRS service. SGSN only.

gsm-traffic-class { background | conversational | interactive | streaming }
Displays information for subscriber traffic that matches the specified 3GPP traffic class.

- **background**: 3GPP QoS background class.
- **conversational**: 3GPP QoS conversational class.
- **interactive**: 3GPP QoS interactive class. Must be followed by a traffic priority.
• **streaming**: 3GPP QoS streaming class.

**ha address**
Displays information for subscribers connected to the home agent specified by its IP address in IPv4 dotted-decimal notation.

**ha-ipse-only**
Only displays information for subscriber sessions that are using IP-Security (IPSec).

**ha-only**
Only displays HA-specific context information.

**ha-service name**
Displays information for subscribers connected to the named home agent service.

**hnbgw-only**
Displays counters for subscribers accessing the Home evolved NodeB Gateway (HNB-GW) service only.

**idle-time [ < | > | greater-than | less-than | value]**
Displays how long the subscriber session has been idle or display subscriber sessions that meet the idle time criteria specified.

  - `<`: Filters output so that only information less than the specified value is displayed.
  - `>`: Filters output so that only information greater than the specified value is displayed.
  - `greater-than`: Filters output so that only information greater than the specified value is displayed.
  - `less-than`: Filters output so that only information less than the specified value is displayed.
  - `value`: Used in conjunction with `<`, `>`, greater-than, less-than. If no other filtering options are specified only output matching `value` is displayed. If `value` is not specified all data is displayed. `value` must be an integer from 0 through 4294967295.

**imei imei_number**
Displays information for subscribers having the specified International Mobile Equipment Identity (IMEI/IMEISV) number.

**ims-auth-service service_name**
Displays information for subscribers for an existing IMS Authorization Service name.

**imsi id**
Displays the subscriber with the specified ID. The IMSI (International Mobile Subscriber Identity) ID is a 15-character string which identifies the subscriber's home country and carrier. Wildcard characters $ and * are allowed. The * wildcard matches multiple characters and the $ wildcard matches a single character. If you do not want the wildcard characters interpreted as a wildcard enclose them in single quotes ('). For example; 'S'.

---

Command Line Interface Reference, Modes E - F, StarOS Release 19
ip-address [ < | > | greater-than | less-than ] address
Displays information for subscribers connected to the specified address.
- `<`: Filters output so that only information for subscribers with an IP address lower than the specified address is displayed.
- `>`: Filters output so that only information for subscribers with an IP address higher than the specified address is displayed.
- **greater-than**: Filters output so that only information for subscribers with an IP address higher than the specified address is displayed.
- **less-than**: Filters output so that only information for subscribers with an IP address lower than the specified address is displayed.
- `address`: The address must be specified using IPv4 dotted-decimal notation. Used in conjunction with `<`, `>`, greater-than, less-than. If the IP address is specified without a qualifier, only subscribers with the specified IP address have their information displayed.

ip.alloc-method {aaa-assigned | dhcp | relay-agent | proxy-client | dynamic-pool | l2tp-lns-assigned | mip-ha-assigned | ms-provided-static | not-ms-provided-static | static pool }
Displays the specific IP Allocation Method. Must be followed by one of the IP Allocation Methods:
- **aaa-assigned**: Selects subscribers whose IP addresses were assigned by AAA.
- **dhcp**: Selects subscribers whose IP addresses were assigned by DHCP.
  - **relay-agent**: Selects subscribers whose IP addresses were assigned by the DHCP Relay Agent
  - **proxy-client**: Selects subscribers whose IP addresses were assigned by the DHCP Proxy Client
- **dynamic-pool**: Selects subscribers whose IP addresses were assigned from a dynamic IP address pool.
- **l2tp-lns-assigned**: Selects subscribers whose IP addresses were assigned by the Layer 2 Tunneling Protocol (LT2P) Network Server.
- **mip-ha-assigned**: Selects subscribers whose IP addresses were assigned by the Mobile IP Home Agent.
- **ms-provided-static**: Selects subscribers whose IP addresses were provided by the Mobile Station.
- **not-ms-provided-static**: Selects subscribers whose IP addresses were not provided by the Mobile Station.
- **static-pool**: Selects subscribers whose IP addresses were assigned from a static IP address pool.

ip-pool name
Displays information for subscribers assigned addresses from an existing IP address pool or IP pool group. name will be an IP address in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation based on the call line setup for the specified pool.

ipv4
Displays information for subscribers with an IPv4 Firewall enabled/disabled.
ipv6
Displays information for subscribers with an IPv6 Firewall enabled/disabled.

ipv6-address address
Displays information for subscribers connected to the specified IPv6 address.

ipv6-prefix prefix
Displays information for subscribers connected to the specified IPv6 address prefix.

l3-tunnel-local-addr ip_address
A layer 3 tunneling interface specified by its IP address in IPv4 dotted-decimal notation.

l3-tunnel-remote-addr ip_address
A layer 3 tunneling peer specified by its IP address in IPv4 dotted-decimal notation.

lac address
Displays information for calls to the peer L2TP Access Concentrator (LAC) specified by its IP address.

lac-only
Displays LAC specific information only.

lac-service name [ local-tunnel-id id | remote-tunnel-id id ]
Displays information for calls associated with the LAC service specified as an alphanumeric string of 1 through 63 characters.
  • local-tunnel-id id: Specifies a local tunnel from which to clear calls as an integer from 1 through 65535.
  • remote-tunnel-id id: Specifies a remote tunnel from which to clear calls as an integer from 1 through 65535.

lns address
Displays information for calls to the peer L2TP Network Server (LNS) specified by its IP address.

lns-only
Displays LNS specific information only.

lns-service name [ local-tunnel-id id | remote-tunnel-id id ]
Displays information for calls associated with the LNS service specified as an alphanumeric string of 1 through 63 characters.
  • local-tunnel-id id: Indicates a specific local tunnel from which to clear calls. id must be an integer from 1 through 65535.
  • remote-tunnel-id id: Indicates a specific remote tunnel from which to clear calls. id must be an integer from 1 through 65535.
local-tunnel-id identifier
Displays information for a local tunnel identifier specified as an integer from 1 to 65535.

long-duration-time-left [ < | > | greater-than | less-than | value
Shows how much time is left for the maximum duration of a specified subscriber session.
  • <: Filters output so that only information less than the specified value is displayed.
  • >: Filters output so that only information greater than the specified value is displayed.
  • greater-than: Filters output so that only information greater than the specified value is displayed.
  • less-than: Filters output so that only information less than the specified value is displayed.
  • value: Used in conjunction with <, >, greater-than, less-than. If no other filtering options are specified
  only output matching value is displayed. If value is not specified all data is displayed. value must be an
  integer from 0 through 4294967295.

mag-only
Displays Mobile Access Gateway (MAG) subscriber session information.

mag-service svc_name
Displays subscriber information based on the Mobile Access Gateway (MAG) service name. svc_name must
be an existing MAG service expressed as an alphanumeric string of 1 through 63 characters.

mip-udp-tunnel-only
Displays the subscribers that negotiated MIP-UDP tunneling with the HA.
This option is only valid when MIP NAT Traversal license is enabled.

mipv6ha-only
Displays MIPV6HA-specific context information for the session.

mipv6ha-service service_name
Displays specific configured MIPV6 Home Agent service. service_name must have been previously defined.

msid id
Displays information for the mobile user identified by id. id must be from 7 to 16 hexadecimal digits specified
as an IMSI, MIN, or RMI. Wildcard characters $ and * are allowed. The * wildcard matches multiple characters
and the $ wildcard matches a single character. If you do not want the wildcard characters interpreted as a
wildcard enclose them in single quotes (’). For example: ‘$’.
In case of enforce imsi-min equivalence is enabled on the chassis and MIN or IMSI numbers supplied, this
filter will show subscribers with a corresponding MSID (MIN or IMSI) whose lower 10 digits matches to
lower 10 digits of the supplied MSID.

show subscribers msid ABCD0123456789 or
show subscribers msid 0123456789
will show any subscriber with a MSID that match the lower 10 digits of MSID supplied, for example, 0123456789.

**msisdn**

**meisdn**
Displays information for the mobile user identified by the Mobile Subscriber ISDN Number (MSISDN).

`msisdn` must be 7 to 16 digits; specified as an IMSI, MIN, or RMI.

**nat**  
`{ not-required | required }`

Displays information for the specified subscribers.

- **not-required**: Subscribers for whom Network Address Translation (NAT) processing is not required.
- **required**: Subscribers for whom NAT processing is required.

**nat-ip**

`nat_ip_address |}`

Displays information for the subscribers for whom NAT processing is enabled and are using the specified NAT IP address. `nat_ip_address` specifies the NAT IP address and must be in IPv4 dotted-decimal notation. **The nat-ip keyword is only available in StarOS 8.3 and later releases.**

**nat-realm**

`nat_realm`

Displays information for the subscribers for whom NAT processing is enabled and are using the specified NAT realm. `nat_realm` specifies the NAT realm name and must be a string from 1 through 63 characters.

**network-requested**

Display information for currently active subscribers whose sessions were initiated by the GGSN network requested create PDP context procedure.

**network-type**

`{ gre | ipip | ipsec | ipv4 | ipv4-pmipv6 | ipv4v6 | ipv4v6-pmipv6 | ipv6 | ipv6-pmipv6 | l2tp | mobile-ip | proxy-mobile-ip }`

Selects the currently active subscribers based on network service access type.

- **gre**: Generic Routing Encapsulation
- **ipip**: IP-in-IP
- **ipsec**: IPSec
- **ipv4**: IPv4 only
- **ipv4-pmipv6**: IPv4 and/or Proxy Mobile IPv6 (PMIP)
- **ipv4v6**: IPv4 and/or IPv6
- **ipv4v6-pmipv6**: IPv4, IPv6 and/or Proxy Mobile IPv6
- **ipv6**: IPv6 only
- **ipv6-pmipv6**: IPv6 and/or Proxy Mobile IPv6 (PMIP)
- **l2tp**: Layer 2 Tunneling Protocol
- **mobile-ip**: Mobile IP (MIP)
proxy-module-ip: Proxy Mobile IPv6 (PMIP)

nri nri_value
This SGSN-specific filter uses the configured network resource identifier (NRI) to identify a specific SGSN in a pool to fine-tuned the subscriber information to be displayed.

nri_value: enter an integer from 0 through 63
This filter can be used in combination with further refining filters.

nsapi nsap_id
Displays session information for the mobile user identified by Network Service Access Point Identifier (NSAPI) between MS and SGSN. NSAPI is also used as part of the tunnel identifier between GPRS Support Nodes (GSNs). The user identity IMSI and the application identifier (NSAPI) are integrated into the Tunnel Identifier (GTPv0) (TID) or Tunnel Endpoint Identifier (GTPv1) (TEID) that uniquely identifies the subscriber's sublink between the GSNs (SGSN and GGSN). The NSAPI is an integer value within the PDP context header.

nsap_id must be an integer from 5 through 15.

partial qos { negotiated | requested }
This filter is specific to the SGSN.

Is limits the display of information to requested or negotiated QoS information for the subscriber.

This filter can be used in combination with further defining filters: active, active-charging-service, all, apn, callid, card-num, configured-idle-timeout, connected-time, ggsn-address, gprs-service, gsm-traffic-class, idle-time, imsi, msid, msisdn, negotiated, plmn-type, requested, rx-data, session-time-left, tx-data

pcc-service name
Displays statistics for users associated with an existing Policy and Charging Control (PCC) service name expressed as an alphanumeric string of 1 through 63 characters.

pcf [ < | > | less-than | greater-than] ipv4_address [ < | > | less-than | greater-than ] ipv4_address ]
Displays information for subscribers connected via the packet control function with a specific or range of IP addresses. The address must be specified using IPv4 dotted-decimal notation.

• <: Filters output so that only information less than the specified IPv4 address value is displayed.
• >: Filters output so that only information greater than the specified IPv4 address value is displayed.
• less-than: Filters output so that only information less than the specified IPv4 address value is displayed.
• greater-than: Filters output so that only information greater than the specified IPv4 address value is displayed.

Note: It is possible to define a limited range of IP addresses by using the less-than and greater-than options to define minimum and maximum values.

pdsn-only
Show PDSN specific information only.
**pdsn-service name**
Displays information for subscribers connected to the packet data service name. The packet data service must have been previously configured.

**pdsnclosedrp-service service_name**
Displays information for subscribers connected to the Closed R-P service service_name. The Closed R-P service must have been previously configured.

**plmn-type**
Displays subscriber type (HOME, VISITING, or ROAMING).
This keyword is for the GGSN or the SGSN only.

**policy**
Displays the current policies associated with the subscriber session.

**profile-id id_number**
Displays subscriber session information based on the profile-id granted for the flow. id_number must be an integer from 0 to 4294967295.

**profile-name profile_name**
Displays the subscribers filtered with PCC profile named profile_name in particular IP-CAN session.

**qci number**
Displays subscriber session information based on the QoS Class Identifier (QCI) value assigned to the subscriber. number must be an integer value from 0 to 9.

**relay-agent**
Selects subscribers whose IP Addresses were assigned by the DHCP Relay Agent.

**remote-tunnel-id identifier**
Displays information for a remote tunnel identifier specified as an integer from 1 to 65535.

**rnc id rnc_id mcc mcc_num mnc mnc_num**
Displays information for subscribers connected to the SGSN via a specific RNC (radio network controller) identified by the RNC ID, the MCC (mobile country code), and the MNC (mobile network code). SGSN only

**rulebase name**
Selects subscribers associated with the specified Active Charging rulebase.

**rx-data [ < | > | greater-than | less-than ] value**
The number of bytes received by the specified subscriber.

  * <: Filters output so that only information less than the specified value is displayed.
• `>`: Filters output so that only information greater than the specified value is displayed.
• `greater-than`: Filters output so that only information greater than the specified value is displayed.
• `less-than`: Filters output so that only information less than the specified value is displayed.
• `value`: Used in conjunction with `<`, `>`, greater-than, less-than. If no other filtering options are specified only output matching `value` is displayed. If `value` is not specified all data is displayed. `value` must be an integer from 0 through 18446744073709551615.

**saegw-only**
Displays System Architecture Evolution Gateway (SAEGW) subscriber session information only.

**saegw-service svc_name**
Displays subscriber information based on the SAEGW service name.
`svc_name` must be an existing SAEGW service expressed as an alphanumeric string of 1 through 63 characters.

**security-type { ipsec | tls }**
Displays subscriber information based on the specified type of security.

• `ipsec`: IPSec
• `tls`: Transport Layer Security

**session-time-left [ < | > | greater-than | less ] value**
How much session time is left for the specified subscriber.

• `<`: Filters output so that only information less than the specified value is displayed.
• `>`: Filters output so that only information greater than the specified value is displayed.
• `greater-than`: Filters output so that only information greater than the specified value is displayed.
• `less-than`: Filters output so that only information less than the specified value is displayed.
• `value`: Used in conjunction with `<, `>`, greater-than, less-than. If no other filtering options are specified only output matching `value` is displayed. If `value` is not specified all data is displayed. `value` must be an integer from 0 through 4294967295.

**smgr-instance number**
Specific sessmgr instance. `number` must be in the range of 1 to 4294967295.

**sgsn-address address**
Shows information for subscribers whose PDP contexts are currently being facilitated by the SGSN specified by address. This command is for GGSN only.

**sgsn-service srvc_name**
Shows subscriber information for a specified 3G SGSN service. `srvc_name` must be an alphanumeric string of 1 through 63 characters that identifies a configured SGSN service.
This command is for SGSN only.

**subscription** { aor address | callid id | full }

Displays subscription information for defined subscribers, based on defined parameters.

- **aor address**: Clears session(s) by Address of Record.
- **callid id**: Specifies a Call Identification Number as an 8-digit hexadecimal number.
- **full**: Displays all available information.

**tff**

Displays the current Traffic Flow Template (TFT) associated with the subscriber session.

**tpo** { not-required | required }

---

---

**Important**

The Traffic Performance Optimization (TPO) in-line service is not supported in this release.

Displays information for specified subscribers.

**tx-data** [ < | > | greater-than | less-than ] value

The number of bytes transmitted by the specified subscriber.

- **<**: Filters output so that only information less than the specified value is displayed.
- **>**: Filters output so that only information greater than the specified value is displayed.
- **greater-than**: Filters output so that only information greater than the specified value is displayed.
- **less-than**: Filters output so that only information less than the specified value is displayed.
- **value**: Used in conjunction with <, >, greater-than, less-than. If no other filtering options are specified only output matching value is displayed. If value is not specified all data is displayed. value must be an integer from 0 through 18446744073709551615.

**ue-type** { ims | non-ims }

Displays information for the subscribers based on User Equipment type.

- **ims**: IP Multimedia Subsystem
- **non-ims**: UE other than IMS

**username name**

Displays information for connections for the subscriber identified by name. The user must have been previously configured. name must be a sequence of characters and/or wildcard characters (’$’ and ‘*’) from 1 to 127 characters. The * wildcard matches multiple characters and the $ wildcard matches a single character. If you do not want the wildcard characters interpreted as a wildcard enclose them in single quotes (’ ’). For example; ’$’. 
**Verbose**
Display detailed information.

**Wide-format**
Display detailed information in a wider screen format.

| { grep grep_options | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**
Use this command to view information about subscriber sessions.

The output of this command may be considered for part of a periodic system auditing program by verifying active and dormant subscribers.

The Command Keywords may be used standalone to display detailed information or you may use one or more of the various Filter Keywords to reduce the amount of information displayed.

**Caution**
Executing this command may negatively impact performance if multiple instances are executed while the system is under heavy load and simultaneously facilitating multiple CLI sessions.

**Examples**
The following command displays information for all subscriber sessions:

```
show subscribers all
```

The following command displays information for all ggsn-only subscriber sessions:

```
show subscribers ggsn-only all
```

The following command displays information for all subscriber sessions in wide format 1:

```
show subscribers wf1 all
show subscribers aaa-configuration
show subscribers counters username isp1user1
```

The following command displays information for subscriber in GGSN service:

```
show subscribers ggsn-only all
show subscribers ggsn-only full
```

The following command displays information for all subscriber with SGSN session having partial QoS requests:

```
show subscribers sgsn-only partial qos requested
```

The following command displays information for all subscriber with MME session connected to MME service having IP address as 10.1.1.1:

```
show subscribers mme-only mme-address 10.1.1.1
```

**Important**
Output descriptions for commands are available in the *Statistics and Counters Reference*.
## show subscribers samog-only

Displays SaMOG specific context information for the session.

### Product
SaMOG

### Privilege
Inspector

### Syntax Description

```
show subscribers samog-only [ [ all ] [ callid call_id ] [ card-num card_num ] [ connected-time [ < ] | greater-than | less-than [ connected_time ] ] [ full ] [ idle-time [ < ] | greater-than | less-than ] [ idle_time ] [ ip-address [ < ] | greater-than | less-than ] [ ipv4_adress ] [ ipv6-prefix ipv6_prefix ] [ network-type { gre | ipip | ipsec | ipv4 | ipv4-pmipv6 | ipv4v6 | ipv4v6-pmipv6 | ipv6 | ipv6-pmipv6 | l2tp | mobile-ip | proxy-mobile-ip } ] [ session-time-left [ < ] | greater-than | less-than ] [ session_time_left ] [ smgr-instance smgr_instance ] [ summary ] [ username user_name ] ] [ | { grep grep_options | more } ]
```

- **idle-time [ < ] | greater-than | less-than [ idle_time ]**
  
  Displays how long the subscriber has been idle.

  > and **greater-than** Specifies greater than. This must be followed by `idle_time`, an integer ranging from 0 and 4294967295.

  < and **less-than** Specifies less than. This must be followed by `idle_time`, an integer ranging from 0 and 4294967295.

- **ipv6-prefix ipv6_prefix**
  
  Displays the subscribers associated with the specified IPv6 address prefix. Must be followed by an IPv6 address prefix in the format xx:xx:xx::/len

  ```
  | { grep grep_options | more }
  ```

  Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

  For details on using the **grep** and **more** commands, refer to the *Regulating a Command’s Output* section of the Command Line Interface Overview chapter.
show subscribers wsg-service

Displays information for specific configured WSG service. This command must be followed by the WSG service name.

**Product**
SecGW (WSG)

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show subscribers wsg-service service_name [ | { grep grep_options | more } ]
```

- **service_name**
  Specifies the name of the WSG service as an alphanumeric string of 1 through 63 characters.

**Usage Guidelines**
Use this command to displays information about selected WSG calls and services.

**Examples**
The following command displays counter information for wsg-service wsg01:
```
show subscribers wsg-service wsg01 arg1
```
show super-charger

Lists subscribers with valid super-charger configuration. When super-charger is enabled for a subscriber, the SGSN handles 2G or 3G connections controlled by an operator policy and changes hand-off and location update procedures to reduce signaling traffic management (3GPP, TS.23.116).

**Product**
SGSN

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show super-charger { imsi imsi | all }
```

- **imsi**

  Defines a specific subscriber's international mobile subscriber identity (IMSI) number.

  **imsi** is a string of up to 15 digits that includes the MCC (mobile country code), the MNC (mobile network code) and the MSIN (mobile station identification number).

- **all**

  Instructs the SGSN to display super charger subscription information for all subscribers.

**Usage Guidelines**
Use this command to determine if a single subscriber, identified by the IMSI, has a super charger configuration. Also, this command can display the list of all subscribers with a super charger configuration. If a subscriber has super charger as part of the configuration, subscriber data is backed up (using the IMSI Manager) after the subscriber detaches and the purge timer expires.

**Examples**
The following command displays the super charger configuration information for the subscriber identified by the IMSI 90121882144672.
```
show super-charger imsi 90121882144672
```
show supplementary-service statistics

Displays the statistics for Supplementary Service Information.

**Product**  
SGSN

**Privilege**  
Security Administrator, Administrator, Operator

**Command Modes**  
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```  

**Syntax Description**  
show supplementary-service statistics

**Usage Guidelines**  
Use this command to display the Supplementary Service Information.

**Examples**  
The following command displays the Supplementary Service Information:

```
show supplementary-service statistics
```
show support collection

Displays information about when and where the Support Data Collector (SDC) stores its Support Data Record (SDR) files.

Product
All

Privilege
All

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local] host_name#

Syntax Description
show support collection [ definitions ] [ | { grep grep_options | more } ]

definitions
Displays the list of default support record section definitions. This is the list of all valid record section definitions. The display also indicates whether the record section is enabled or disabled by default.

| { grep grep_options | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on using the grep and more commands, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
Use this command to display the status of SDR collection, collection times, SDR file names and sizes, as well as the date/time the files were written. If SDR collection has occurred this command displays the pathname where the files have been stored.

With the definitions option this command lists existing record sections and their associated CLI commands.

For additional information, refer to the descriptions of the support collection and support record commands in the Global Configuration Mode (L - S) Commands chapter. Also see the System Administration Guide.

Examples
The following command displays the SDR collection information.

show support collection
show support details

Displays a comprehensive list of system information that is useful for troubleshooting purposes. In most cases, the output of this command is requested by the Technical Assistance Center (TAC). A single instance of the output of this command is known as an SSD.

Important
To improve output performance when executing the show cli history command, this command displays the config command but not the individual CLI commands within the config file.

Product
All

Privilege
All

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local]host_name#

Syntax Description
show support details [ to file url | compress ]
[ -noconfirm ] [ | { grep grep_options | more } ]

to file url

Specifies the location where a .tar file with the support detail information should be created. url may refer to a local or a remote file and must be entered using the following format:

For the ASR 5000:
[ file: ] [ /flash | /pcmcia1 | /hd ] [ /directory ] /file_name [ compress ]
tftp:// { host [ :port# ] } [ /directory ] /file_name
[ ftp: | sftp: ] { username [ :password ] @ } { host } [ :port# ] [ /directory ] /file_name

For the ASR 5500:
[ file: ] [ /flash | /usb1 | /hd ] [ /directory ] /file_name [ compress ]
tftp:// { host [ :port# ] } [ /directory ] /file_name
[ ftp: | sftp: ] { username [ :password ] @ } { host } [ :port# ] [ /directory ] /file_name

Important
Do not use the following characters when entering a string for the field names below: "/" (forward slash), ":" (colon) or "@" (at sign).

directory is the directory name.
filename is the actual file of interest.

username is the user to be authenticated.

password is the password to use for authentication.

host is the IP address or host name of the server.

port# is the logical port number that the communication protocol is to use.

If the filename is not specified with a .tar extension, it is automatically appended to the filename when the file is created and a message is generated.

The .tar file includes:

- **support_summary** - An ASCII text file that contains the support detail information.
- **information.minicores.tar** - A tar file that contains any minicore files found on the system. Minicore files contain memory core dumps that are captured during some events. These core dumps provide specific memory locations and other information about the event. This information is useful to the technical support team in identifying where and when an event occurred along with its probably cause.

compress

Generates a compressed .tar.gz file for the output of the command.

-noconfirm

Specifies that the command must execute without any prompts and confirmation from the user.

| { grep grep_options | more }

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.

For details on using the grep and more commands, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines

Use this command to obtain extensive system information for use in troubleshooting. This command does the work of multiple separate commands, which saves time and ensures that all of the information needed is collected and displayed in the same order every time.

In addition to the information provided, the **show support details** command includes information that is not otherwise accessible to users but that is helpful in the swift resolution of issues.

Examples

The following command displays the system information on your console.

show support details

The following command displays the information on your console and also writes it to the local device (pcmcia1 in this case) and includes the mini core dumps, using the filename r-p_problem.tar:

show support details to file /pcmcia1/r-p_problem.tar

The following command displays the information on your console and also writes it to /flash, placing the file in the ssd directory and includes the mini core dumps, using the filename re_problem.tar:

show support details to file /flash/ssd/re_problem.tar
show support record

Displays the output of one or more Support Data Records (SDRs) previously saved by the Support Data Collector (SDC). SDRs are displayed in the order of lowest record-id to highest record-id.

Product
All

Privilege
All

Command Modes
Exec

The following prompt is displayed in the Exec mode:

[local]\host_name#

Syntax Description

show support record  record-id  [ to  record-id  ]  [ section  section_name  ]  [ |  { grep  grep_options  | more } ]

record-id
Specifies a record-id as an integer from 0 through 65536.
Each SDR is identified by a time index called the record-id. For example, the most recent record is always record-id 0 (filename = sdr.0.gz). The next older record is record-id 1 (filename = sdr.1.gz), and so on.
When a new record is collected it is given a record-id of 0. The previously most recent record is renamed to record-id 1, and so on. The display includes the record-id along with the collection time-stamp.

to record-id
Specifies a the end point of a range of record-ids as an integer from 0 through 65536.

section section_name
Specifies the name of an existing record section as an alphanumerical string of 1 through 64 characters.

|  { grep  grep_options  | more } |

Pipes (sends) the output of this command to a specified command. You must specify a command to which the output of this command will be sent.
For details on using the grep and more commands, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.
Usage Guidelines

Use this command to display the output of one or more SDRs. This information is a useful troubleshooting tool when data is compared chronologically across several SDRs. For additional information refer to the System Administration Guide.

Examples

The following command displays the SDRs from 2 through 4:

```
show support record 2 to 4
```
show system uptime

Displays the amount of time the system has been operational since its last down time (maintenance or otherwise).

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec
The following prompt is displayed in the Exec mode:

```
[local]host_name#
```

**Syntax Description**
```
show system uptime [ | { grep grep_options | more } ]
```

`uptime`
Displays system up time in days (D), hours (H) and minutes (M).

`| { grep grep_options | more }`
Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the `grep` and `more` commands, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**
Display the system up time to check for the possibility of anomalous behavior related to shorter or longer up times.

**Examples**
The following command displays basic system basic information and up time.

```
show system uptime
```
show system uptime
Exec Mode show Commands (T-Z)

The Exec Mode is the initial entry point into the command line interface system. Exec mode show commands are useful in troubleshooting and basic system monitoring.

This chapter includes the commands show tacacs through show version.

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

*Important* The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

- show tacacs, page 1578
- show task, page 1580
- show tcap statistics, page 1586
- show temperature, page 1587
- show terminal, page 1588
- show threshold, page 1589
- show timing, page 1590
- show upgrade, page 1591
- show url-blacklisting database, page 1592
- show version, page 1594
- show wsg-lookup, page 1596
- show wsg-service, page 1597
- show x2gw-service, page 1599
show tacacs

Displays information about all active Terminal Access Controller Access-Control System Plus (TACACS+) sessions.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show tacacs [ client | priv-lvl | session | summary ] [ | | { grep grep_options | more } ]
```

**show tacacs**

This command provides the following TACACS+ information:

- Individual active session number with the following additional session-specific information:
  - login username
  - login tty
  - time of login
  - login server priority
  - current session state
  - current privilege level
  - remote client application (if applicable)
  - remote client ip address (if applicable)
  - last server reply status

- Total number of TACACS+ sessions

Optional filters are available for the output of the `show tacacs` command:
• **client** – Display information about the TACACS+ client.

• **priv-lvl** – Display TACACS+ priv-level authorization attributes for StarOS administrative levels. Only supported in StarOS Release 17.3 and higher.

• **session** – Display information about the TACACS+ sessions.

• **summary** – Display summary information about the TACACS+ sessions.

```
| { grep grep_options | more }
```

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to view detailed session information for all active TACACS+ sessions.

---

**Important**

This command is available on version 11.0 and later systems.

**Examples**

```bash
show tacacs
```
show task

Displays information about system tasks.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local]\host_name#`

**Syntax Description**

```
show task \{ info | memory | resources | table \} \{ card card_num \} \{ facility facility \{ all | instance id \} \} \{ process process_name all \} \{ max \} \{ grep grep_options | more \}
```

- \{ info | memory | resources | table \}
  - Specifies the type of information to be displayed and scope of tasks to include in output.
  - **info**: Displays detailed task information.
  - **memory**: Displays detailed task memory usage information.
  - **resources**: Displays resource allocation and usage information for all tasks.
  - **table**: Displays identification information in tabular format for all tasks.

- \{ card card_num \}
  - Default: all powered on cards.
  - Specifies a single card for which task information is to be displayed where `card_num` must be an integer from 1 to 48 for the ASR 5000 and 1 through 20 for the ASR 5500.

- \{ facility facility \{ all | instance id \} \}
  - Default: all facilities.
  - Specifies the list of facilities for which task information may be displayed. A specific instance of the facility may be displayed as specified by `id` or all instances may be displayed. The value of `id` must be an integer from 0 through 10000000. `facility` must be one of:
    - **a11mgr**: A11 Interface Manager facility
    - **aaamgr**: AAA Manager Facility
• **aaaproxy**: AAA Proxy manager Facility
• **acsctrl**: Active Charging Service (ACS) Controller Facility [Release 11.0 and earlier versions only]
• **acsmgr**: Active Charging Service (ACS) Manager Facility
• **afctrl**: Fabric Manager [ASR 5500 only]
• **afmgr**: Fabric Manager [ASR 5500 only]
• **alcapmgr**: ALCAP Manager
• **asngwmgr**: ASN Gateway Manager
• **asnpcmgr**: ASN Paging/Location-Registry (ASN-PC) Manager
• **bfd**: Bidirectional Forwarding Detection
• **bgp**: Border Gateway Protocol (BGP) Facility
• **bngmgr**: BNG Manager
• **bulkstat**: Bulk Statistics Manager Facility
• **callhome**: Call Home Controller
• **cdrmod**: Charging Detail Record Module
• **cli**: Command Line Interface Facility
• **connproxy**: Proxy for connections from same card/chassis
• **cspctrl**: Card Slot Port controller Facility
• **cssctrl**: Content Service Steering Controller
• **dcardctrl**: IPSec Daughter-card Controller Logging Facility
• **dcardmgr**: IPSec Daughter-card Manager Logging Facility
• **dgmbmgr**: Diameter Gmb Application Manager
• **dhmgr**: Distributed Host Manager
• **diamproxy**: Diameter Proxy
• **drvctrl**: Driver Controller Facility
• **egtpemgr**: EGTP Egress Demux Manager
• **egtpinmgr**: EGTP Ingress Demux Manager
• **evlogd**: Event Log Daemon Facility
• **famgr**: Foreign Agent Manager Facility
• **gtpcmgr**: GTP-C Protocol Logging facility (GGSN product only)
• **gtpumgr**: GTP-U Demux Manager
• **h248prt**: H.248 Protocol Task [Release 11.0 and earlier versions only]
• **hamgr**: Home Agent Manager Facility
• **hatecpu**: High Availability Task CPU Facility
• **hatsystem:** High Availability Task Facility
• **hdctrl:** HD Controller
• **henbgwdemux:** Home eNodeB Gateway demux manager
• **henbgwmgr:** Home eNodeB Gateway Manager
• **hnbmgr:** HNBGW HNB Manager
• **hwctrl:** Hardware Monitor Controller
• **hwmgmtr:** Hardware Monitor Manager
• **imsmgtr:** SGSN IMSI Manager
• **ipsecctrl:** IP Security Controller Facility
• **ipsecmgr:** IP Security Manager Facility
• **ipsgmgr:** IP Services Gateway Facility
• **kvctrl:** KV Controller
• **kvmgmtr:** KV Manager
• **l2tpdemux:** L2TP Demultiplexor (LNS) Facility
• **l2tpmgmtr:** L2TP Manager Facility
• **lasmgr:** Link Aggregation Group (LAG) Manager
• **linkmgmtr:** SGSN/SS7 Link Manager
• **magmgtr:** Mobile Access Gateway Manager
• **megadiammgr:** MegaDiameter Manager
• **mmmedumex:** MME Demux Manager logging facility
• **mmemgr:** MME Manager logging facility
• **mmgr:** SGSN/SS7 Master Manager
• **mpls_sig:** Multiprotocol Label Switching
• **mptest:** Migration Performance Test on Packet Accelerator Card
• **netwstrg:** Network Storage Manager [Release 11.0 and earlier versions only]
• **npuctrl:** Network Processor Unit Control Facility
• **npudrv:** Network Processor Unit Driver Facility [ASR 5500 only]
• **npumgr:** Network Processor Unit Manager Facility
• **npusim:** Network Processor Unit Simulator [ASR 5500 only]
• **nputst:** Network Processor Unit Tester
• **nscctrl:** Charging Service Controller [Release 11.0 and earlier versions only]
• **nsmgr:** Charging Service Process Manager [Release 11.0 and earlier versions only]
• **orbsns:** Object Request Broker Notification Server Facility
• **orbs**: Object Request Broker System Facility
• **ospf**: Open Shortest Path First Facility
• **ospfv3**: Open Shortest Path First (OSPFv3)
• **pdgmgr**: PDG Manager
• **phsgwmgr**: PHS Gateway manager
• **phspcmgr**: PHS Paging Controller manager
• **rct**: Recovery Control Task Facility
• **rdt**: Redirect Task Facility
• **rip**: Routing Information Protocol Facility
• **rmctrl**: Resource Manager Controller Facility
• **rmmgr**: Resource Manager Facility
• **sct**: Shared Configuration Task Facility
• **sessctrl**: Session Controller Facility
• **sessmgr**: Session Manager Facility
• **sesstrc**: Session Trace Collection task
• **sft**: Switch Fabric Monitoring Task
• **sgtpcmgr**: SGSN GTPC Manager
• **sipcdprt**: SIP Call Distributor Task [Release 11.0 and earlier versions only]
• **sitmain**: System Initialization Task Main Facility
• **sitparent**: Card based system initialization facility that applies to packet processing cards and system management cards (SMC - ASR 5000, MIO - ASR 5500) [Replaces the sitpac, sitspc and sittac facilities]
• **snmp**: SNMP Protocol Facility
• **srdb**: Static Rating Database
• **testctrl**: Test Controller
• **testmgr**: Test Manager
• **threshold**: Threshold Server Facility
• **vpncntl**: Virtual Private Network Controller Facility
• **vpnmgr**: VPN Manager Facility
• **zebos**: ZEBOS™ OSPF Message Facility

**all**: Displays information for all instances of the specified facility.

**instance id**: Displays information for the facility instance specified as an integer from 0 through 10000000.

**process process_name all**

Display information for all instances of the specified process. must be one of the following process names:
show task

- **ftpd**: File Transfer Protocol Daemon
- **inetd**: Internet Super-server Daemon
- **nsproc**: NetSpira Packet Processor
- **ntpd**: Network Time Protocol Daemon
- **orbsd**: Object Request Broker Notification Server
- **ping**: Ping
- **pvmd-wrapper**: NetSpira Messenger Daemon
- **pvmd**: NetSpira Messenger Daemon
- **rlogin**: Remote Login
- **sftp-server**: Secure File Transfer Protocol Server
- **sitreap**: System Initialization Task Cleanup Process
- **sn_resolve**: DNS Resolver Process
- **ssh**: Secure Shell
- **sshd**: Secure Shell Daemon
- **telnet**: Telnet
- **telnetd**: Telnet daemon
- **tftpd**: Trivial File Transfer Protocol Daemon
- **traceroute**: Traceroute

**max**
Default: current usage levels are displayed. Displays the maximum usage levels for tasks as opposed to the current usage levels. **max** is valid only in conjunction with the **resources** keyword.

```
| { grep grep_options | more }
```

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the **Regulating a Command’s Output** section of the **Command Line Interface Overview** chapter.

**Usage Guidelines**
Display task information as part of system troubleshooting unexpected behavior.

---

**Important**
This command is not supported on all platforms.
The following commands provide some examples of the combinations of options that may be used to display task information.

- `show task info facility hatspc all`
- `show task info facility hatspc instance 456`
- `show task resources facility zebos all`
- `show task table facility ospf`
- `show task table card 8 facility cli all`
- `show task table card 5 facility cli all`
- `show task resources facility rip all max`
show tcap statistics

This command displays the collected traffic statistics that have passed through the SS7 Transaction Capabilities Application Part (TCAP) layer.

**Product**

SGSN

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show tcap statistics [ camel-service [ all | name camel_srvc ] | map-service [ all | name map_srvc ] ] | | | { grep grep_options | more }
```

- **camel-service [ all | name camel_srvc ]**
  
  Displays TCAP statistics for either all Customized Applications for Mobile networks Enhanced Logic (CAMEL) services or only for the named CAMEL service.

- **map-service [ all | name mapl_srvc ]**
  
  Displays TCAP statistics for either all Mobile Application Part (MAP) services or only for the named MAP service.

  ```
  | { grep grep_options | more }
  ```

  Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

  For details on the usage of the **grep** and **more** commands, refer to the Regulating a Command’s Output section of the Command Line Interface Overview chapter.

**Usage Guidelines**

Use this command to display the collected TCAP statistics for MAP or CAMEL services.

**Examples**

The following command displays the collected statistics for a MAP service named *MAP-Tewk*.

```
show tcap statistics map-service name MAP-Tewk
```
show temperature

Displays the current temperature on all installed cards. Also displays the temperature of upper and lower fan trays. Temperature readings are acquired from sensors located on these components.

Product
All

Privilege
Security Administrator, Administrator, Operator, Inspector

Command Modes
Exec

The following prompt is displayed in the Exec mode:
[local]host_name#

Syntax Description
show temperature [ verbose ] [ | { grep grep_options | more } ]

| { grep grep_options | more }

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the grep and more commands, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

verbose
Indicates that the output is to contain detailed information.

Usage Guidelines
Verify current temperature of components in chassis.

Examples
show temperature
show temperature verbose
show terminal

Displays the current terminal settings for number of lines in length and number of characters in width.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show terminal [ | { grep grep_options | more } ]

| { grep grep_options | more }
```

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the *Regulating a Command’s Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**
Use this command to verify current terminal settings in case the output displayed appears to have line breaks/wraps in unexpected places.

**Examples**
```
show terminal
```
show threshold

Displays thresholding information for the system.

**Product**

All

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show threshold [ default ]
```

[ default ]

Used to display the system's thresholding default values.

**Usage Guidelines**

Use this command to display information on threshold value configuration and activity.

**Examples**

The following command displays configuration information pertaining to threshold values configured on the system:

```
show threshold
```

**Important**

Output descriptions for commands are available in the *Statistics and Counters Reference*. 
show timing

Displays the information configured to define a transmit timing source other than the system clock. The display includes related information (such as port status, timing source priority, timing alarms, etc.) for all of the ports configured for either Building Integrated Timing Supply (BITS) or line timing.

**Product**

SGSN

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

`show timing`

**Usage Guidelines**

Use this command to determine which line cards are recovering receive timing clocks.

---

**Important**

This command is not supported on all platforms.

---

**Examples**

The following command displays timing configuration and status information for the timing-configured ports.

```
show timing
```
show upgrade

Displays the status of an on-going on-line software upgrade.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local]\host_name#
```

**Syntax Description**
show upgrade

**Usage Guidelines**
Use this command to show the status of an on-going on-line software upgrade.

---

**Important**
This command is not supported on all platforms.
show url-blacklisting database

Displays URL Blacklisting static database configurations.

**Product**

CF

**Privilege**

Security Administrator, Administrator, Operator, Inspector

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show url-blacklisting database [ all | url url | facility acsmgr { all | instance instance } ] [ | { grep grep_options | more } ]
```

- **all**
  Displays configurations of all URL Blacklisting databases present in the default or override directory.

- **facility acsmgr { all | instance instance }**
  Displays configurations of URL Blacklisting database configuration per facility/ACSMgr instance.
  - **all**: Displays URL Blacklisting database configuration of all ACSMgrs.
  - **instance instance**: Displays URL Blacklisting database configuration for the instance number of the database specified as an integer from 1 through 1000000.

- **url url**
  Displays configurations of the URL Blacklisting database specified in the database's URL expressed as an alphanumeric string of 1 through 512 characters.

  | { grep grep_options | more } |
  Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the **grep** and **more** commands, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.
Usage Guidelines

Use this command to view configurations associated with in-memory and on-flash Blacklisting database. The `show url-blacklisting database` command displays the active database that is loaded, and is the one set by either the default or override CLI commands.

Examples

The following command displays configurations of all the databases present in default or override directory, indicating one as Active and rest as Not Loaded:

```
show url-blacklisting database all
```

The following command displays configurations of the `/flash/bl/optblk.bin` database:

```
show url-blacklisting database url /flash/bl/optblk.bin
```

The following command displays database configuration for the ACSMgr instance 1:

```
show url-blacklisting database facility acsmgr instance 1
```

Important

Output descriptions for commands are available in the *Statistics and Counters Reference.*
show version

Displays the version information for the current system image or for a remote image.

**Product**
All

**Privilege**
Security Administrator, Administrator, Operator, Inspector

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**
```
show version [ url ] [ all | verbose ] [ | { grep grep_options | more } ]
```

**url**
Specifies the location of a configuration file for which to display version information. The `url` may refer to a local or a remote file and must be entered in the following format:

For the ASR 5000:
```
```

```
tftp:// { host : port# | } [ /directory ] /filename
```

```
http: | ftp: | sftp: | // [ username : password ] @ ] { host } [ :port# ] [ /directory ] /filename
```

For the ASR 5500:
```
```

```
tftp:// { host : port# | } [ /directory ] /filename
```

```
http: | ftp: | sftp: | // [ username : password ] @ ] { host } [ :port# ] [ /directory ] /filename
```

For VPC:
```
```

```
tftp:// { host : port# | } [ /directory ] /filename
```

```
http: | ftp: | sftp: | // [ username : password ] @ ] { host } [ :port# ] [ /directory ] /filename
```

---

**Important**

Do not use the following characters when entering a string for the field names below: "/\n" (forward slash), ":/\n" (colon) or ":@/\n" (at sign).

- `directory` is the directory name.
- `filename` is the actual file of interest.
- `username` is the user to be authenticated.
password is the password to use for authentication.
host is the IP address or host name of the server.
port# is the logical port number that the communication protocol is to use.

all | verbose
all: displays all image information.
verbose: displays detailed information.
The verbose keyword may not be used in conjunction with a URL specification.

| { grep grep_options | more }
Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.
For details on the usage of the grep and more commands, refer to the Regulating a Command's Output section of the Command Line Interface Overview chapter.

Usage Guidelines
Display the version information to verify the image versions loaded in preparation for maintenance, upgrades, etc.

Examples
The following commands display the version information with the basic level of output and the detailed level, respectively.
show version
show version verbose
show wsg-lookup

Displays the current priority settings of subnet components for site-to-site tunnels in WSG services.

Product

SecGW (WSG)

Privilege

Security Administrator, Administrator, Operator

Command Modes

Exec

The following prompt is displayed in the Exec mode:

[local] host_name$

Syntax Description

show wsg-lookup

Usage Guidelines

Use this command to display current WSG lookup priority settings,

Examples

show wsg-lookup
show wsg-service

Displays information about WSG service calls and configured services.

**Product**
SecGW (WSG)

**Privilege**
Security Administrator, Administrator, Operator

**Command Modes**
Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show wsg-service ( all | name [name ] | statistics [ name ] | peer-address [ip_address ] | |
{ grep [grep_options ] | more } ]
```

**all**
Displays information for all configured services.

**name srvc_name**
Displays information for the specified service name.

```
| statistics [ name ] | peer-address [ip_address ]
```
Displays information collected for the WSG service since the last VPC-VSM reload or clear command
You can display information for all WSG services (default), for named service or for a specific peer IP address.
The peer `ip_address` can be specified in IPv4 dotted decimal or IPv5 colon-separated hexadecimal notation.

```
| { grep [grep_options ] | more } |
```
Pipes (sends) the output of the command to the command specified. You must specify a command to which
the output will be sent.

For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command's Output* section
of the *Command Line Interface Overview* chapter.

**Usage Guidelines**
This command displays information about all or a specified WSG service.
Example

The following command displays information about all WSG services:

```bash
show wsg-service all
```
**show x2gw-service**

This command is used to display the X2GW service related information.

**Product**

HeNBGW

**Privilege**

Security Administrator, Administrator, Operator

**Command Modes**

Exec

The following prompt is displayed in the Exec mode:

```
[local] host_name#
```

**Syntax Description**

```
show x2gw-service { all | enb-association [all] | statistics [sctp | x2ap] } | { grep grep_options | more }
```

*all*

Displays all the X2GW services.

*enb-association*

Displays the information about (H)ENB associations.

*statistics*

Displays the X2GW service statistics.

```
| { grep grep_options | more }
```

Pipes (sends) the output of the command to the command specified. You must specify a command to which the output will be sent.

For details on the usage of the `grep` and `more` commands, refer to the *Regulating a Command's Output* section of the *Command Line Interface Overview* chapter.

**Usage Guidelines**

Use this command to display the X2GW service related information.

**Examples**

The following command displays the X2GW service statistics:

```
show x2gw-service statistics
```
show x2gw-service
FA Service Configuration Mode Commands

The Foreign Agent Service Configuration Mode is used to create and manage the Foreign Agent (FA) services associated with the current context.

Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > context context_name > fa-service service_name

Entering the above command sequence results in the following prompt:

[context_name] host_name(config-fa-service) #

Important

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

- advertise, page 1603
- authentication aaa, page 1605
- authentication mn-aaa, page 1606
- authentication mn-ha, page 1608
- bind, page 1609
- challenge-window, page 1611
- default subscriber, page 1612
- dynamic-ha-assignment, page 1613
- dynamic-mip-key-update, page 1615
- encapsulation allow gre, page 1616
- end, page 1617
- exit, page 1618
- fa-ha-spi, page 1619
• gre, page 1622
• ha-monitor, page 1624
• idle-timeout-mode, page 1626
• ignore-mip-key-data, page 1627
• ignore-stale-challenge, page 1628
• ip local-port, page 1629
• isakmp, page 1630
• limit-reg-lifetime, page 1632
• max-challenge-len, page 1634
• mn-aaa-removal-indication, page 1635
• multiple-reg, page 1636
• optimize tunnel-reassembly, page 1637
• private-address allow-no-reverse-tunnel, page 1638
• proxy-mip, page 1639
• reg-timeout, page 1642
• reverse-tunnel, page 1643
• revocation, page 1645
• threshold reg-reply-error, page 1647
advertise

Configures agent advertisement parameters within the FA service.

**Product**
- PDSN
- GGSN
- ASN-GW

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context Configuration > FA Service Configuration
`configure > context context_name > fa-service service_name`
Entering the above command sequence results in the following prompt:
`[context_name]host_name(config-fa-service)#`

**Syntax Description**

`advertise {adv-delay seconds | adv-lifetime time | adv-interval { seconds | msec num } | num-adv-sent number | prefix-length-extn | reg-lifetime reg_time }`

`no advertise { prefix-length-extn | reg-lifetime }
default advertise adv-delay`

`no`
Disables prefix-length-extn.

`no advertise reg-lifetime`
Specifies that there is no limit to the registration lifetime that the FA service will allow in any Registration Request message from the mobile node.

`default advertise adv-delay`
Sets the initial delay for the unsolicited advertisement to the default value of 1000 ms.

`advertise adv-delay seconds`
Default: 1000
Sets the initial delay for the unsolicited advertisement.

`seconds` is the advertisement delay in milliseconds and must be an integer from 10 through 5000.
This command is available for WiMAX CMIP calls only.

**adv-lifetime** time
Default: 9000
Specifies the FA agent advertisement lifetime.
The agent advertisement lifetime is the amount of time that an FA agent advertisement remains valid in the absence of further advertisements.
time is measured in seconds and can be configured to an integer from 1 through 65535.

**adv-interval** { seconds | msec num }
Default: 5 seconds
Specifies the amount of time between agent advertisements.
seconds is the time in seconds and can be an integer from 1 through 1800.
msec num: Configures agent advertisement Interval in milliseconds. num can be an integer from 100 through 1800000.

**num-adv-sent** number
Default: 5
Specifies the number of unanswered agent advertisements that the FA service sends upon PPP establishment before rejecting the session.
number can be an integer from 1 through 65535.

**prefix-length-extn**
Default: Disabled
When enabled, the FA includes the FA-service address in the Router Address field of the Agent Advertisement and appends a Prefix Length Extension in Agent Advertisements with a prefix length of 32.

**reg-lifetime** reg_time
Default: 600
Specifies the longest registration lifetime that the FA service will allow in any Registration Request message from the mobile node.
reg_time is measured in seconds and can be configured to an integer from 1 through 65534.

**Usage Guidelines**
Use to tailor FA advertisements to meet your network needs and/or conditions.

**Examples**
The following command configures the FA advertisement interval at 10 seconds, the advertise lifetime to 20000 seconds, and the maximum number of unanswered advertisements that will be set to 3.
advertise adv-interval 10 adv-lifetime 20000 num-adv-sent 3
authentication aaa

This configuration enables or disables the authentication parameters for the FA service to override dynamic keys from AAA with static keys to support MIP registration with an HA that does not support dynamic keys.

**Product**

FA
ASN-GW

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > FA Service Configuration

```configure > context context_name > fa-service service_name```

Entering the above command sequence results in the following prompt:

```[context_name]host_name(config-fa-service)#```

**Syntax Description**

```[no | default] authentication aaa-distributed-mip-keys override```

- **no**
  Disable the override of dynamic keys from AAA.

- **default**
  By default the override behavior is disabled and the system uses dynamic keys from AAA after successful EAP authentication. If EAP authentication fails, the system uses static keys by default.

**Usage Guidelines**

Specify how the system will perform authentication of registration request messages. By default dynamic MN-HA and FA-HA keys from AAA after successful EAP authentication used by a PMIP client in WiMAX calls for MIP registration with HA. This configuration in FA service overrides the dynamic keys from AAA with static keys to support MIP registration with an HA that does not support dynamic keys.

**Examples**

The following command configures the FA service to override use of AAA MIP keys and force the use of statically configured FA-HA SPI/key for WiMAX calls.

```authentication aaa-distributed-mip-keys override```
**authentication mn-aaa**

Specifies how the system handles authentication for mobile node re-registrations.

**Product**
- PDSN
- ASN-GW
- GGSN

**Privilege**
- Security Administrator, Administrator

**Command Modes**
- Exec > Global Configuration > Context Configuration > FA Service Configuration
- `configure > context context_name > fa-service service_name`

Entering the above command sequence results in the following prompt:

```
{context_name}@host_name(config-fa-service)#
```

**Syntax Description**

- **always**
  Specifies that the FA service performs authentication each time a mobile node registers. This is the default setting.

- **ignore-after-handoff**
  MN-AAA authentication is not done at the FA for a handoff Access Gateway (AGW).

- **init-reg**
  MN-AAA and MN-FAC extensions are required only in initialization RRQ.

- **init-reg-except-handoff**
  MN-AAA and MN-FAC extensions are not required in initialization RRQ after inter-Access Gateway (AGW) handoff.

- **renew-and-dereg-noauth**
  Specifies that the FA service does not perform authentication for mobile node re-registration or deregistration authorization requests. Initial registration is handled normally.
renew-reg-noauth

Specifies that the FA service does not perform authentication for mobile node re Registrations. Initial registration and de registration are handled normally.

optimize-retries

Optimizes the number of Authentication retries sent to the AAA server.

When an authentication request is pending for a MIP call at the AGW, if a retry RRQ is received from the mobile node, the AGW discards the old RRQ and keeps the most recent RRQ. Subsequently when the authentication succeeds, the AGW forwards the most recent RRQ to the HA. If the authentication fails, the AGW replies to the MN using the most recent RRQ.

Usage Guidelines

Use this command to determine how the FA service handles mobile node re registrations.

The system is shipped from the factory with the mobile AAA authentication set to always.

Examples

The following command configures the FA service to perform mobile node authentication for every re registration:

```
authentication mn-aaa always
```

The following command specifies that the FA service does not perform authentication for mobile node re registrations:

```
authentication mn-aaa renew-reg-noauth
```
authentication mn-ha

Configures whether the FA service looks for a Mobile Network-Home Agent (MN-HA) authentication extension in the RRP (registration reply).

**Product**
- PDSN
- ASN-GW
- GGSN

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context Configuration > FA Service Configuration

```plaintext
configure > context context_name > fa-service service_name
```

Entering the above command sequence results in the following prompt:

```
(context_name)host_name(config-fa-service)#
```

**Syntax Description**

```
authentication mn-ha { allow-noauth | always }
```

- **allow-noauth**
  Allows a reply that does not contain the auth extension.

- **always**
  A reply should always contain the auth extension to be accepted.
  This is the default setting.

**Usage Guidelines**
Use this command to determine whether or not the FA service requires the MN-HA auth extension in the RRP.

The system is shipped from the factory with this set to always.

**Examples**
The following command configures the FA service to require a reply to contain the authentication extension to be accepted.:

```
authentication mn-ha always
```
bind

Binds the FA service to a logical IP interface serving as the Pi interface and specifies the maximum number of subscribers that can access this service over the interface.

**Product**
- PDSN
- ASN-GW
- GGSN
- PDIF

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > context context_name > fa-service service_name

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fa-service)#
```

**Syntax Description**

```
bind address address | max-subscribers count |
no bind address
```

**address**

Specifies the IP address (address) of the interface configured as the Pi interface. *address* is specified in IPv4 dotted-decimal notation.

**max-subscribers**

Default: 500000

Specifies the maximum number of subscribers that can access this service on this interface.

*count* can be configured to an integer from 0 through 500000.

**Important**
The maximum number of subscribers supported is dependant on the license key installed and the number of active packet processing cards installed in the system. Refer to the license key command for additional information.
**Usage Guidelines**

Associate or tie the FA service to a specific logical IP address. The logical IP address or interface takes on the characteristics of an Pi interface. Only one interface can be bound to a service. The interface should be configured prior to issuing this command.

This command also sets a limit as to the number of simultaneous subscribers sessions that can be facilitated by the service/interface at any given time.

When configuring the **max-subscribers** option, be sure to consider the following:

- The total number of interfaces you will configure for use as Pi interfaces
- The maximum number of subscriber sessions that all of these interfaces may handle during peak busy hours
- The average bandwidth for each of the sessions
- The type of physical port (10/100Base-T or 1000Base-Tx) that these interfaces will be bound to

Taking these factors into account and distributing your subscriber session across all available interfaces will allow you to configure your interfaces to optimally handle sessions without degraded performance.

Use the **no bind address** command to delete a previously configured binding.

**Examples**

The following command would bind the logical IP interface with the address of 192.168.3.1 to the FA service and specifies that a maximum of 600 simultaneous subscriber sessions can be facilitated by the interface/service at any given time.

```
bind address 192.168.3.1 max-subscribers 600
```

The following command disables a binding that was previously configured:

```
no bind address
```
challenge-window

Defines the number of recently sent challenge values that are considered valid by the FA.

**Product**
- PDSN
- ASN-GW
- GGSN

**Privilege**
Security Administrator, Administrator

**Command Modes**
- Exec > Global Configuration > Context Configuration > FA Service Configuration
- configure > context context_name > fa-service service_name

Entering the above command sequence results in the following prompt:

```
{context_name}@host_name(config-fa-service)#
```

**Syntax Description**

```
challenge-window number
```

- **number**
  - Default: 2
  - The number of recently sent challenge values that are considered valid. *number* must be an integer from 1 through 5.

**Usage Guidelines**

Use this command to set the number of recently sent challenge values that are considered valid by the FA.

**Examples**

Set the challenge window to 3:

```
challenge-window 3
```
default subscriber

Specifies the name of a subscriber profile configured within the same context as the FA service from which to base the handling of all other subscriber sessions handled by the FA service.

**Product**
- PDSN
- ASN-GW
- GGSN
- PDIF

**Privilege**
- Security Administrator, Administrator

**Command Modes**
- Exec > Global Configuration > Context Configuration > FA Service Configuration
- `configure > context context_name > fa-service service_name`

Entering the above command sequence results in the following prompt:

```
{context_name}host_name(config-fa-service)#
```

**Syntax Description**
- `| no | default subscriber profile_name`

  - `profile_name`
    - Specifies the name of the configured subscriber profile. `profile_name` is an alphanumeric string of 1 through 63 characters that is case sensitive.

**Usage Guidelines**
Each subscriber profile specifies "rules" such as permissions, PPP settings, and timeout values.

By default, the FA service will use the information configured for the subscriber named default within the same context. This command allows for multiple FA services within the same context to apply different "rules" to sessions they process. Each set of rules can be configured under a different subscriber name which is pointed to by this command.

Use the `no default subscriber profile_name` command to delete the configured default subscriber.

**Examples**
To configure the FA service to apply the rules configured for a subscriber named `user1` to every other subscriber session it processes, enter the following command:

```
default subscriber user1```

**dynamic-ha-assignment**

This command configures various dynamic HA assignment parameters.

**Product**

HA

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > FA Service Configuration

```
configure > context context_name > fa-service service_name
```

Entering the above command sequence results in the following prompt:

```
(context_name)host_name(config-fa-service)#
```

**Syntax Description**

```
[ default | no ] dynamic-ha-assignment [ aaa-override mn-supplied-ha-addr | allow-failover ]
```

**default**

Feature is disabled by default.

**no**

Removes the feature and returns it to the default setting of disabled.

**aaa-override mn-supplied-ha-addr**

Enables the system to override the mobile node supplied HA IP address with the AAA provided HA address.

**allow-failover**

Enables/disables a failover retry for dynamic HA assignment from the AAA server.

**Usage Guidelines**

Use this command to override the mobile node supplied HA IP address with the AAA supplied HA address.

Use this command to enable or disable the failover feature that allows the system to receive and use a newer HA address from the AAA server in cases where the original HA address is not responding.

A AAA server may assign different HA addresses each time a retransmitted MIP RRQ is authenticated during the MIP session setup. When this configuration is enabled, if the FA gets a new HA address from AAA during setup, it discards the previous HA address and start using the new address. This allows the FA session to connect to an available HA during setup.
The following command enables the failover feature that allows the system to receive and use a newer HA address from the AAA server:

`dynamic-ha-assignment allow-failover`
**dynamic-mip-key-update**

When enabled, the FA service processes MIP_Key_Update_Request from the AAA server and allows dynamic MIP key updates (DMUs).

Default: Disabled

**Product**

- PDSN
- ASN-GW
- GGSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > FA Service Configuration

```
configure > context context_name > fa-service service_name
```

Entering the above command sequence results in the following prompt:

```
[context_name] host_name(config-fa-service)#
```

**Syntax Description**

```
[ no ] dynamic-mip-key-update
```

- **no**
  
  The FA service rejects MIP_Key_Update_Request from the AAA server, not allowing dynamic MIP key updating to occur and terminates the call.

**Usage Guidelines**

Use this command to enable or disable the DMU feature in the FA service.

**Examples**

To enable DMU and allow dynamic updates of MIP keys, enter the following command:

```
dynamic-mip-key-update
```
encapsulation allow gre

Enables or disables the use of generic routing encapsulation (GRE) when establishing a Mobile IP (MIP) session. When enabled, if requested by a Mobile Node (MN), the FA requests the HA to use GRE encapsulation when establishing the MIP session. When disabled, the FA does not set the GRE bit in Agent Advertisements to the MN.

Default: GRE is enabled.

Product

- PDSN
- ASN-GW
- GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configuration > context context_name > fa-service service_name

Entering the above command sequence results in the following prompt:

{context_name}@host_name(config-fa-service)#

Syntax Description

| no | encapsulation allow gre

Usage Guidelines

Use to disable or re-enable the use of GRE encapsulation for MIP sessions.

Examples

To re-enable GRE encapsulation for MIP sessions, enter the following command:

encapsulation allow gre
end

Exits the current configuration mode and returns to the Exec mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

dend

Usage Guidelines

Use this command to return to the Exec mode.
exit

Exits the current mode and returns to the parent configuration mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

exit

Usage Guidelines

Use this command to return to the parent configuration mode.
fa-ha-spi

Configures the security parameter index (SPI) between the FA service and the HA.

Product
PDSN
ASN-GW
GGSN
PDIF

Privilege
Security Administrator, Administrator

Command Modes
Exec > Global Configuration > Context Configuration > FA Service Configuration
configure > context context_name > fa-service service_name

Entering the above command sequence results in the following prompt:

[context_name]host_name(config-fa-service)#

Syntax Description
fa-ha-spi remote-address { ha_ip_address | ip_addr_mask_combo } spi-number number { encrypted secret enc_secret | secret } [ description string | hash-algorithm { hmac-md5 | md5 | rfc2002-md5 } | monitor-ha | replay-protection { timestamp | nonce } | timestamp-tolerance tolerance | no fa-ha-spi remote-address { ha_ip_address | ip_addr_mask_combo } spi-number number

remote-address { ha_ip_address | ip_addr_mask_combo }

ha_ip_address: Specifies the IP address of the HA in IPv4 dotted-decimal notation.

ip_addr_mask_combo: Specifies the IP address of the HA including network mask bits. ip_addr_mask_combo must be specified IPv4 dotted-decimal notation with CIDR subnet mask bits (x.x.x.x/xx).

spi-number number
Specifies the Security Parameter Index (SPI) which indicates a security context between the FA and the HA in accordance with RFC 2002.

number can be configured to an integer from 256 through 4294967295.

encrypted secret enc_secret | secret secret
Configures the shared-secret between the FA service and the HA. The secret can be either encrypted or non-encrypted.
- **encrypted secret** *enc_secret*: Specifies the encrypted shared key (*enc_secret*) between the FA service and the HA. *enc_secret* must be an alphanumeric string of 1 through 254 characters that is case sensitive.

**Important**
The **encrypted** keyword is intended only for use by the system while saving configuration scripts. The system displays the **encrypted** keyword in the configuration file as a flag that the variable following the **secret** keyword is the encrypted version of the plain text secret key. Only the encrypted secret key is saved as part of the configuration file.

- **secret** *secret*: Specifies the shared key (*secret*) between the FA service and the HA. *secret* must be an alphanumeric string of 1 through 127 characters that is case sensitive.

**description** *string*
This is a description for the SPI. *string* must be an alphanumeric string of 1 through 31 characters.

**hash-algorithm** { *hmac-md5 | md5 | rfc2002-md5* }
Default: hmac-md5
Specifies the hash-algorithm used between the FA service and the HA.

- **hmac-md5**: Configures the hash-algorithm to implement HMAC-MD5 per RFC 2002bis.
- **md5**: Configures the hash-algorithm to implement MD5 per RFC 1321.
- **rfc2002-md5**: Configures the hash-algorithm to implement keyed-MD5 per RFC 2002.

**monitor-ha**
Default: disabled
Enables the HA monitor feature for this HA address.
To set the behavior of the HA monitor feature, refer to the **ha-monitor** command in this chapter. To disable this command (if enabled) for this HA address, re-enter the entire **fa-ha-spi** command without the **monitor-ha** keyword.

**replay-protection** { *timestamp | nonce* }
Default: timestamp
Specifies the replay-protection scheme that should be implemented by the FA service for this SPI.

- **nonce**: Configures replay protection to be implemented using NONCE per RFC 2002. Nonce is an arbitrary number used only once to sign a cryptographic communication.
- **timestamp**: Configures replay protection to be implemented using timestamps per RFC 2002.

**Important**
This keyword should only be used in conjunction with Proxy Mobile IP support.
timestamp-tolerance tolerance

Default: 60

Specifies the allowable difference (tolerance) in timestamps that is acceptable. If the difference is exceeded, then the session will be rejected. If this is set to 0, then timestamp tolerance checking is disabled at the receiving end.

tolerance is measured in seconds and can be configured to an integer value from 0 through 65535.

Important This keyword should only be used in conjunction with Proxy Mobile IP support.

+ More than one of the above keywords can be entered within a single command.

Usage Guidelines

An SPI is a security mechanism configured and shared by the FA service and the HA. Please refer to RFC 2002 for additional information.

Though it is possible for FAs and HAs to communicate without SPIs being configured, the use of them is recommended for security purposes. It is also recommended that a "default" SPI with a remote address of 0.0.0.0/0 be configured on both the HA and FA to prevent hackers from spoofing addresses.

Important The SPI configuration on the HA must match the SPI configuration for the FA service on the system in order for the two devices to communicate properly.

A maximum of 2,048 SPIs can be configured per FA service.

Use the no version of this command to delete a previously configured SPI.

Examples

The following command configures the FA service to use an SPI of 512 when communicating with an HA with the IP address 192.168.0.2. The key that would be shared between the HA and the FA service is q397F65. When communicating with this HA, the FA service will also be configured to use the rfc2002-md5 hash-algorithm.

fa-ha-spi remote-address 192.168.0.2 spi-number 512 secret q397F65 hash-algorithm rfc2002-md5

The following command deletes the configured SPI of 400 for an HA with an IP address of 172.100.3.200:

no fa-ha-spi remote-address 172.100.3.200 spi-number 400
gre

Configures Generic Routing Encapsulation (GRE) parameters.

**Product**
- PDSN
- ASN-GW
- GGSN

**Privilege**
- Security Administrator, Administrator

**Command Modes**
- Exec > Global Configuration > Context Configuration > FA Service Configuration
- configure > context *context_name* > fa-service *service_name*

Entering the above command sequence results in the following prompt:
```
[context_name]host_name(config-fa-service)#
```

**Syntax Description**
```
gre { checksum | checksum-verify | reorder-timeout *timeout* | sequence-mode { none | reorder } | sequence-numbers }
no gre { checksum | checksum-verify | sequence-numbers }
```

**no**
Disables the specified functionality.

**checksum**
Default: disabled
Enables the introduction of the checksum field in outgoing GRE packets.

**checksum-verify**
Default: disabled
Enables verification of the GRE checksum (if present) in incoming GRE packets.

**reorder-timeout *timeout***
Default: 100
Configures maximum number of milliseconds to wait before processing reordered out-of-sequence GRE packets. *timeout* must be an integer from 0 through 5000.
sequence-mode \{ none | reorder \}
Default: none
Configures how incoming out-of-sequence GRE packets should be handled.

none: Disables reordering of incoming out-of-sequence GRE packets.
reorder: Enables reordering of incoming out-of-sequence GRE packets.

sequence-numbers
Default: Disabled.
Enables insertion or removal of GRE sequence numbers in GRE packets.

Usage Guidelines
Use this command to configure how the FA service handles GRE packets.

Examples
To set maximum number of milliseconds to wait before processing reordered out-of-sequence GRE packets to 500 milliseconds, enter the following command:
\texttt{gre reorder-timeout 500}
To enable the reordering of incoming out-of-sequence GRE packets, enter the following command:
\texttt{gre sequence-mode reorder}
**ha-monitor**

Configures the behavior of the HA monitor feature.

**Product**
- PDSN
- ASN-GW
- FA
- HA

**Privilege**
- Security Administrator, Administrator

**Command Modes**
- Exec > Global Configuration > Context Configuration > FA Service Configuration
  - configure > context context_name > fa-service service_name

Entering the above command sequence results in the following prompt:

```
{context_name}@host_name(config-fa-service)#
```

**Syntax Description**
- `[default] ha-monitor [ interval sec ] [ max-inactivity-time sec ] [ num-retry num ]`
- `no ha-monitor`

- **default**
  Restores the system default setting(s) for the command/keyword(s). This command is disabled by default.

- **no**
  Disables the HA monitoring feature for this FA service.

- **interval sec**
  Default: 30
  Configures the time interval before the next monitoring request message is sent to the HA.
  *sec* must be an integer from 1 through 36000.

- **max-inactivity-time sec**
  Default: 60
  Specifies the maximum amount of time the system will wait without receiving MIP control traffic from a HA before the HA monitoring mechanism is triggered.
sec must be an integer from 30 through 600.

num-retry num
Default: 5
Configures the number of time the system will attempt to send HA monitor requests before determining the HA is down and a trap is initiated.
num must be an integer from 0 through 10.

Usage Guidelines
Use this command to set parameters for the HA monitor feature. This feature allows the AGW/FA to monitor HAs with which it has MIP sessions. The monitoring feature is triggered when the AGW/FA does not receive any MIP traffic from a HA for a configured amount of time (max-inactivity-time). The AGW/FA starts sending special MIP RRQ monitor messages and waits for RRP monitor message responses from the HA. The RRQ monitor messages are addressed to the HA service address. The source address of the monitor-request messages is the FA service's IP address.

The actions taken during monitoring are comprised of the following:

- If no monitor response is received during the interval time (interval), the AGW retransmits the monitor message a configured number of times (num-retry).
- If no response is received after retransmitting for the number configured in num-retry, the HA is considered down. The AGW/FA sends a trap (HAUnreachable) to the management station. Monitoring of this HA is stopped until a MIP control message is received from the particular HA and when the AGW/FA sends a trap (HAreachable) to the management station and starts monitoring the HA again.
- When an HA receives the RRQ from an FA, it verifies the message and identifies it as a monitor message based on a special reserved NAI (in the message) and a Monitor HA CVSE in the RRQ. The HA responds with an RRP with Reply code 0x00 (accepted) and includes the Monitor HA CVSE. When the FA receives the RRP from the HA, it updates the activity for the peer HA to maintain the "up" state.

**Important**
This command only sets the behavior of the HA monitor feature. To enable the HA monitor feature for each HA address, refer to the fa-ha-spi command in this chapter. Up to 256 HAs can be monitored per system.

Examples
The following commands set the HA monitor message interval to 45 seconds, the HA inactivity time to 60 seconds, and the number of HA monitor retries to 6:

```
ha-monitor interval 45
ha-monitor max-inactivity-time 60
ha-monitor num-retry 6
```
idle-timeout-mode

Controls whether Mobile IP data and control packets or only Mobile IP data resets the session idle timer.

**Product**
- PDSN
- ASN-GW
- GGSN
- PDIF

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context Configuration > FA Service Configuration
```
configure > context context_name > fa-service service_name
```
Entering the above command sequence results in the following prompt:
```
{context_name}host_name(config-fa-service)#
```

**Syntax Description**
idle-timeout-mode {aggressive | normal}

- **aggressive**
  Only Mobile IP data resets the session idle timer.

- **normal**
  Both Mobile IP data and control packets reset the session idle timer.

**Usage Guidelines**
Use this command to control how the session idle timer is reset.

**Examples**
The following command specifies that only Mobile IP data can reset the session idle timer:
```
idle-timeout-mode aggressive
```
ignore-mip-key-data

When this command is enabled, if the Dynamic Mobile IP Key Update (DMU) is not enabled and the mobile node (MN) sends a MIP_Key_Data CVSE, the FA ignores the MIP_Key_Data extension and the call is continued like a regular Mobile IP (MIP) call.

**Product**
- PDSN
- GGSN

**Privilege**
- Security Administrator, Administrator

**Command Modes**
- Exec > Global Configuration > Context Configuration > FA Service Configuration
- configure > context context_name > fa-service service_name

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fa-service)#
```

**Syntax Description**
- `[no] ignore-mip-key-data`

  **no**
  - Disable ignoring of MIP key data.

**Usage Guidelines**
- When DMU is not enabled, use this command to ignore MIP key data sent by the MN and allow the call to continue normally.

**Examples**
- To enable the FA to ignore MIP key data sent by the MN, enter the following command:

  `ignore-mip-key-data`
ignore-stale-challenge

Enables the system to accept RRQs with previously used challenges. This feature is disabled by default.

**Product**
PDSN
GGSN

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context Configuration > FA Service Configuration
`configure > context context_name > fa-service service_name`

Entering the above command sequence results in the following prompt:
`{context_name}{host_name}{config-fa-service}#`

**Syntax Description**

| no | ignore-stale-challenge |

**no**

Disables this feature. If an RRQ is received with a previously used challenge and there are RRQs pending on the same session, accept the RRQ if it has a new Identification in the retransmitted RRQ. All other RRQs received with previously used challenge are rejected with the Stale Challenge (106) error code.

**Usage Guidelines**

Use this command to allow the FA to accept stale challenges regardless of the ID field or if other RRQs are pending.

**Examples**

To enable this functionality in the FA service, enter the following command;

`ignore-stale-challenge`

To disable this functionality, enter the following command;

`no ignore-stale-challenge`
ip local-port

Configures the local User Datagram Protocol (UDP) port for the Pi interfaces' IP socket on which to listen for Mobile IP Registration messages.

Product

PDSN
ASN-GW
GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > context context_name > fa-service service_name

Entering the above command sequence results in the following prompt:

([context_name]host_name)(config-fa-service)#

Syntax Description

ip local-port port#

port#

Specifies the UDP port number.

port# can be an integer from 1 through 65535.

Usage Guidelines

Specify the UDP port that should be used for communications between the FA service and the HA.
The system defaults to using local port 434.

Examples

The following command specifies a UDP port of 3950 for FA-to-HA communication on the Pi interface:

ip local-port 3950
**isakmp**

Configures support for IPSec within the FA-service.

**Product**

- PDSN
- ASN-GW
- GGSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > FA Service Configuration

```plaintext
configure > context context_name > fa-service service_name
```

Entering the above command sequence results in the following prompt:

```plaintext
\(\text{context_name}\)\(\text{host_name}\)(config-fa-service)#
```

**Syntax Description**

```plaintext
isakmp \{peer-ha ha_address \{ crypto map map_name \[ encrypted \] secret secret \} | default \{ crypto map map_name \[ encrypted \] secret secret \} \}\no isakmp \{ peer-ha peer_ip_address | default \}
```

**no**

Deletes the reference to the crypto map for the specified HA, or deletes the reference for the default crypto map.

**peer-ha ha_address \{ crypto map map_name \[ encrypted \] secret preshared_secret \}**

Configures a crypto map for a peer HA.

- **ha_address**: The IP address of the HA with which the FA service will establish an IPSec SA. The address must be expressed in IPv4 dotted-decimal format.

- **crypto map map_name**: The name of a crypto map configured in the same context that defines the IPSec tunnel properties. `map_name` is the name of the crypto map expressed as an alphanumeric string of 1 through 127 characters.

- **encrypted**: This keyword is intended only for use by the system while saving configuration scripts. The system displays the `encrypted` keyword in the configuration file as a flag that the variable following the `secret` keyword is the encrypted version of the plain text secret key. Only the encrypted secret key is saved as part of the configuration file.
• **secret** secret: The pre-shared secret that will be used during the IKE negotiation. *preshared_secret* is the secret expressed as an alphanumeric string of 1 through 127 characters.

`default { crypto map map_name | [ encrypted | secret secret ] }`

Specifies the default crypto map to use when there is no matching crypto map configured for an HA address.

- **crypto map** map_name: The name of a crypto map configured in the same context that defines the IPSec tunnel properties. *map_name* is the name of the crypto map expressed as an alphanumeric string of 1 through 127 characters.

- **encrypted**: This keyword is intended only for use by the system while saving configuration scripts. The system displays the **encrypted** keyword in the configuration file as a flag that the variable following the **secret** keyword is the encrypted version of the plain text secret key. Only the encrypted secret key is saved as part of the configuration file.

- **secret** secret: The pre-shared secret that will be used during the IKE negotiation. *preshared_secret* is the secret expressed as an alphanumeric string of 1 through 127 characters.

**Usage Guidelines**

Use this command to configure the FA-service's per-HA IPSec parameters. These dictate how the FA service is to establish an IPSec SA with the specified HA.

---

**Important**

For maximum security, the above command should be executed for every possible HA with which the FA service communicates.

A default crypto map can also be configured using the default keyword. The default crypto map is used in the event that the AAA server returns an HA address that is not configured as an isakmp peer-ha.

---

**Important**

For maximum security, the default crypto map should be configured in addition to peer-ha crypto maps instead of being used to provide IPSec SAs to all HAs.

Note that once an IPSec tunnel is established between the FA and HA for a particular subscriber, all new Mobile IP sessions using the same FA and HA are passed over the tunnel regardless of whether or not IPSec is supported for the new subscriber sessions. Data for existing Mobile IP sessions is unaffected.

**Examples**

The following command creates a reference for an HA with the IP address 10.2.3.4 to a crypto map named *map1*:

```
isakmp peer-ha 10.2.3.4 crypto map map1
```

The following command deletes the crypto map reference for the HA with the IP address 10.2.3.4:

```
no isakmp peer-ha 10.2.3.4
```
limit-reg-lifetime

Enable the current default behavior of limiting the Mobile IP (MIP) lifetime to be smaller than the Idle, Absolute, or Long Duration timeouts. When disabled, this command allows a MIP lifetime that is longer than the Idle, Absolute or Long Duration timeouts.

**Product**
- PDSN
- ASN-GW
- GGSN
- PDIF

**Privilege**
- Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > context context_name > fa-service service_name

Entering the above command sequence results in the following prompt:

```
{context_name}@host_name(config-fa-service)#
```

**Syntax Description**

```
| no | default | limit-reg-lifetime |
```

- **no**
  Allows a MIP lifetime that is longer than the Idle, Absolute or Long Duration timeouts.

- **default**
  Enables the default behavior of limiting the MIP lifetime to be smaller than the Idle, Absolute, or Long Duration timeouts.

**Usage Guidelines**
Use the no keyword with this command to allow a MIP lifetime that is longer than the Idle, Absolute or Long Duration timeouts.

Use the base command or the keyword to reset the FA service to the default behavior of limiting the MIP lifetime to be smaller than the Idle, Absolute, or Long Duration timeouts.

**Examples**
Configure the FA service to allow a MIP lifetime that is longer than the Idle, Absolute or Long Duration timeouts by entering the following command:
no limit-reg-lifetime

Configure the FA service to the default behavior of limiting the MIP lifetime to be smaller than the Idle, Absolute, or Long Duration timeouts by entering either of the following commands:

default limit-reg-lifetime
limit-reg-lifetime
max-challenge-len

For mobile subscribers, the FA generates a random number and sends it to the mobile node as part of the mobile authentication extension (Mobile-Foreign Authentication extension) as described in RFC 3012. This command sets the maximum length of the FA challenge in bytes.

**Product**

- PDSN
- ASN-GW
- GGSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > FA Service Configuration

```bash
configure > context context_name > fa-service service_name
```

Entering the above command sequence results in the following prompt:

```
{context_name}host_name(config-fa-service)#
```

**Syntax Description**

```bash
max-challenge-len length
```

- **length**
  - Default: 16
  - The maximum length, in bytes, of the FA challenge. This value must be an integer from 4 through 32.

**Usage Guidelines**

Change the maximum allowed length of the randomly generated FA challenge its default of 16.

**Examples**

Use the following command to change the maximum length of the FA challenge to 18 bytes:

```bash
max-challenge-len 18
```
mn-aaa-removal-indication

Enables the FA to remove the Mobile Network-Final Assembly Code (MN-FAC) and MN-AAA extensions from RRQs. This is disabled by default.

**Product**
PDSN
ASN-GW
GGSN

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context Configuration > FA Service Configuration

```
configure > context context_name > fa-service service_name
```

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fa-service)#
```

**Syntax Description**

```
| no | mn-aaa-removal-indication
```

**Usage Guidelines**
Enable this feature if there is no need to authenticate the subscriber at HA using MN-AAA extension.

**Examples**
The following command enables the FA service to remove MN-FAC and MN-AAA extensions from RRQs:

```
mn-aaa-removal-indication
```
**multiple-reg**

Specifies the number of simultaneous Mobile IP sessions that will be supported for over a single PPP session.

**Product**
- PDSN
- ASN-GW
- GGSN

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context Configuration > FA Service Configuration
configure > context context_name > fa-service service_name

Entering the above command sequence results in the following prompt:

```
<context_name>host_name(config-fa-service)#
```

**Syntax Description**
`multiple-reg number`

`number`

`number` can be configured to an integer from 1 through 3.

**Usage Guidelines**
Use to support multiple registrations per subscriber.
The system defaults to a setting of "1" for multiple simultaneous MIP sessions.

**Important**
The system will only support multiple Mobile IP sessions per subscriber if the subscriber's mobile node has a static IP address. The system will only allow a single Mobile IP session for mobile nodes that receive a dynamically assigned IP address. In addition, because only a single Mobile IP or proxy-Mobile IP session is supported for IP PDP contexts, this parameter must remain at its default configuration.

**Examples**
The following command configures the number of supported simultaneous registrations for subscribers using this FA service to 3.
`multiple-reg 3`
optimize tunnel-reassembly

Configures FA to HA optimization for tunnel reassembly.

**Product**
- PDSN
- ASN-GW
- GGSN

**Privilege**
- Security Administrator, Administrator

**Command Modes**
- Exec > Global Configuration > Context Configuration > FA Service Configuration
- configure > context context_name > fa-service service_name

Entering the above command sequence results in the following prompt:

```
<context_name>host_name(config-fa-service)#
```

**Syntax Description**

<table>
<thead>
<tr>
<th>Syntax</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ no ] optimize tunnel-reassembly</td>
<td></td>
</tr>
</tbody>
</table>

**Usage Guidelines**

Enabling this functionality fragments large packets prior to encapsulation for easier processing. Tunnel reassembly optimization is disabled by default.

---

**Important**

You should **not** use this command without first consulting Cisco Systems Technical Support. This command applies to very specific scenarios where packet reassembly is not supported at the far end of the tunnel. There are cases where the destination network may either discard the data, or be unable to reassemble the packets.

---

**Important**

This functionality works best when the FA service is communicating with an HA service running in a system. However, an FA service running in the system communicating with an HA from a different manufacturer will operate correctly even if this parameter is enabled.

Use the **no** version of this command to disable tunnel optimization if it was previously enabled.

**Examples**

The following command enables tunnel reassembly optimization:

```bash
optimize tunnel-reassembly
```
private-address allow-no-reverse-tunnel

This command enables the FA to allow calls with private addresses and no reverse tunneling.

**Product**
- PDSN
- ASN-GW
- GGSN

**Privilege**
- Security Administrator, Administrator

**Command Modes**
- Exec > Global Configuration > Context Configuration > FA Service Configuration
- `configure > context context_name > fa-service service_name`

Entering the above command sequence results in the following prompt:

```
{context_name}host_name(config-fa-service)#
```

**Syntax Description**

```
[ no ] private-address allow-no-reverse-tunnel
```

- **no**
  - Disables the functionality. This is the default setting.

**Usage Guidelines**

Use this command to let the FA allow sessions with private addresses that do not have the reverse tunnel bit set.

**Examples**

To enable sessions with private addresses and no reverse tunneling, enter the following command:

```
private-address allow-no-reverse-tunnel
```
proxy-mip

Configures parameters pertaining to Proxy Mobile IP support.

**Product**
- PDSN
- ASN-GW
- GGSN
- PDIF

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context Configuration > FA Service Configuration
configure > context context_name > fa-service service_name

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fa-service)#
```

**Syntax Description**

```
proxy-mip { allow | ha-failover | max-attempts max_attempts | num-attempts-before-switching num_attempts | timeout seconds | max-retransmissions number | renew-percent-time renew-time | retransmission-timeout time }
```

```
noproxy-mip { allow | ha-failover }
```

```
default proxy-mip { allow | ha-failover | max-retransmissions | renew-percent-time | retransmission-timeout }
```

```
no
```

Disables FA service support for Proxy Mobile IP or HA failover for Proxy Mobile IP.

```
default
```

Restores the specified option to the default setting as described below.

```
allow
```

Default: Disabled

Enables FA service support for Proxy Mobile IP.

```
ha-failover [max-attempts max_attempts | num-attempts-before-switching num_attempts | timeout seconds ]
```

Default: Disabled
Enables HA failover for the Proxy Mobile IP feature.

- **max-attempts** `max_attempts` - Configures the maximum number of retransmissions of Proxy MIP control messages. `max_attempts` must be an integer from 1 through 10. Default is 4.

- **num-attempts-before-switching** `num_attempts` - Configures the total number of RRQ attempts (including retransmissions) before failing over to the alternate HA. `num_attempts` must be an integer from 1 through 5. Default is 2.

- **timeout** `seconds` - Configures the retransmission timeout (in seconds) of Proxy MIP control messages when failover happens. `seconds` must be an integer from 1 through 50. Default is 2.

**max-retransmissions number**

Default: 5

Configures the maximum number re-try attempts that the FA service is allowed to make when sending Proxy Mobile IP Registration Requests to the HA.

`number` is the maximum number of retries and can be configured to an integer from 1 through 4294967295.

**renew-percent-time** `renew-time`

Default: 75

Configures the amount of time that must pass prior to the FA sending a Proxy Mobile IP Registration Renewal Request.

`renew-time` is entered as a percentage of the advertisement registration lifetime configured for the FA service. (Refer to the `advertise` command in this chapter). `renew-time` can be configured to an integer from 1 through 100.

The following equation can be used to calculate `renew-time`:

\[
renew-time = (duration / lifetime) \times 100
\]

`duration` = The desired amount of time that can pass prior to the FA sending a Proxy Mobile IP Registration Renewal Request

`lifetime` = The advertisement registration lifetime configured for the FA service.

`duration` / `lifetime`

**retransmission-timeout time**

Default: 3

Configures the maximum amount of time allowed by the FA for a response from the HA before re-sending a Proxy Mobile IP Registration Request message.

`time` is measured in seconds and can be configured to an integer from 1 through 100.

**Usage Guidelines**

The `proxy-mip` command and its keywords configure the FA services support for Proxy Mobile IP.

When enabled though the session license and feature use key, the system supports Proxy Mobile IP to provide a mobility solution for subscribers with mobile nodes (MNs) capable of supporting only Simple IP.

In addition to the parameters configured via this command, the HA-FA SPI(s) must also be modified to support Proxy Mobile IP. Refer to the `fa-ha-spi` command for more information.
The following command configures the FA service to wait up to 5 seconds for an HA to respond prior to re-sending any Mobile IP Registration Request message:

```plaintext
proxy-mip retransmission-timeout 5
```

If the advertisement registration lifetime configured for the FA service is 900 seconds and you want the system to send a Proxy Mobile IP Registration Renewal Request message after 500 seconds, then the following command must be executed:

```plaintext
proxy-mip renew-percent-time 50
```

Note that 50 = (450 / 900) 100.
reg-timeout

Configures the FA registration reply timeout.

**Product**  
PDSN  
ASN-GW  
GGSN  
PDIF

**Privilege**  
Security Administrator, Administrator

**Command Modes**  
Exec > Global Configuration > Context Configuration > FA Service Configuration  
`configure > context context_name > fa-service service_name`

Entering the above command sequence results in the following prompt:  
`{context_name}\host_name\(config-fa-service)#`

**Syntax Description**  
`reg-timeout time`

- **time**
  - Default: 45
  - Time is measured in seconds and can be configured to an integer from 1 through 65535.

**Usage Guidelines**  
Configure the amount of time that the FA service will wait for a Registration Reply from an HA before the call is rejected with a reply code of 78H (registration Timeout).

**Examples**  
The following command configures a registration timeout of 10.  
`reg-timeout 10`
reverse-tunnel

Enables the use of reverse tunneling for a Mobile IP (MIP) sessions when requested by the mobile node (MN).

**Product**
PDSN
ASN-GW
GGSN

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context Configuration > FA Service Configuration

configure > context context_name > fa-service service_name

Entering the above command sequence results in the following prompt:

{(context_name)host_name}(config-fa-service)#

**Syntax Description**

[ no ] reverse-tunnel

**Usage Guidelines**
Reverse tunneling involves tunneling datagrams originated by the MN to the HA via the FA service. When an MN arrives at a foreign network, it listens for agent advertisements and selects an FA that supports reverse tunnels. The MN requests this service when it registers through the selected FA. At this time, the MN may also specify a delivery technique such as Direct or the Encapsulating Delivery Style.

The advantages of using reverse-tunneling:

- All datagrams from the mobile node seem to originate from its home network
- The FA can keep track of the HA that the mobile node is registered to and tunnel all datagrams from the mobile node to its HA

Use the no option of this command to disable reverse tunneling. If reverse tunneling is disabled, and the mobile node does not request it, then triangular routing is used.

The system defaults to reverse tunnel enabled.
If reverse tunneling is disabled on the system and an MN requests it, the call will be rejected with a reply code of 74H (reverse-tunneling unavailable).

**Examples**

The following command disables reverse-tunneling support for the FA service:

```
no reverse-tunnel
```
revocation

Enables the MIP revocation feature and configures revocation parameters.

**Product**
PDSN
ASN-GW
GGSN
PDIF

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context Configuration > FA Service Configuration

`configure > context context_name > fa-service service_name`

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-fa-service)#
```

**Syntax Description**

```
revocation { enable | max-retransmission number | negotiate-i-bit | retransmission-timeout secs | trigger internal-failure }
no revocation enable | trigger internal-failure | negotiate-i-bit

no
```

Completely disables registration revocation on the FA.
Disables sending revocation messages to the HA when a session is affected by an internal task failure.

```
enable
```

Enables the MIP registration revocation feature on the FA. When enabled, if revocation is negotiated with an HA, and a MIP binding is terminated, the FA can send a Revocation message to the HA. This feature is disabled by default.

```
max-retransmission number
```

Default: 3

Specifies the maximum number of retransmissions of a Revocation message before the revocation fails. `number` must be an integer from 0 through 10.
**negotiate-i-bit**
Default: disabled
Enables the FA to negotiate the i-bit via PRQ/RRP messages and processes the i-bit revocation messages.

**retransmission-timeout secs**
Default: 3
Specifies the number of seconds to wait for a Revocation Acknowledgement from the HA before retransmitting the Revocation message. *secs* must be an integer from 1 through 10.

**trigger internal-failure**
Default: disabled
Enable sending a revocation message to the HA for all sessions that are affected by an internal task failure.

**Usage Guidelines**
Use this command to enable or disable the MIP revocation feature on the FA or to change settings for this feature. Both the HA and the FA must have Registration Revocation enabled and FA/Ha authorization must be in use for Registration Revocation to be negotiated successfully.

**Examples**
The following command enables Registration Revocation on the FA:
```
revocation enable
```
The following command sets the maximum number of retries for a Revocation message to 6:
```
revocation max-retransmission 6
```
The following command sets the timeout between retransmissions to 10:
```
revocation retransmission-timeout 10
```
threshold reg-reply-error

Set an alarm or alert based on the number of registration reply errors per FA service.

**Product**

PDSN
ASN-GW
GGSN

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > FA Service Configuration

`configure > context context_name > fa-service service_name`

Entering the above command sequence results in the following prompt:

`(context_name)host_name(config-fa-service)#`

**Syntax Description**

`threshold reg-reply-error high_thresh | clear low_thresh | no threshold reg-reply-error`

`no`

Deletes the alert or alarm.

`high_thresh`

Default: 0

The high threshold number of registration reply errors that must be met or exceeded within the polling interval to generate an alert or alarm. `high_thresh` can be an integer from 0 through 100000.

---

**Important**

You must enter a value between 1 and 100000 to trigger an alert/alarm.

---

`clear low_thresh`

Default: 0

The low threshold number of registration reply errors that must be met or exceeded within the polling interval to clear an alert or alarm. `low_thresh` can be an integer from 0 through 100000.
Important This value is ignored for the Alert model. In addition, if this value is not configured for the Alarm model, the system assumes it is identical to the high threshold.

Important You must enter a value between 1 and 100000 to trigger an alert/alarm.

Usage Guidelines Use this command to set an alert or an alarm when the number of registration reply errors is equal to or greater than a specified number of calls per second.

Alerts or alarms are triggered for the number of registration reply errors on the following rules:
  - **Enter condition**: Actual number of registration reply errors > High Threshold
  - **Clear condition**: Actual number of registration reply errors £ Low Threshold

Examples The following command configures a registration reply error threshold of 1000 and a low threshold of 500 for a system using the Alarm thresholding model:

```
threshold reg-reply-error 1000 clear 500
```
FNG Service Configuration Mode Commands

The FNG Service Configuration Mode is used to configure the properties required for the Femto Network Gateway (FNG) to interface with the Femto Access Points (FAPs) in the network.

Command Modes

Exec > Global Configuration > Context Configuration > FNG Service Configuration

configure > context context_name > fng-service service_name

Entering the above command sequence results in the following prompt:

[context_name]host_name(config-fng-service)#

Important

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

- aaa aggregation, page 1650
- aaa authentication, page 1652
- bind, page 1653
- default, page 1655
- duplicate-session-detection, page 1657
- end, page 1658
- exit, page 1659
- ip source-violation, page 1660
- setup-timeout, page 1662
aaa aggregation

Sets the system attributes for A12 aggregation for the FNG service.

Product
FNG

Privilege
Security Administrator, Administrator

Command Modes
Exec > Global Configuration > Context Configuration > FNG Service Configuration
configure > context context_name > fng-service service_name

Syntax Description
aaa aggregation { interface type a12 | destination address ipv4_address | a12-group { context name | aaa-group name | aaa-group name | context name } }
no aaa aggregation interface type a12
no a12 destination address ipv4_address
no aaa aggregation a12-group { context name | aaa-group name | aaa-group name | context name }

aaa aggregation interface type a12
Enables A12 aggregation functionality for the FNG service.

aaa aggregation interface a12 destination address ipv4_address
Adds a destination address for an AN-AAA server for A12 aggregation. A maximum of ten destination addresses can be configured.

aaa aggregation a12-group { context name | aaa-group name | aaa-group name | context name }
Defines the AAA context and AAA group to be used for A12 aggregation.
If the context name and AAA group are not specified, the FNG defaults to the FNG service context and the default AAA group in that context. If the AAA group is specified but the context is not specified, the FNG uses the FNG service context and the AAA group in that context. If the AAA group is not specified and the context is specified, the FNG uses the default AAA group in that context.

no aaa aggregation interface type a12
Disables A12 aggregation functionality for the FNG service.
no aaa aggregation a12-destination address ipv4_address
Deleting the specified destination address for an AN-AAA server.

no aaa aggregation a12-group { context name | aaa-group name | aaa-group [ context name ] }
Deleting the specified AAA context and AAA group to be used for A12 aggregation.

Usage Guidelines
Sets the system attributes for AAA aggregation in the FNG service.

Examples
The following command enables the A12 functionality for the FNG service:
aggregation interface type a12
aaa authentication

Specifies the AAA group to use for FAP authentication.

Product
FNG

Privilege
Security Administrator, Administrator

Syntax Description

**aaa authentication** { context-name name aaa-group name | context-name name aaa-group name }

no aaa authentication

Removes any existing authentication configuration.

context-name name aaa-group name

Specifies the context name and the AAA group name configured in the context for FAP authentication.

context-name name: Specifies the context where the AAA server group is defined as an alphanumeric string of 1 through 79 characters.

aaa-group name: Specifies the name of the AAA group to be used for authentication as an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to specify that during IPSec session establishment using IKEv2 setup, the FNG will use Radius AAA for FAP authentication.

Examples

Use the following to configure device authentication for an AAA group named *aaa-10* in the FNG context named *fng1*:

```plaintext
aaa authentication context-name fng1 aaa-group aaa-10
```
**bind**

Binds the FNG service IP address to a crypto template and specifies the maximum number of sessions the FNG service supports.

**Product**
FNG

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context Configuration > FNG Service Configuration

`configure > context context_name > fng-service service_name`

Entering the above command sequence results in the following prompt:

```
<context_name> host_name (config-fng-service)#
```

**Syntax Description**

```
bind address ipv4_address { crypto-template string } [ max-sessions number ]
no bind
```

- **no bind**
  Removes a previously configured binding.

- **address ipv4_address**
  Specifies the IPv4 address of the FNG service.

- **crypto-template string**
  Specifies the name of the crypto template to be bound to the FNG service.
  `string` is any value from 0 - 127 alpha and/or numeric characters.

- **max-sessions number**
  Specifies the maximum number of sessions to be supported by the FNG service as an integer from 0 through 1000000. Default: 1000000

  If the max-sessions value is changed on an existing system, the new value takes effect immediately if it is higher than the current value. If the new value is lower than the current value, existing sessions remain established, but no new sessions are permitted until usage falls below the newly-configured value.
**Usage Guidelines**  
Binds the IP address used as the connection point for establishing the IKEv2 sessions to a crypto template. It can also define the maximum number of sessions the FNG can support.

**Examples**  
The following command binds an FNG service with an IP address of 10.2.3.4 to the crypto template named T1 and sets the maximum number of sessions to 500000:

```
bind address 10.2.3.4 crypto-template T1 max-sessions 500000
```
default

Sets or restores the default condition for the selected parameter.

Product
FNG

Privilege
Security Administrator, Administrator

Command Modes
Exec > Global Configuration > Context Configuration > FNG Service Configuration

configure > context context_name > fng-service service_name

Entering the above command sequence results in the following prompt:

[context_name]host_name(config-fng-service)#

Syntax Description
default { { aaa attribute 3gpp2-service-option } | duplicate-session-detection | ip source-violation { drop-limit | period } | setup-timeout | subscriber name }

aaa attribute 3gpp2-service-option
Sets or restores the default value of 4095.

duplicate-session-detection
Sets or restores the default option for duplicate session detection to be fapid-based.

ip source-violation ( drop-limit | period )
Sets or restores the IP source violation detection defaults, as follows:

drop-limit: Sets or restores the maximum number of IP source violations within the detection period before dropping the call to the default value of 10.

period: Sets or restores the detection period for IP source violations to the default value of 120 seconds.

setup-timeout
Sets or restores the maximum time allowed for session setup to the default value of 60 seconds.

subscriber name
Sets or restores the name of the default subscriber.

name is a string of 1-127 characters.
username mac-address-stripping

The default behavior is to disable stripping the MAC address from the username.

Usage Guidelines

Configures the default settings for a given parameter.

Examples

Use the following command to set the maximum time allowed for session setup to the default value of 60 seconds:

default setup-timeout
duplicate-session-detection

Configures the FNG to detect duplicate call sessions based on Femtocell Access Point (FAP) ID and to clear old call information.

This feature is disabled by default.

**Product**
FNG

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > Global Configuration > Context Configuration > FNG Service Configuration

configure > context context_name > fng-service service_name

Entering the above command sequence results in the following prompt:

[context_name]host_name(config-fng-service)#

**Syntax Description**

duplicate-session-detection { fapid-based }

no duplicate-session-detection

default duplicate-session-detection

fapid-based

Sets the FNG to detect duplicate call sessions based on the FAP ID.

**Usage Guidelines**

By default, duplicate session detection is disabled. Use this command to enable this feature. It applies only to calls established after the feature has been enabled.

The following command enables duplicate session detection based on FAP ID:

duplicate-session-detection fapid-based
end

Exits the current configuration mode and returns to the Exec mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

end

Usage Guidelines

Use this command to return to the Exec mode.
**exit**

Exits the current mode and returns to the parent configuration mode.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Syntax Description**
exit

**Usage Guidelines**
Use this command to return to the parent configuration mode.
ip source-violation

Sets the parameters for IP source validation. Source validation is useful if packet spoofing is suspected or for verifying packet routing and labeling within the network.

Source validation requires the source address of received packets to match the IP address assigned to the subscriber (either statically or dynamically) during the session.

Product FNG

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context Configuration > FNG Service Configuration

configure > context context_name > fng-service service_name

Entering the above command sequence results in the following prompt:

{context_name}host_name(config-fng-service)#

Syntax Description ip source-violation { clear-on-valid-packet | drop-limit num | period secs }

no ip source-violation clear-on-valid-packet

clear-on-valid-packet

Configures the service to reset the drop-limit counters upon receipt of a properly addressed packet. Default: disabled

drop-limit num

Sets the maximum number of allowed IP source violations within the detection period before dropping a call as an integer from 1 through 1000000. Default: 10

period secs

Sets the detection period (in seconds) for IP source violations as an integer from 1 through 1000000. Default: 120

Usage Guidelines This function allows the operator to configure the network to prevent problems such as when a user gets handed back and forth between two gateways a number of times during a handoff scenario.

When a subscriber packet is received with a source IP address violation, the system increments the IP source violation drop-limit counter and starts the timer for the IP source violation period. Every subsequent packet...
received with a bad source address during the IP source violation period causes the drop-limit counter to increment.

For example, if the drop-limit is set to 10, after 10 source violations, the call is dropped. The detection period timer continues to count throughout this process.

**Examples**

The following command sets the drop limit to 15 and leaves the other values at their default values:

```
ip source-violation drop-limit 15
```
setup-timeout

Specifies the maximum time allowed to set up a session in seconds.

**Product**

FNG

**Privilege**

Security-Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > FNG Service Configuration

```bash
configure > context context_name > fng-service service_name
```

Entering the above command sequence results in the following prompt:

```
<context_name>host_name>(config-fng-service)#
```

**Syntax Description**

- `setup-timeout integer`
- `default setup-timeout`

`setup-timeout integer`

Sets the session setup timer (in seconds) as an integer from 2 through 300. Default: 60

`default`

Sets or restores the default session setup timer value to 60 seconds.

**Usage Guidelines**

The FNG clears both the user session and tunnels if a call does not initiate successfully before the session setup timer expires.

**Examples**

The following command sets the session setup timeout value to the default value of 60 seconds:

```
default setup-timeout
```
FTP Configuration Mode Commands

The FTP Configuration Mode is used to manage the FTP server options for the current context.

**Command Modes**

Exec > Global Configuration > Context Configuration > FTP Configuration

`configure > context context_name > server ftpd`

Entering the above command sequence results in the following prompt:

```
[local] host_name(config-ftpdp) #
```

**Important**

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

**Caution**

For maximum system security, you should **not** enable FTP functionality. SFTP is the recommended file transfer protocol.

- `end`, page 1664
- `exit`, page 1665
- `max servers`, page 1666
- `timeout`, page 1667
end

Exits the current configuration mode and returns to the Exec mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

end

Usage Guidelines

Use this command to return to the Exec mode.
exit

Exits the current mode and returns to the parent configuration mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

exit

Usage Guidelines

Use this command to return to the parent configuration mode.
max servers

Configures the maximum number of FTP servers that can be started within any 60 second interval. If this limit is reached, the system waits two minutes before trying to start any more servers.

Product

All

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > FTP Configuration
configure > context context_name > server ftpd

Entering the above command sequence results in the following prompt:

[local]host_name(config-ftpdp)#

Syntax Description

max servers count

count

Default: 40

Specifies the maximum number of servers that can be spawned in any 60-second interval. count must be an integer from 1 through 100.

Usage Guidelines

Set the number of servers to tune the system response as a heavily loaded system may need more servers to support the incoming requests.

The converse would be true as well in that a system can benefit by reducing the number of servers such that FTP services do not cause excessive system impact to other services.

Examples

max servers 50
**timeout**

Configures the client idle timeout before an FTP session is automatically closed.

**Product**

All

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > Global Configuration > Context Configuration > FTP Configuration

`configure > context context_name > server ftpd`

Entering the above command sequence results in the following prompt:

```
[local] host_name (config-ftpdl) #
```

**Syntax Description**

`timeout seconds`

- **seconds**
  
  Default: 900

  Specifies the number of seconds of inactivity before an FTP session is automatically closed. `seconds` must be an integer from 10 through 86400.

**Usage Guidelines**

Adjust the session timeout to fine tune the system. FTP session resources can be released sooner to support additional requests by adjusting the timeout to a smaller value.

**Examples**

```
timeout 300
```
timeout
Firewall-and-NAT Action Configuration Mode

Command Modes

The Firewall-and-NAT Action Configuration Mode enables configuring Stateful Firewall (FW) and Network Address Translation (NAT) actions.

```
Exec > ACS Configuration > Firewall-and-NAT Action Configuration
active-charging service service_name > fw-and-nat action action_name
```

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-action)#
```

**Important**

This configuration mode is only available in release 11.0 and later releases. This configuration mode must be used to configure Action-based Stateful Firewall and NAT features.

**Important**

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

- end, page 1670
- exit, page 1671
- flow check-point, page 1672
end

Exits the current configuration mode and returns to the Exec mode.

Product
All

Privilege
Security Administrator, Administrator

Syntax Description
end

Usage Guidelines
Use this command to return to the Exec mode.
exit

Exits the current mode and returns to the parent configuration mode.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Syntax Description**
exit

**Usage Guidelines**
Use this command to return to the parent configuration mode.
flow check-point

This command checkpoints all the flows matching the Firewall-and NAT action.

Product
NAT

Privilege
Security Administrator, Administrator

Command Modes
Exec > ACS Configuration > Firewall-and-NAT Action Configuration
active-charging service service_name > fw-and-nat action action_name

Entering the above command sequence results in the following prompt:
[local]host_name(config-fw-and-nat-action)#

Syntax Description
flow check-point | data-usage data_usage [ and | or ] | time-duration duration [ and | or ] |
{ default | no } flow check-point

default
Configures the default Firewall action.

no
Deletes the Firewall action configuration.

data-usage data_usage
Specifies the data usage in bytes.
data_usage must be an integer from 1 through 4294967295.
The maximum limit for data-usage is 4 GB.

time-duration duration
Specifies the time duration in seconds.
duration must be an integer from 1 through 86400.
The maximum limit for time-duration is 24 hours.

and | or
This option allows to configure only data-usage or time-duration, or a combination of data-usage and time-duration.
Usage Guidelines

Use this command to enable/disable the check-pointing of NATed flows and control the type of flows that need to be checkpointed based on specified criteria. Checkpointing is done only for TCP and UDP flows.

Examples

The following command checkpoints flows with data-usage set to 5000 bytes and time duration set to 300 seconds:

```
flow check-point data-usage 5000 and time-duration 300
```
flow check-point
Firewall-and-NAT Policy Configuration Mode

Commands

The Firewall-and-NAT Policy Configuration Mode enables configuring Stateful Firewall (FW) and Network Address Translation (NAT) policies.

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service service_name > fw-and-nat policy policy_name

Entering the above command sequence results in the following prompt:

[local]host_name(config-fw-and-nat-policy)#

This configuration mode is only available in 8.1, 9.0, and later releases. This configuration mode must be used to configure Policy-based Stateful Firewall and NAT features.

Important

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

- access-rule, page 1677
- end, page 1681
- exit, page 1682
- firewall dos-protection, page 1683
- firewall flooding, page 1687
- firewall icmp-checksum-error, page 1689
- firewall icmp-destination-unreachable-message-threshold, page 1690
- firewall icmp-echo-id-zero, page 1692
- firewall icmp-fsm, page 1693
- firewall ip-reassembly-failure, page 1694
- firewall malformed-packets, page 1695
- firewall max-ip-packet-size, page 1696
- firewall mime-flood, page 1698
- firewall policy, page 1700
- firewall tcp-checksum-error, page 1702
- firewall tcp-first-packet-non-syn, page 1703
- firewall tcp-fsm, page 1704
- firewall tcp-idle-timeout-action, page 1706
- firewall tcp-options-error, page 1708
- firewall tcp-partial-connection-timeout, page 1709
- firewall tcp-reset-message-threshold, page 1710
- firewall tcp-syn-flood-intercept, page 1712
- firewall tcp-syn-with-ecn-cwr, page 1714
- firewall udp-checksum-error, page 1715
- firewall validate-ip-options, page 1716
- nat binding-record, page 1717
- nat check-point-info, page 1719
- nat icsr-flow-recovery, page 1721
- nat pkts-drop, page 1722
- nat policy, page 1724
- nat private-ip-flow-timeout, page 1726
- nat suppress-aaa-update, page 1728
access-rule

This command creates and configures an access rule.

**Product**
- PSF
- NAT
- SaMOG

**Privilege**
- Security Administrator, Administrator

**Command Modes**
- Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

```
active-charging service service_name > fw-and-nat policy policy_name
```

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

**Syntax Description**

```
access-rule { no-ruledef-matches { downlink | uplink } action { deny | charging-action charging_action | permit | bypass-nat | nat-realm nat_realm | fw-and-nat-action name | priority priority | dynamic-only | static-and-dynamic | access-rule defined_name { deny | charging-action charging_action | permit | bypass-nat | nat-realm nat_realm | fw-and-nat-action name | trigger open-port { port_number | range start_port to end_port } direction { both | reverse | same } | priority priority | default access-rule no-ruledef-matches { downlink | uplink } action | no access-rule priority priority
```

**default**
Confirms the default setting.
Default: Uplink direction: **permit**; Downlink direction: **deny**

**no**
Removes the access rule specified by the priority.

**no-ruledef-matches**
Confirms action on packets with no ruledef match.

**downlink**
Specifies to act on downlink packets with no ruledef match.
uplink
Specifies to act on uplink packets with no ruledef match.

action
Specifies action to take on downlink/uplink packets with no ruledef match.

deny
Specifies to deny packets.

permit
Specifies to permit packets and allow the creation of data flows.

charging-action charging_action
Specifies the charging action. Optionally, a charging action can be configured for deny action. If a packet matches the deny rule, action is taken as configured in the charging action. If a charging action is specified, the content-ID and billing-action configured in the charging action are used. Also, the flow may be terminated (instead of just discarding the packet), if so configured in the specified charging action.

charging_action must be an alphanumeric string of 1 through 63 characters.

bypass-nat

Important  In 9.0 and later releases, this keyword is NAT license dependent.

Specifies to bypass NAT.

nat-realm nat_realm

Important  In 9.0 and later releases, this keyword is NAT license dependent.

Specifies the NAT realm to be used to perform NAT on subscriber packets matching the access ruledef. If the NAT realm is not specified, NAT will be bypassed. That is, NAT will not be performed on subscriber packets that are matching a ruledef with no NAT realm name configured in it.

nat_realm must be an alphanumeric string of 1 through 31 characters.

priority priority
Specifies priority of an access ruledef in the Firewall-and-NAT policy.

priority must be an integer from 1 through 65535 that is unique for each access ruledef in the Firewall-and-NAT policy.

[ dynamic-only | static-and-dynamic ] access-ruledef ruledef_name
Specifies the access ruledef name. Optionally, the ruledef type can also be specified.
• **dynamic-only**: Dynamic Ruledef—Predefined ruledef that can be enabled/disabled by the policy server, and is disabled by default.

• **static-and-dynamic**: Static and Dynamic Ruledef—Predefined ruledef that can be enabled/disabled by the policy server, and is enabled by default.

• **access-ruledef ruledef_name**: Specifies the access ruledef name. *ruledef_name* must be an alphanumeric string of 1 through 63 characters.

**trigger open-port** `{ port_number | range start_port to end_port } direction { both | reverse | same }

** Important **

In 9.0 and later releases, this keyword is Stateful Firewall license dependent.

Optionally a port trigger can be specified to be used for this rule to limit the range of auxiliary data connections (a single or range of port numbers) for protocols having control and data connections (like FTP). The trigger port will be the destination port of an association which matches a rule.

• **port_number**: Specifies the auxiliary port number to open for traffic, and must be an integer from 1 through 65535.

• **range start_port to end_port**: Specifies the range of port numbers to open for subscriber traffic.
  
  * **start_port**: must be an integer from 1 through 65535.
  
  * **end_port**: must be an integer from 1 through 65535, and must be greater than **start_port**.

• **direction { both | reverse | same }**: Specifies the direction from which the auxiliary connection is initiated. This direction can be same as the direction of control connection, or the reverse of the control connection direction, or in both directions.
  
  * **both**: Provides the trigger to open port for traffic in either direction of the control connection.
  
  * **reverse**: Provides the trigger to open port for traffic in the reverse direction of the control connection (from where the connection is initiated).
  
  * **same**: Provides the trigger to open port for traffic in the same direction of the control connection (from where the connection is initiated).

**Usage Guidelines**

Use this command to add access ruledefs to the Firewall-and-NAT policy and configure the priority and actions for rule matching.

The policy specifies the rules to be applied on calls. The ruledefs in the policy have priorities, based on which priority matching is done.

For Stateful Firewall, the port trigger configuration is optional, and can be configured only if a rule action is permit. When a rule is matched and the rule action is permit, if the trigger is configured, the appropriate check is made. The trigger port will be the destination port of an association that matches the rule. Multiple triggers can be defined for the same port number to permit multiple auxiliary ports for subscriber traffic.

When a rule is matched and if the rule action is deny, the action taken depends on what is configured in the specified charging action. If the flow exists, flow statistics are updated and action is taken as configured in the charging action.
• If the billing action is configured as Event Data Record (EDR) enabled, an EDR is generated.
• If the content ID is configured, UDR information is updated.
• If the flow action is configured as "terminate-flow", the flow is terminated instead of just discarding the packet.

If the billing action, content ID, and flow action are not configured, no action is taken on the dropped packets.

<table>
<thead>
<tr>
<th>Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>For Stateful Firewall, only the terminate-flow action is applicable if configured in the specified charging action.</td>
</tr>
</tbody>
</table>

Allowing/dropping of packets is determined in the following sequence:
• Check is done to see if the packet matches any pinholes. If yes, no rule matching is done and the packet is allowed.
• Access ruledef matching is done. If a rule matches, the packet is allowed or dropped as per the access-rule priority configuration.
• If no access ruledef matches, the packet is allowed or dropped as per the access-rule no-ruledef-matches configuration.

For a packet dropped due to access ruledef match or no match (first packet of a flow), the charging action applied is the one configured in the access-rule priority or the access-rule no-ruledef-matches command respectively.

For action on packets dropped due to any error condition after data session is created, the charging action must be configured in the flow any-error charging-action command in the ACS Rulebase Configuration Mode.

The GGSN can dynamically activate or deactivate dynamic ruledefs for a subscriber based on the rule name received from a policy server. At rule match, if a rule in the policy is a dynamic rule, and if the rule is enabled for the particular subscriber, rule matching is done for the rule. If the rule is disabled for the particular subscriber, rule matching is not done for the rule.

<table>
<thead>
<tr>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>For Stateful Firewall, the following command assigns a priority of 10 to the access ruledef test_rule, adds it to the policy, and permits port trigger to be used for the rule to open ports in the range of 1000 to 2000 in either direction of the control connection: access-rule priority 1 access-ruledef test_rule permit trigger open-port range 1000 to 2000 direction both</td>
</tr>
</tbody>
</table>
**end**

Exits the current configuration mode and returns to the Exec mode.

**Product**
All

**Privilege**
Security Administrator, Administrator

**Syntax Description**
end

**Usage Guidelines**
Use this command to return to the Exec mode.
### exit

Exitsthecurrentmodeandreturns totheparent configuration mode.

<table>
<thead>
<tr>
<th>Product</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Privilege</td>
<td>Security Administrator, Administrator</td>
</tr>
</tbody>
</table>

**Syntax Description**

```
exit
```

**Usage Guidelines**

Use this command to return to the parent configuration mode.
**firewall dos-protection**

This command configures Stateful Firewall protection for subscribers from Denial-of-Service (DoS) attacks.

---

**Important**

In release 8.0, this configuration is available in the ACS Configuration Mode. In release 8.1, for Rulebase-based Stateful Firewall configuration, this configuration is available in the ACS Rulebase Configuration Mode. In release 8.3, this configuration is available in the ACS Rulebase Configuration Mode.

---

**Product**

PSF

**Privilege**

Security Administrator, Administrator

**Command Modes**

`Exec > ACS Configuration > Firewall-and-NAT Policy Configuration`

`active-charging service service_name > fw-and-nat policy policy_name`

Entering the above command sequence results in the following prompt:

```
[local] host_name (config-fw-and-nat-policy) #
```

**Syntax Description**

```
[ no ] firewall dos-protection { all | flooding { icmp | tcp-syn | udp } | ftp-bounce | ip-sweep { icmp | tcp-syn | udp } | ip-unaligned-timestamp | ipv6-dst-options { invalid-options | unknown-options } | ipv6-extension-hdrs { limit extension_limit | ipv6-frag-hdr nested-fragmentation | ipv6-hop-by-hop { invalid-options | jumbo-payload | router-alert | unknown-options } | mime-flood | port-scan | source-router | tcp-window-containment | teardrop | winnuke } default firewall dos-protection
```

- **no**
  
  Disables Stateful Firewall protection for subscribers against the specified Denial of Service (DoS) attack(s).

- **default**
  
  Disables Stateful Firewall protection for subscribers against all DoS attacks.

- **all**
  
  Enables Stateful Firewall protection for subscribers against all DoS attacks supported by the Stateful Firewall service.

  The IPv6 extension headers will be enabled only if the **firewall validate-ip-options** command is enabled in the Firewall-and-NAT policy configuration.
flooding \{ icmp | tcp-syn | udp \}

Enables protection against the specified flooding attack:

- **icmp**: Enables protection against ICMP Flood attack.
- **tcp-syn**: Enables protection against TCP Syn Flood attack.
- **udp**: Enables protection against UDP Flood attack.

**ftp-bounce**

Enables protection against FTP Bounce attacks.

ip-sweep \{ icmp | tcp-syn | udp \}

Enables protection against IP Sweep attacks in the downlink direction.

- **icmp**: Enables protection against ICMP IP Sweep attack.
- **tcp-syn**: Enables protection against TCP Syn IP Sweep attack.
- **udp**: Enables protection against UDP IP Sweep attack.

IP Sweep attacks are also detected in the uplink direction. The **firewall dos-protection ip-sweep** command must be configured in the ACS Configuration mode. The configuration values for packet limit and sampling interval are common for both uplink and downlink.

**ip-unaligned-timestamp**

Enables protection against IP Unaligned Timestamp attacks.

**ipv6-dst-options** \{ invalid-options | unknown-options \}

Drops IPv6 packets containing the IPv6 destination options header.

The following options are specified in the Destination Options extension header:

- The Tunnel Encapsulation Limit (option type: 0x04) is a destination option defined in RFC 2473.
- The Home Address option (option type: 0xC9) is part of Mobile IP processing defined in RFC 3775. This option is only valid as a Destination Option.
- The NSAP Address option (option type: 0xC3) is assigned as a Destination Option by RFC 1888 and deprecated (reclassified as historic) by RFC 4048.

- **invalid-options**: Drops IPv6 packets containing invalid IPv6 destination options.

The following values are invalid in a Destination Options extension header option type field. Packets with these options in a Destination Options header will be dropped.

- Value 0xC2, Jumbo Payload
- Value 0x05, Router Alert
- Value 0x06, Quick start
- Value 0x07, CALIPSO
• **unknown-options**: Drops IPv6 packets containing unknown IPv6 destination options.

**ipv6-extension-hdrs [ limit extension_limit ]**

Default: 8

Limits the number of IPv6 extension headers in an IPv6 packet. An IPv6 packet can contain zero or more extension headers.

Firewall will not fully parse packets with unknown extension headers as the extension header format is unspecified. Under such cases, the transport protocol will be considered as unknown. Packets with invalid length field in the extension headers and packets with next header 0x01 (ICMPv4) will be dropped. IPv6 uses ICMPv6 of type 0x3A.

`extension_limit` must be an integer from 0 through 4294967295.

**ipv6-frag-hdr nested-fragmentation**

Drops IPv6 packets containing nested fragmentation (reassembled packets containing a fragment header).

IPv6 fragmentation is done only by the source node. An IPv6 fragment packet must have only one fragment header. Firewall will drop packets with more than one fragment header. The Reassembled packet containing a fragment header will be dropped by Firewall. As per RFC 2460, the fragment length (except for last fragment) must be a multiple of 8 octets. If not, such fragments are dropped.

**ipv6-hop-by-hop [ invalid-options | jumbo-payload | router-alert | unknown-options ]**

Drops IPv6 packets containing the hop-by-hop extension header.

The Hop-by-Hop Options extension header, if present, must be the first header to follow the IPv6 main header. This is indicated by a value of 0x00 in the next header field in the main header. The length must be expressed as a multiple of 8 octets (excluding the first 8 octets). If not, such packets will be dropped.

• **invalid-options**: Drops IPv6 packets containing invalid IPv6 hop-by-hop options.

The following values are invalid in a Hop-by-Hop extension header option type field. Packets with these options in a hop-by-hop header will be dropped.

  - Value 0x04, Tunnel Encapsulation limit
  - Value 0xC9, Home Address Destination option
  - Value 0xC3, NSAP Address option

The options are present in TLV (Type Length Value) format. If the length specified is invalid, then such packets will be dropped.

• **jumbo-payload**: Drops IPv6 packets with jumbo payload hop-by-hop options.

The Jumbo Payload option (RFC 2675) has the option type value 0xC2 and is only valid as a Hop-by-Hop option. This option allows the creation of very large IP packets (packets larger than 65K bytes). If this option is allowed, the following validity checks will be done.

  - The IP payload length must be 0x00 when the Jumbo Payload option is present.
  - The Jumbo Payload option must be used only when the length is greater than 65,535; the two most significant bytes of the Jumbo length cannot be 0x00.
  - The Jumbo Payload option cannot be used in conjunction with a Fragmentation extension header.
If any of the above checks fail, then the IPv6 packet will be dropped. The Option Type field must have 4n+2 alignment.

- **router-alert**: Drops IPv6 packets with router alert hop-by-hop options.
  
  The Router Alert (RFC 2711) option is used to signal the routers that a closer inspection of the packet is warranted. Denial of service (DoS) attacks can occur if an attacker sends large number of packets with this option. Only one option of this type must be present, regardless of value, per Hop-by-Hop header with 2n + 0 alignment.

- **unknown-options**: Drops IPv6 packets containing unknown IPv6 hop-by-hop options.

**mime-flood**

Enables protection against HTTP Multiple Internet Mail Extension (MIME) header flooding attacks.

**port-scan**

Enables protection against Port Scan attacks.

**tcp-window-containment**

Enables protection against TCP sequence number out-of-range attacks.

**source-router**

Enables protection against IPv4/IPv6 Source Route IP Option attacks.

This command can be used to filter IPv4/IPv6 packets containing Routing header of Type 0 (source routing). In this release, only type 0 filtering is supported.

**teardrop**

Enables protection against IPv4/IPv6 Teardrop attacks.

**winnuke**

Enables protection against WIN-NUKE attacks.

**Usage Guidelines**

Use this command to enable Stateful Firewall protection from different types of DoS attacks. This command can be used multiple times for different DoS attacks.

**Important**

DoS attacks are detected only in the downlink direction.

**Examples**

The following command enables protection from all supported DoS attacks:

```
firewall dos-protection all
```
**firewall flooding**

This command configures Stateful Firewall protection from Packet Flooding attacks.

---

**Important**

In release 8.0, this configuration is available in the ACS Configuration Mode. In release 8.1, for Rulebase-based Stateful Firewall configuration, this configuration is available in the ACS Rulebase Configuration Mode. In release 8.3, this configuration is available in the ACS Rulebase Configuration Mode.

---

**Product**

PSF

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service service_name > fw-and-nat policy policy_name

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

**Syntax Description**

```
firewall flooding { protocol { icmp | tcp-syn | udp } packet limit packets | sampling-interval interval } 
default firewall flooding { protocol { icmp | tcp-syn | udp } packet limit | sampling-interval }
```

**default**

Configures the default setting for the specified configuration.

**protocol { icmp | tcp-syn | udp }**

Specifies the transport protocol:

- **icmp**: Configuration for ICMP protocol.
- **tcp-syn**: Configuration for TCP-SYN packet limit.
- **udp**: Configuration for UDP protocol.

**packet limit packets**

Specifies the maximum number of specified packets a subscriber can receive during a sampling interval. `packets` must be an integer from 1 through 4294967295.
Default: 1000 packets per sampling interval for all protocols.

**sampling-interval interval**

Specifies the flooding sampling interval, in seconds.

*interval* must be an integer from 1 through 60.

Default: 1 second

The maximum sampling-interval configurable is 60 seconds.

**Usage Guidelines**

Use this command to configure the maximum number of ICMP, TCP-SYN, / UDP packets allowed to prevent the packet flooding attacks to the host.

**Examples**

The following command ensures a subscriber will not receive more than 1000 ICMP packets per sampling interval:

```
fusewall flooding protocol icmp packet limit 1000
```

The following command ensures a subscriber will not receive more than 1000 UDP packets per sampling interval on different 5-tuples. That is, if an attacker is sending lot of UDP packets on different ports or using different spoofed IP addresses, those packets will be limited to 1000 packets per sampling interval. This way only "suspected" malicious packets are limited and not "legitimate" packets.

```
fusewall flooding protocol udp packet limit 1000
```

The following command ensures a subscriber will not receive more than 1000 TCP-Syn packets per sampling interval:

```
fusewall flooding protocol tcp-syn packet limit 1000
```

The following command specifies a flooding sampling interval of 1 second:

```
fusewall flooding sampling-interval 1
```
firewall icmp-checksum-error

This command configures Stateful Firewall action on packets with ICMP/ICMPv6 Checksum errors.

**Product**
PSF

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

**Syntax Description**
```
firewall icmp-checksum-error { drop | permit }
default firewall icmp-checksum-error
```

- **default**
  Configures the default setting.
  Default: drop

- **drop**
  Drops packets with ICMP/ICMPv6 Checksum errors.

- **permit**
  Permits packets with ICMP/ICMPv6 Checksum errors.

**Usage Guidelines**
Use this command to configure Stateful Firewall action on packets with ICMP/ICMPv6 Checksum errors.
This command also applies to ICMP/ICMPv6 packets with Inner IP Checksum error.
For NAT-only calls, packets with ICMP/ICMPv6 errors are dropped, and other packets are allowed.

**Examples**
The following command configures Stateful Firewall to drop packets with ICMP/ICMPv6 Checksum errors:
```
firewall icmp-checksum-error drop
```
firewall icmp-destination-unreachable-message-threshold

This command configures a threshold on the number of ICMP/ICMPv6 error messages sent by the subscriber for a particular data flow.

Important

In release 8.0, this configuration is available in the ACS Configuration Mode. In release 8.1, for Rulebase-based Stateful Firewall configuration, this configuration is available in the ACS Rulebase Configuration Mode. In release 8.3, this configuration is available in the ACS Rulebase Configuration Mode.

Product  PSF

Privilege  Security Administrator, Administrator

Command Modes  Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service service_name > fw-and-nat policy policy_name

Entering the above command sequence results in the following prompt:

[local]host_name(config-fw-and-nat-policy)#

Syntax Description

firewall icmp-destination-unreachable-message-threshold messages then-block-server

{ default | no } firewall icmp-destination-unreachable-message-threshold

default

Configures the default setting.

Default: No limit

no

Removes the previous configuration.

messages

Specifies the threshold on the number of ICMP/ICMPv6 error messages sent by the subscriber for a particular data flow. messages must be an integer from 1 through 100.
Usage Guidelines

Use this command to configure a threshold on the number of ICMP/ICMPv6 error messages sent by the subscriber for a particular data flow. After the threshold is reached, it is assumed that the server is not reacting properly to the error messages, and further downlink traffic to the subscriber on the unwanted flow is blocked.

Some servers that run QChat ignore the ICMP/ICMPv6 error messages (Destination Port Unreachable and Host Unreachable) from the mobiles. So the mobiles continue to receive unwanted UDP traffic from the QChat servers, and their batteries get exhausted quickly.

Examples

The following command configures a threshold of 10 ICMP/ICMPv6 error messages:

```
firewall icmp-destination-unreachable-message-threshold 10 then-block-server
```
**firewall icmp-echo-id-zero**

This command configures Stateful Firewall action on echo packets with ICMP/ICMPv6 ID zero.

**Product**
PSF

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > ACS Configuration > Firewall-and-NAT Policy Configuration
active-charging service service_name > fw-and-nat policy policy_name

Entering the above command sequence results in the following prompt:

[local]host_name(config-fw-and-nat-policy)#

**Syntax Description**

```
firewall icmp-echo-id-zero { drop | permit }
default firewall icmp-echo-id-zero
```

**default**
Configures the default setting.
Default: **permit**

**drop**
Drops packets with ICMP/ICMPv6 ID zero.

**permit**
Permits packets with ICMP/ICMPv6 ID zero.

**Usage Guidelines**
Use this command to configure Stateful Firewall action on echo packets with ICMP/ICMPv6 ID zero.

**Examples**
The following command configures Stateful Firewall to drop packets with ICMP/ICMPv6 ID zero:

```
firewall icmp-echo-id-zero drop
```
**firewall icmp-fsm**

This command enables/disables Stateful Firewall's ICMP/ICMPv6 Finite State Machine (FSM).

**Product**

PSF

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

`active-charging service service_name > fw-and-nat policy policy_name`

Entering the above command sequence results in the following prompt:

```
[local] host_name(config-fw-and-nat-policy)#
```

**Syntax Description**

```
[ default | no ] firewall icmp-fsm
```

- **default**
  
  Configures the default setting.
  
  Default: Enabled. Same as `firewall icmp-fsm`.

- **no**
  
  Disables Stateful Firewall ICMP/ICMPv6 FSM checks.

**Usage Guidelines**

Use this command to enable/disable Stateful Firewall ICMP/ICMPv6 FSM checks. When Stateful Firewall and ICMP/ICMPv6 FSM are enabled, ICMP/ICMPv6 reply messages for which there is no saved ICMP/ICMPv6 request message are discarded. ICMP/ICMPv6 error messages (i.e., messages containing an embedded message) for which there is no saved flow for the embedded message are discarded.

**Examples**

The following command disables Stateful Firewall's ICMP/ICMPv6 FSM checks:

```
no firewall icmp-fsm
```
firewall ip-reassembly-failure

This command configures Stateful Firewall action on IPv4/IPv6 packets involved in IP Reassembly Failure scenarios.

**Product**

PSF

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

*active-charging service service_name > fw-and-nat policy policy_name*

Entering the above command sequence results in the following prompt:

```
[local] host_name(config-fw-and-nat-policy)#
```

**Syntax Description**

`firewall ip-reassembly-failure { drop | permit }

default firewall ip-reassembly-failure`

- **default**
  
  Configures the default setting.
  
  Default: permit

- **drop**
  
  Drops IPv4/IPv6 packets involved in IP reassembly failure scenarios.

- **permit**
  
  Permits IPv4/IPv6 packets involved in IP reassembly failure scenarios.

**Usage Guidelines**

Use this command to configure Stateful Firewall action on IPv4/IPv6 packets involved in IP reassembly failure scenarios such as missing fragments, overlapping offset, etc.

For NAT-only calls, packets involved in IP reassembly failure scenarios are dropped.

**Examples**

The following command specifies to drop IPv4/IPv6 packets involved in IP reassembly failure scenarios:

```
f往返all ip-reassembly-failure drop
```
firewall malformed-packets

This command configures Stateful Firewall action on malformed packets. In release 12.0, this command supports ICMPv6 and IPv6 packets.

Product
PSF

Privilege
Security Administrator, Administrator

Command Modes
Exec > ACS Configuration > Firewall-and-NAT Policy Configuration
active-charging service service_name > fw-and-nat policy policy_name

Entering the above command sequence results in the following prompt:
[local] host_name (config-fw-and-nat-policy) #

Syntax Description
firewall malformed-packets { drop | permit } 
default firewall malformed-packets

default
Configures the default setting.
Default: permit

drop
Drops malformed packets.

permit
Permits malformed packets.

Usage Guidelines
Use this command to configure Stateful Firewall action on malformed packets.
For NAT-only calls, malformed packets are always permitted.

Examples
The following command specifies Stateful Firewall to drop malformed packets:
firewall malformed-packets drop
**firewall max-ip-packet-size**

This command configures the maximum IPv4/IPv6 packet size (after IP reassembly) allowed over Stateful Firewall.

---

**Important**

In release 8.0, this configuration is available in the ACS Configuration Mode. In release 8.1, for Rulebase-based Stateful Firewall configuration, this configuration is available in the ACS Rulebase Configuration Mode. In release 8.3, this configuration is available in the ACS Rulebase Configuration Mode.

---

**Product**

PSF

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

**Syntax Description**

```
firewall max-ip-packet-size packet_size protocol { icmp | non-icmp }
default firewall max-ip-packet-size protocol { icmp | non-icmp }
```

- **default**
  - Configures the default setting.
  - Default: 65535 bytes (for both ICMP/ICMPv6 and non-ICMP/ICMPv6)

  - **packet_size**
    - Specifies the maximum packet size allowed by firewall. Any IPv6 packet with payload size greater than the configured value will be dropped.
    - `packet_size` must be an integer from 30000 through 65535.

  - **protocol { icmp | non-icmp }**
    - Specifies the transport protocol:
      - **icmp**: Configuration for ICMP/ICMPv6 protocol.
- **non-icmp**: Configuration for protocols other than ICMP/ICMPv6.

**Usage Guidelines**

Use this command to configure the maximum IPv4/IPv6 packet size allowed for ICMP/ICMPv6 and non-ICMP/ICMPv6 packets to prevent packet flooding attacks to the host. Packets exceeding the configured size will be dropped for "Jolt" and "Ping-Of-Death" attacks.

**Examples**

The following command allows a maximum packet size of 60000 for ICMP/ICMPv6 protocol:

```
firewall max-ip-packet-size 60000 protocol icmp
```
firewall mime-flood

This command configures Stateful Firewall protection from MIME Flood attacks.

Important

In release 8.0, this configuration is available in the ACS Configuration Mode. In release 8.1, for Rulebase-based Stateful Firewall configuration, this configuration is available in the ACS Rulebase Configuration Mode. In release 8.3, this configuration is available in the ACS Rulebase Configuration Mode.

Product

PSF

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service service_name > fw-and-nat policy policy_name

Entering the above command sequence results in the following prompt:

[local] host_name(config-fw-and-nat-policy)#

Syntax Description

firewall mime-flood { http-headers-limit max_limit | max-http-header-field-size max_size }

default firewall mime-flood { http-headers-limit | max-http-header-field-size }

default

Configures the default setting for the specified parameter.

http-headers-limit max_limit

Specifies the maximum number of headers allowed in an HTTP packet. If the number of HTTP headers in a page received is more than the specified limit, the request will be denied.

max_limit must be an integer from 1 through 256.

Default: 16

max-http-header-field-size max_size

Specifies the maximum header field size allowed in the HTTP header, in bytes. If the size of HTTP header in the received page is more than the specified number of bytes, the request will be denied.

max_size must be an integer from 1 through 8192.
Default: 4096 bytes

Usage Guidelines

Use this command to configure the maximum number of headers allowed in an HTTP packet, and the maximum header field size allowed in the HTTP header to prevent MIME flooding attacks.

This command is only effective if Stateful Firewall DoS protection for MIME flood attacks has been enabled using the `firewall dos-protection mime-flood` command, and the `route` command has been configured to send HTTP packets to the HTTP analyzer.

Examples

The following command sets the maximum number of headers allowed in an HTTP packet to 100:
```
firwall mime-flood http-headers-limit 100
```

The following command sets the maximum header field size allowed in the HTTP header to 1000 bytes:
```
firwall mime-flood max-http-header-field-size 1000
```
firewall policy

This command enables/disables Stateful Firewall support in a Firewall-and-NAT policy.

In release 8.0, this configuration is available in the ACS Configuration Mode. In release 8.1, for Rulebase-based Stateful Firewall configuration, this configuration is available in the ACS Rulebase Configuration Mode. In release 8.3, this configuration is available in the ACS Rulebase Configuration Mode.

**Product**

PSF

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

`active-charging service service_name > fw-and-nat policy policy_name`

Entering the above command sequence results in the following prompt:

```
[local] host_name (config-fw-and-nat-policy) #
```

**Syntax Description**

In 11.0 and earlier releases:

- `firewall policy firewall-required`
- `no firewall policy`

In 12.0 and later releases:

- `firewall policy { ipv4-and-ipv6 | ipv4-only | ipv6-only }`
- `{ default | no } firewall policy`

`default`

Disables IPv4 and IPv6 Stateful Firewall support in the Firewall-and-NAT policy.

`no`

Disables IPv4 and IPv6 Stateful Firewall support in the Firewall-and-NAT policy.

`firewall-required`

Enables Stateful Firewall support in the Firewall-and-NAT policy.
**Important**

This keyword is available only in 11.0 and earlier releases.

**ipv4-and-ipv6**

Enables both IPv4 and IPv6 Stateful Firewall support in the Firewall-and-NAT policy.

**ipv4-only**

Enables IPv4 Stateful Firewall and disables IPv6 Stateful Firewall in the Firewall-and-NAT policy.

**ipv6-only**

Enables IPv6 Stateful Firewall and disables IPv4 Stateful Firewall support in the Firewall-and-NAT policy.

**Usage Guidelines**

Use this command to enable/disable IPv4 and/or IPv6 Stateful Firewall support for all subscribers using a Firewall-and-NAT policy.

**Examples**

The following command enables IPv4 and IPv6 Stateful Firewall support in a Firewall-and-NAT policy:

```
firewall policy ipv4-and-ipv6
```

The following command disables Stateful Firewall support in a Firewall-and-NAT policy:

```
no firewall policy
```
**firewall tcp-checksum-error**

This command configures Stateful Firewall action on packets with TCP Checksum error.

**Product**  
PSF

**Privilege**  
Security Administrator, Administrator

**Command Modes**  
Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

```
active-charging service service_name > fw-and-nat policy policy_name
```

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

**Syntax Description**

```
firewall tcp-checksum-error { drop | permit }
default firewall tcp-checksum-error
```

- **default**
  
  Configures the default setting.
  
  Default: **drop**

- **drop**
  
  Drops packets with TCP Checksum errors.

- **permit**
  
  Permits packets with TCP Checksum errors.

**Usage Guidelines**

Use this command to configure Stateful Firewall action on packets with TCP Checksum error.

For NAT-only calls, packets with TCP Checksum errors are permitted.

**Examples**

The following command specifies Stateful Firewall to drop packets with TCP Checksum errors:

```
firewall tcp-checksum-error drop
```
firewall tcp-first-packet-non-syn

This command configures Stateful Firewall action on TCP flows starting with a non-SYN packet.

Important

In release 9.0, this command is deprecated. This configuration is available as the firewall tcp-fsm | first-packet-non-syn { drop | permit | send-reset } | command.

Product

PSF

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service service_name > fw-and-nat policy policy_name

Entering the above command sequence results in the following prompt:

[local]host_name(config-fw-and-nat-policy)#

Syntax Description

firewall tcp-first-packet-non-syn { drop | reset }

default firewall tcp-first-packet-non-syn

default

Configures the default setting.

Default: drop

drop

Drops the non-SYN packet.

reset

Sends reset.

Usage Guidelines

Use this command to configure Stateful Firewall action on TCP flows starting with a non-SYN packet.

Examples

For flows starting with a non-SYN packet, the following command specifies Stateful Firewall to drop the non-SYN packet:

firewall tcp-first-packet-non-syn drop
**firewall tcp-fsm**

This command enables/disables Stateful Firewall's TCP Finite State Machine (FSM).

**Product**

PSF

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service service_name > fw-and-nat policy policy_name

Entering the above command sequence results in the following prompt:

[local]host_name(config-fw-and-nat-policy)#

**Syntax Description**

`firewall tcp-fsm [ first-packet-non-syn { drop | permit | send-reset } ] { default | no } firewall tcp-fsm`

- **default**
  - Configures the default setting.
  - Default: `drop`

- **no**
  - Disables Stateful Firewall's TCP FSM.

- **first-packet-non-syn { drop | permit | send-reset }**
  - Specifies Stateful Firewall action on TCP flows starting with a non-SYN packet:
    - **drop**: Specifies to drop the packet.
    - **permit**: Specifies to permit the packet.
    - **send-reset**: Specifies to drop the packet and send TCP RST.
  - Default: `drop`

**Usage Guidelines**

Use this command to enable/disable Stateful Firewall's TCP FSM checks. When Stateful Firewall and TCP FSM are enabled, state of the TCP session is checked to decide whether to forward TCP packets.
The following command enables TCP FSM, and configures action to take on TCP flows starting with a non-SYN packet to drop the packet:

```
firewall tcp-fsm first-packet-non-syn drop
```
firewall tcp-idle-timeout-action

This command configures action on TCP idle timeout expiry.

Important

In release 9.0 and later this command is also available to NAT.

Product

PSF
NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service service_name > fw-and-nat policy policy_name

Entering the above command sequence results in the following prompt:
[local]host_name(config-fw-and-nat-policy)#

Syntax Description

firewall tcp-idle-timeout-action { drop | reset }
{ default | no } firewall tcp-idle-timeout-action

default
Configures the default setting.
Default: reset

no
Configures the TCP idle timeout expiry action to reset.

drop
Drops the session on TCP idle timeout expiry.

reset
Resends TCP RST on TCP idle timeout expiry. When configured to reset, the session is dropped, and the system can avoid packets arriving for the idle flow from getting dropped.

Usage Guidelines

Use this command to configure action to take on TCP idle timeout expiry.
Examples

The following command configures action to take on TCP idle timeout expiry to drop:

```
firwall tcp-idle-timeout-action drop
```
**firewall tcp-options-error**

This command configures Stateful Firewall action on packets with TCP Option errors.

**Product**

PSF

**Privileges**

Security Administrator, Administrator

**Command Modes**

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

`active-charging service service_name > fw-and-nat policy policy_name`

Entering the above command sequence results in the following prompt:

```
[local] host_name(config-fw-and-nat-policy)#
```

**Syntax Description**

`firewall tcp-options-error { drop | permit }

default firewall tcp-options-error`

- **default**
  
  Configures the default setting.
  
  Default: **permit**

- **drop**
  
  Drops packets with TCP Option errors.

- **permit**
  
  Permits packets with TCP Option errors.

**Usage Guidelines**

Use this command to configure Stateful Firewall action on packets with TCP Option errors.

**Examples**

The following command configures Stateful Firewall to drop packets with TCP Option errors:

```
firewall tcp-options-error drop
```
firewall tcp-partial-connection-timeout

This command configures action on idle timeout for partially open TCP connections.

**Product**
PSF

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

```
active-charging service service_name > fw-and-nat policy policy_name
```

Entering the above command sequence results in the following prompt:

```
[local] host_name(config-fw-and-nat-policy)#
```

**Syntax Description**
```
firewall tcp-partial-connection-timeout timeout
{ default | no } firewall tcp-partial-connection-timeout
```

- **default**
  Configures the default setting.

- **no**
  Disables the idle timeout for partially open TCP connections.

- **timeout**
  Specifies the timeout in seconds.

  *timeout* must be an integer from 0 through 86400.

  Default: 30 seconds

**Usage Guidelines**
Use this command to configure idle timeout for TCP connections that are yet to be established (partially open) in the case of Firewall enabled calls.

**Examples**
The following command sets the idle timeout setting to 30 seconds:
```
firewall tcp-partial-connection-timeout 30
```
firewall tcp-reset-message-threshold

This command configures a threshold on the number of TCP reset messages sent by the subscriber for a particular data flow. After this threshold is reached, further downlink traffic to the subscriber on the unwanted flow is blocked.

Product  PSF

Privilege  Security Administrator, Administrator

Command Modes  Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service service_name > fw-and-nat policy policy_name

Entering the above command sequence results in the following prompt:

[local]host_name(config-fw-and-nat-policy)#

Syntax Description  

firewall tcp-reset-message-threshold messages then-block-server

{ default | no } firewall tcp-reset-message-threshold

default

Configures the default setting.
Default: Disabled

no

Disables the configuration.

messages

Specifies the threshold on the number of TCP reset messages sent by the subscriber for a particular data flow. messages must be an integer from 1 through 100.

Usage Guidelines  

Use this command to configure a threshold on the number of TCP reset messages (TCP RST+ACK) sent by the subscriber for a particular data flow. After the threshold is reached, assuming the server is not reacting properly to the reset messages further downlink traffic to the subscriber on the unwanted flow is blocked. This configuration enables QCHAT noise suppression for TCP.
Examples

The following command sets the threshold on the number of TCP reset messages to 10:

```
firwal tcp-reset-message-threshold 10 then-block-server
```
firewall tcp-syn-flood-intercept

This command configures TCP SYN intercept parameters for protection against TCP SYN flooding attacks.

**Important**
In release 8.0, this configuration is available in the ACS Configuration Mode. In release 8.1, for Rulebase-based Stateful Firewall configuration, this configuration is available in the ACS Rulebase Configuration Mode. In release 8.3, this configuration is available in the ACS Rulebase Configuration Mode.

**Product**
PSF

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

```
active-charging service service_name > fw-and-nat policy policy_name
```

Entering the above command sequence results in the following prompt:

```
[local] host_name(config-fw-and-nat-policy)#
```

**Syntax Description**
```
firewall tcp-syn-flood-intercept { mode { none | watch | aggressive ] } | watch-timeout
intercept watch_timeout }
default firewall tcp-syn-flood-intercept { mode | watch-timeout }
```

default
Configures the default settings for SYN Flood DoS protection.

```
mode { none | watch | aggressive ] }
```

Specifies the TCP SYN flood intercept mode:

- **none**: Disables the TCP SYN Flood Intercept feature.
- **watch**: Configures TCP SYN flood intercept feature in watch mode. The Stateful Firewall passively watches to see if TCP connections become established within a configurable interval. If connections are not established within the timeout period, the Stateful Firewall clears the half-open connections by sending RST to TCP client and server. The default watch-timeout for connection establishment is 30 seconds.
- **aggressive**: Configures TCP SYN flood Intercept or Watch feature for aggressive behavior. Each new connection request causes the oldest incomplete connection to be deleted. When operating in watch
mode, the watch timeout is reduced by half. If the watch-timeout is 30 seconds, under aggressive conditions it becomes 15 seconds. When operating in intercept mode, the retransmit timeout is reduced by half (i.e. if the timeout is 60 seconds, it is reduced to 30 seconds). Thus the amount of time waiting for connections to be established is reduced by half (i.e. it is reduced to 150 seconds from 300 seconds under aggressive conditions).

Default: none

watch-timeout intercept_watch_timeout

Specifies the TCP intercept watch timeout, in seconds.

intercept_watch_timeout must be an integer from 5 through 30.

Default: 30

Usage Guidelines

This TCP intercept functionality provides protection against TCP SYN Flooding attacks. This command enables and configures TCP intercept parameters to prevent TCP SYN flooding attacks by intercepting and validating TCP connection requests for DoS protection mechanism configured with the dos-protection command.

The system captures TCP SYN requests and responds with TCP SYN-ACKs. If a connection initiator completes the handshake with a TCP ACK, the TCP connection request is considered as valid by system and system forwards the initial TCP SYN to the valid target which triggers the target to send a TCP SYN-ACK. Now system intercepts with TCP SYN-ACK and sends the TCP ACK to complete the TCP handshake. Any TCP packet received before the handshake completion will be discarded.

Examples

The following command sets the intercept watch timeout setting to 15 seconds:

```
firewall tcp-syn-flood-intercept watch-timeout 15
```
firewall tcp-syn-with-ecn-cwr

This command configures Stateful Firewall action on TCP SYN packets with either ECN or CWR flag set.

Product
PSF

Privileges
Security Administrator, Administrator

Command Modes
Exec > ACS Configuration > Firewall-and-NAT Policy Configuration
active-charging service service_name > fw-and-nat policy policy_name

Entering the above command sequence results in the following prompt:
[local] host_name(config-fw-and-nat-policy)#

Syntax Description
firewall tcp-syn-with-ecn-cwr { drop | permit }
default firewall tcp-syn-with-ecn-cwr

default
Configures the default setting.
Default: permit

drop
Drops TCP SYN packets with either ECN or CWR flag set.

permit
Permits TCP SYN packets with either ECN or CWR flag set.

Usage Guidelines
Use this command to configure Stateful Firewall action on receiving a TCP SYN packet with either ECN or CWR flag set.

Examples
The following command configures Stateful Firewall to drop TCP SYN packets with ECN / CWR flag set:
firewall tcp-syn-with-ecn-cwr drop
**firewall udp-checksum-error**

This command configures Stateful Firewall action on packets with UDP Checksum error.

**Product**

PSF

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

`active-charging service service_name > fw-and-nat policy policy_name`

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

**Syntax Description**

`firewall udp-checksum-error { drop | permit }

default firewall udp-checksum-error`

- **default**
  
  Configures the default setting.
  
  Default: `drop`

- **drop**
  
  Drops packets with UDP Checksum error.

- **permit**
  
  Permits packets with UDP Checksum error.

**Usage Guidelines**

Use this command to configure Stateful Firewall action on packets with UDP Checksum error.

For NAT-only calls, packets with UDP Checksum error are permitted.

**Examples**

The following command specifies to drop packets with UDP Checksum error:

```
firewall udp-checksum-error drop
```
firewall validate-ip-options

This command enables / disables the Stateful Firewall validation of IP options for errors.

**Product**
PSF

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > ACS Configuration > Firewall-and-NAT Policy Configuration
active-charging service service_name > fw-and-nat policy policy_name

Entering the above command sequence results in the following prompt:
[local]host_name(config-fw-and-nat-policy)#

**Syntax Description**
| default | no | firewall validate-ip-options |

default
Configures the default setting.
Default: Disabled. Same as **no firewall validate-ip-options**

no
Disables validation of IP options.

**Usage Guidelines**
Use this command to enable / disable Stateful Firewall validation of IP options. When enabled, Stateful Firewall will drop packets with IP option errors.
For NAT calls, validation of IP Options is disabled.

**Examples**
The following command enables validation of IP options:
firewall validate-ip-options
**nat binding-record**

This command configures the generation of NAT Binding Records.

**Product**  
NAT

**Privilege**  
Security Administrator, Administrator

**Command Modes**  
Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

```
active-charging service service_name > fw-and-nat policy policy_name
```

Entering the above command sequence results in the following prompt:

```
[local] host_name(config-fw-and-nat-policy)#
```

**Syntax Description**

```
nat binding-record edr-format edr_format [ port-chunk-allocation ] | | port-chunk-release | 
{ default | no } nat binding-record
```

- **default**  
  Configures the default setting.  
  Default: **port-chunk-release**

- **no**  
  Disables generating NAT Binding Records.

- **edr-format edr_format**  
  Specifies the Event Data Record (EDR) format name.  
  **edr_format** must be an alphanumeric string of 1 through 63 characters.

- **port-chunk-allocation**  
  Specifies generating NAT Binding Records when a port-chunk is allocated.

- **port-chunk-release**  
  Specifies generating NAT Binding Record when a port-chunk is released.

**Usage Guidelines**  
Use this command to configure the generation of NAT Binding Records.
Examples

The following command configures an EDR format named test123 and specifies generating NAT Binding Records when a port chunk is allocated:

```
nat binding-record edr-format test123 port-chunk-allocation
```
**nat check-point-info**

This command enables or disables the checkpointing of basic NAT, H323 and SIP ALG recovery. ICSR recovery can also be enabled or disabled for basic NAT and SIP flows.

**Product**
- PSF
- NAT

**Privilege**
- Security Administrator, Administrator

**Command Modes**
- Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

`active-charging service service_name > fw-and-nat policy policy_name`

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

**Syntax Description**

```
[ default | no ] nat check-point-info { basic | icsr-also | limit-flows limit | h323-alg | sip-alg | icsr-also }
```

- **default**
  - Configures this command with its default setting.
  - Default: Disabled

- **no**
  - Disables the basic NAT recovery and stand-alone H323 ALG and SIP ALG recovery. Also disables ICSR recovery for SIP ALG.

- **basic | icsr-also | limit-flows limit | h323-alg | sip-alg | icsr-also |**
  - Configures the basic flow checkpointing information.
    - **icsr-also**: Enables checkpointing for ICSR.
    - **limit-flows**: Limits the specified flows for basic NAT checkpointing. *limit* must be an integer from 1 through 100.
      - Default: 100
**Usage Guidelines**

Use this command to enable or disable the checkpointing of basic NAT, standalone H323 and SIP ALG recovery. ICSR recovery can also be enabled or disabled for basic NAT and SIP flows. The maximum basic flows that can be checkpointed is also configured. By default, 100 flows can be recovered in a standalone chassis and ICSR setup.

**Examples**

The following command enables basic NAT recovery and ICSR recovery with flows limited to 10:

```
nat check-point info basic limit-flows 10 icsr-also
```
nat icsr-flow-recovery

This command enables/disables the NAT ICSR Flow checkpointing support for subscribers in a Firewall-and-NAT policy. This command is deprecated in StarOS 14.0 and later releases, and is replaced by the `nat check-point-info` command.

**Product**
NAT

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

```
active-charging service service_name > fw-and-nat policy policy_name
```

Entering the above command sequence results in the following prompt:

```
[local] host_name(config-fw-and-nat-policy)#
```

**Syntax Description**
```
| default | no | nat icsr-flow-recovery
```

- **default**
  Configures the default setting.
  Default: Disabled. Same as `no icsr-flow-recovery`.

- **no**
  Disables the NAT ICSR Flow checkpointing.

**Usage Guidelines**
Use this command to enable/disable all NAT ICSR Flow checkpointing for subscribers using this policy.

**Examples**
The following command enables NAT ICSR Flow checkpointing:
```
nat icsr-flow-recovery
```
**nat pkts-drop**

This command is used to configure the EDR format in which records for dropped NAT packets will be saved and the time interval for EDR generation.

**Product**

NAT

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

`active-charging service service_name > fw-and-nat policy policy_name`

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-fw-and-nat-policy)#
```

**Syntax Description**

```bash
nat pkts-drop { edr-format edr_format_name | timeout timeout_value }
{ default | no } nat pkts-drop { edr-format | timeout }
```

**default**

Configures the default setting.

Default: Disables the configuration. Same as **no nat pkts-drop { edr-format | timeout }** command.

**no**

Disables the configured EDR format in which records for dropped NAT packets will be saved and the time interval for EDR generation.

**edr-format edr_format_name**

Specifies the Event Data Record (EDR) format name.

`edr_format_name` must be an alphanumeric string of 1 through 63 characters.

**timeout timeout_value**

Specifies the NAT packet drop EDR timeout in seconds.

`timeout_value` must be an integer from 1 through 86400.

**Usage Guidelines**

Use this command to configure the EDR format in which records for dropped NAT packets will be saved and the time interval for EDR generation.
Examples

The following command configures an EDR format named *test1* and specifies a packet drop timeout of 200 seconds:

```
nat pkts-drop edr-format test1 timeout 200
```
nat policy

This command enables/disables Network Address Translation (NAT) support in a Firewall-and-NAT policy.

Important

In release 8.3, this configuration is available in the ACS Rulebase Configuration Mode.

Product

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration

active-charging service service_name > fw-and-nat policy policy_name

Entering the above command sequence results in the following prompt:

[local] host_name (config-fw-and-nat-policy) #

Syntax Description

In 12.1 and earlier releases:

nat policy nat-required [ default-nat-realm nat_realm_name [ fw-and-nat-action action_name ] ]
no nat policy

In 12.2 and later releases:

nat policy [ ipv4-and-ipv6 | ipv4-only | ipv6-only ] [ default-nat-realm nat_realm_name [ fw-and-nat-action action_name ] ]
no nat policy

no

Disables both NAT44 and NAT64 support in the Firewall-and-NAT policy.

nat-required

Enables NAT support in the Firewall-and-NAT policy.

Important

This keyword is available only in 12.1 and earlier releases, and is supported in release 12.2 for backward compatibility. The nat policy nat-required command enables only NAT44.
ipv4-and-ipv6
Enables NAT processing for both IPv4 and IPv6 in the Firewall-and-NAT policy.

ipv4-only
Enables NAT processing for IPv4 in the Firewall-and-NAT policy.

ipv6-only
Enables NAT processing for IPv6 in the Firewall-and-NAT policy.

default-nat-realm nat_realm_name
Specifies the default NAT realm for the Firewall-and-NAT policy.

action_name must be the name of an existing NAT realm, and must be an alphanumeric string of 1 through 31 characters.

fw-and-nat-action action_name
Specifies the Firewall-and-NAT action name.

action_name must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines
Use this command to enable/disable IPv4 and/or IPv6 NAT support for all subscribers using a Firewall-and-NAT policy.

In release 8.1, to enable NAT support for a subscriber, Stateful Firewall must also be enabled for that subscriber. See the firewall policy CLI command.

Once NAT is enabled for a subscriber, the NAT IP address to be used is chosen from the NAT realms specified in the rules. See the access-rule CLI command.

You can enable/disable NAT at any time, however the changed NAT status will not be applied to active calls. The new NAT status will only be applied to new calls.

Examples
The following command enables NAT support in a Firewall-and-NAT policy:

nat policy nat-required

The following command disables NAT support in a Firewall-and-NAT policy:

no nat policy

The following command enables IPv4 and IPv6 NAT support in a Firewall-and-NAT policy:

nat policy ipv4-and-ipv6
nat private-ip-flow-timeout

This command configures the Private IP NPU flow timeout setting.

Product
NAT

Privilege
Security Administrator, Administrator

Command Modes
Exec > ACS Configuration > Firewall-and-NAT Policy Configuration
active-charging service service_name > fw-and-nat policy policy_name

Entering the above command sequence results in the following prompt:
[local]host_name(config-fw-and-nat-policy)#

Syntax Description
nat private-ip-flow-timeout timeout
{ default | no } nat private-ip-flow-timeout

default
Configures the default setting.
Default: 180 seconds

no
Disables the Private IP NPU flow timeout configuration.
When disabled, the flow is installed at call setup and will be removed only when the subscriber disconnects.

timeout
Specifies the Private IP NPU flow timeout period in seconds.
timeout must be an integer from 180 through 86400.

Usage Guidelines
Use this command to configure the Private IP NPU flow timeout setting.
For NAT-enabled calls, by default, the downlink private IP NPU flow will not be installed at call setup for a subscriber session. The flow will only be installed on demand. When there is no traffic on the private flow, the private IP flow will be removed after the configurable timeout period.
The following command configures the Private IP NPU flow timeout setting to 36000 seconds:

```
nat private-ip-flow-timeout 36000
```
nat suppress-aaa-update

This command suppresses sending NAT Bind Update (NBU) to the AAA server when PPP disconnect happens.

Important

This command is customer-specific. For more information please contact your local service representative.

Product

NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Policy Configuration
active-charging service service_name > fw-and-nat policy policy_name

Entering the above command sequence results in the following prompt:
[local] host_name (config-fw-and-nat-policy) #

Syntax Description

nat suppress-aaa-update call-termination
default nat suppress-aaa-update
default

Configures the default setting.
Default: No suppression of AAA updates.

Usage Guidelines

Use this command to suppress sending of NBU to the AAA server when PPP disconnect happens, as these NBUs would be cleared at the AAA after receiving the accounting-stop. This enables to minimize the number of messages between the chassis and AAA server. When not configured, NBU are sent to the AAA server whenever a port chunk is allocated, de-allocated, or the call is cleared (PPP disconnect).

Examples

The following command suppresses the sending of NBU to the AAA server:
nat suppress-aaa-update call-termination
Firewall-and-NAT Access Ruledef Configuration Mode Commands

The Firewall-and-NAT Access Ruledef Configuration Mode is used to configure and manage Access rule definitions used by the Stateful Firewall (FW) and Network Address Translation (NAT) in-line services.

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service service_name > access-ruledef access_ruledef_name

Entering the above command sequence results in the following prompt:

[local] host_name (config-acs-fw-ruledef)#

Important

The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

- bearer 3gpp apn, page 1731
- bearer 3gpp imsi, page 1733
- bearer username, page 1735
- create-log-record, page 1737
- end, page 1738
- exit, page 1739
- icmp any-match, page 1740
- icmp code, page 1742
- icmp type, page 1744
- icmpv6 any-match, page 1746
- icmpv6 code, page 1748
- icmpv6 type, page 1750
- ip any-match, page 1752
- ip downlink, page 1754
- ip dst-address, page 1756
- ip protocol, page 1758
- ip server-ip-address, page 1760
- ip server-ipv6-network-prefix, page 1762
- ip src-address, page 1764
- ip uplink, page 1766
- ip version, page 1768
- tcp any-match, page 1769
- tcp client-port, page 1771
- tcp dst-port, page 1773
- tcp either-port, page 1775
- tcp server-port, page 1777
- tcp src-port, page 1779
- udp any-match, page 1781
- udp client-port, page 1783
- udp dst-port, page 1785
- udp either-port, page 1787
- udp server-port, page 1789
- udp src-port, page 1791
bearer 3gpp apn

This command configures an access ruledef to analyze user traffic based on APN bearer.

**Product**

PSF
NAT

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

**Syntax Description**

```
[no] bearer 3gpp apn [ case-sensitive ] operator value
```

- **no**
  - Removes previously configured bearer ruledef.

- **case-sensitive**
  - This keyword makes the rule case sensitive.
  - By default, ruledefs are not case sensitive.
  - Default: Disabled

- **operator**
  - Specifies how to logically match the APN name.
  - `operator` must be one of the following:
    - `!=`: Does not equal
    - `!contains`: Does not contain
    - `!ends-with`: Does not end with
    - `!starts-with`: Does not start with
    - `=`: Equals
    - `contains`: Contains
**Usage Guidelines**

Use this command to specify an access ruledef to analyze user traffic based on APN name.

**Examples**

The following command creates an access ruledef for analyzing user traffic for an APN named `apn12`:

```
bearer 3gpp apn = apn12
```
**bearer 3gpp imsi**

This command configures an access ruledef to analyze user traffic based on International Mobile Station Identification (IMSI) number in bearer flow.

**Product**
- PSF
- NAT

**Privilege**
- Security Administrator
- Administrator

**Command Modes**
- Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

**Syntax Description**

```
[ no ] bearer 3gpp imsi { operator msid | { !range | range } imsi-pool imsi_pool }
```

- **no**
  Removes previously configured bearer ruledef.

- **operator**
  Specifies how to logically match the MSID.
  `operator` must be one of the following:
  - `!=`: Does not equal
  - `=`: Equals

- **msid**
  Specifies the Mobile Station Identifier.

- `{ !range | range } imsi-pool imsi_pool`
  `{ !range | range }`: Specifies the range criteria:
  - `!range`: Not in the range of
  - `range`: In the range of
**imsi-pool** `imsi_pool`: Specifies the IMSI pool name. `imsi_pool` must be an alphanumeric string of 1 through 63 characters.

**Usage Guidelines**

Use this command to specify an access ruledef to analyze user traffic based on IMSI number of mobile station.

**Examples**

The following command creates an access ruledef to analyze user traffic for the IMSI number `919883830912`:

```
bearer 3gpp imsi = 919883830912
```
bearer username

This command configures an access ruledef to analyze user traffic based on user name of the bearer flow.

**Product**
- PSF
- NAT

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service service_name > access-ruledef access_ruledef_name

Entering the above command sequence results in the following prompt:

[local] host_name(config-acs-fw-ruledef)#

**Syntax Description**

```
[ no ] bearer username | case-sensitive | [ operator value ]
```

- **no**
  Removes previously configured bearer ruledef.

- **case-sensitive**
  This keyword makes the rule case sensitive.
  By default, ruledefs are not case sensitive.
  Default: Disabled

- **operator**
  Specifies how to logically match the MSID.
  `operator` must be one of the following:

  - `!=`: Does not equal
  - `!contains`: Does not contain
  - `!ends-with`: Does not end with
  - `!starts-with`: Does not start with
  - `=`: Equals
  - `contains`: Contains
**Usage Guidelines**

Use this command to specify a access ruledef to analyze user traffic based on user name of the bearer flow.

**Examples**

The following command creates an access ruledef for analyzing user traffic for the user name `user12`:

```bash
bearer username = user12
```
create-log-record

This command enables/disables access ruledef logging.

Product
PSF
NAT

Privilege
Security Administrator, Administrator

Command Modes
Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration
active-charging service service_name > access-ruledef access_ruledef_name

Entering the above command sequence results in the following prompt:
[local]host_name(config-acs-fw-ruledef)#

Syntax Description
[ no ] create-log-record

no
Disables access ruledef logging.

Usage Guidelines
Use this command to enable/disable access ruledef logging.

Examples
The following command enables access ruledef logging:
create-log-record

The following command disables access ruledef logging:
no create-log-record
end

Exits the current configuration mode and returns to the Exec mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

end

Usage Guidelines

Use this command to return to the Exec mode.
exit

Exits the current mode and returns to the parent configuration mode.

Product
All

Privilege
Security Administrator, Administrator

Syntax Description
exit

Usage Guidelines
Use this command to return to the parent configuration mode.
**icmp any-match**

This command configures an access ruledef to match any ICMPv4 traffic for the user.

**Product**
- PSF
- NAT

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

```
active-charging service service_name > access-ruledef access_ruledef_name
```

Entering the above command sequence results in the following prompt:

```
[local] host_name(config-acs-fw-ruledef)#
```

**Syntax Description**

```
[ no ] icmp any-match operator condition
```

- **no**
  Removes previously configured ICMPv4 any-match ruledef.

- **operator**
  Specifies how to logically match the analyzed state.
  **operator** must be one of the following:
  - `!=`: Does not equal
  - `=`: Equals

- **condition**
  Specifies the condition to be matched for the user traffic.
  **condition** must be one of the following:
  - **FALSE**: Specified condition is FALSE.
  - **TRUE**: Specified condition is TRUE.

**Usage Guidelines**
Use this command to specify an access ruledef to match any ICMPv4 traffic of the user.
Examples

The following command creates an access rule to match any non-ICMPv4 traffic of the user:

```
icmp any-match = FALSE
```
icmp code

This command configures an access ruledef to analyze user traffic based on ICMPv4 code.

**Product**

PSF
NAT

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

```plaintext
active-charging service service_name > access-ruledef access_ruledef_name
```

Entering the above command sequence results in the following prompt:

```
[local] host_name(config-acs-fw-ruledef)#
```

**Syntax Description**

```plaintext
| no | icmp code operator code
```

**no**

Removes previously configured ICMPv4 code ruledef.

**operator**

Specifies how to logically match the ICMPv4 code.

*operator* must be one of the following:

- `!=`: Does not equal
- `<=`: Less than or equals
- `=`: Equals
- `>=`: Greater than or equals

**code**

Specifies the ICMPv4 code.

*code* must be an integer from 0 through 255.

**Usage Guidelines**

Use this command to define an access ruledef to analyze user traffic based on the ICMPv4 code.
Examples

The following command creates an access ruledef for analyzing user traffic using the ICMPv4 code as 23:

```
icmp code = 23
```
icmp type

This command configures an access ruledef to analyze user traffic based on ICMPv4 type.

Product
PSF
NAT

Privilege
Security Administrator, Administrator

Command Modes
Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration
active-charging service service_name > access-rules access_ruledef_name

Entering the above command sequence results in the following prompt:
[local]host_name(config-acs-fw-rulesdef)#

Syntax Description
| no | icmp type operator type

no
Removes previously configured ICMPv4 type ruleset.

operator
Specifies how to logically match the ICMPv4 type.
operator must be one of the following:
- !=: Does not equal
- <=: Less than or equals
- ==: Equals
- >=: Greater than or equals

type
Specifies the ICMPv4 type.
type must be an integer from 0 through 255.
For example, 0 for ECHO Reply, 3 for Dest. Unreachable, and 5 for Redirect.
Usage Guidelines

Use this command to define an access ruledef to analyze user traffic based on the ICMPv4 type.

Examples

The following command creates an access ruledef for analyzing user traffic using an ICMPv4 type as 123:

```
icmp type = 123
```
icmpv6 any-match

This command configures an access ruledef to match any ICMPv6 traffic for the user.

Product
PSF
NAT

Privilege
Security Administrator, Administrator

Command Modes
Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service service_name > access-ruledef access_ruledef_name

Entering the above command sequence results in the following prompt:

[local]host_name(config-acs-fw-ruledef)#

Syntax Description

| no | icmpv6 any-match operator condition |

| no |
Removes previously configured ICMPv6 any-match ruledef.

operator
Specifies how to logically match the analyzed state.
operator must be one of the following:

- !=: Does not equal
- ==: Equals

condition
Specifies the condition to be matched for the user traffic.
condition must be one of the following:

- FALSE: Specified condition is FALSE.
- TRUE: Specified condition is TRUE.

Usage Guidelines
Use this command to specify an access ruledef to match any ICMPv6 traffic of the user.
Examples

The following command creates an access ruledef to match any non-ICMPv6 traffic of the user:

```
icmpv6 any-match = FALSE
```
icmpv6 code

This command configures an access ruledef to analyze user traffic based on ICMPv6 code.

Product

PSF
NAT

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service service_name > access-ruledef access_ruledef_name

Entering the above command sequence results in the following prompt:

[local]host_name(config-acs-fw-ruledef)#

Syntax Description

| no | icmpv6 code operator code

no

Removes previously configured ICMPv6 code ruledef.

operator

Specifies how to logically match the ICMPv6 code.

operator must be one of the following:

- !=: Does not equal
- <=: Less than or equals
- ==: Equals
- >=: Greater than or equals

code

Specifies the ICMPv6 code.

code must be an integer from 0 through 255.

Usage Guidelines

Use this command to define an access ruledef to analyze user traffic based on the ICMPv6 code.
Examples

The following command creates an access ruledef for analyzing user traffic using the ICMPv6 code as 23:

```
icmpv6 code = 23
```
**icmpv6 type**

This command configures an access ruledef to analyze user traffic based on ICMPv6 type.

<table>
<thead>
<tr>
<th>Product</th>
<th>PSF</th>
<th>NAT</th>
</tr>
</thead>
</table>

| Privilege           | Security Administrator, Administrator |

**Command Modes**

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

```plaintext
active-charging service service_name > access-ruledef access_ruledef_name
```

Entering the above command sequence results in the following prompt:

```plaintext
[local] host_name(config-acs-fw-ruledef)#
```

**Syntax Description**

```plaintext
| no | icmpv6 type operator type |

no

Removes previously configured ICMPv6 type ruledef.

operator

Specifies how to logically match the ICMPv6 type.

operator must be one of the following:

- `!`: Does not equal
- `<`: Less than or equals
- `=`: Equals
- `>=`: Greater than or equals

```plaintext
type

Specifies the ICMPv6 type.

type must be an integer from 0 through 255.
For example, 0 for ECHO Reply, 3 for Dest. Unreachable, and 5 for Redirect.
```
Usage Guidelines
Use this command to define an access ruledef to analyze user traffic based on the ICMPv6 type.

Examples
The following command creates an access ruledef for analyzing user traffic using an ICMPv6 type as 123:
```
icmpv6 type = 123
```
**ip any-match**

This command configures an access ruledef to match any IP traffic for the user.

**Product**

PSF

NAT

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

```plaintext
active-charging service service_name > access-ruledef access_ruledef_name
```

Entering the above command sequence results in the following prompt:

```
[local] host_name (config-acs-fw-ruledef) #
```

**Syntax Description**

```
[no] ip any-match operator condition
```

- **no**

  Removes previously configured IP any-match ruledef.

- **operator**

  Specifies how to logically match the analyzed state.  

  **operator** must be one of the following:

  - `!=`: Does not equal
  - `=`: Equals

- **condition**

  Specifies the condition to be matched for the user traffic.  

  **condition** must be one of the following:

  - `FALSE`: Specified condition is FALSE.
  - `TRUE`: Specified condition is TRUE.

**Usage Guidelines**

Use this command to specify an access ruledef to match any IP traffic of the user.
Examples

The following command creates an access ruledef to match any non-IP traffic of the user:

```
ip any-match = FALSE
```
ip downlink

This command configures an access ruledef to analyze user traffic based on IP packet flow in downlink direction (to subscriber).

**Product**
- PSF
- NAT

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration
`active-charging service service_name > access-ruledef access_ruledef_name`

Entering the above command sequence results in the following prompt:

```
[local] host_name(config-acs-fw-ruledef)#
```

**Syntax Description**

```
[ no ] ip downlink operator condition
```

- **no**
  Removes previously configured IP ruledef.

- **operator**
  Specifies how to logically match the packet flow direction.
  *operator* must be one of the following:
  - `!=`: Does not equal
  - `=`: Equals

- **condition**
  Specifies the condition to match.
  *condition* must be one of the following:
  - `TRUE`: Analyzed
  - `FALSE`: Not analyzed
Usage Guidelines
Use this command to define an access ruledef to analyze user traffic based on the IP packet flow direction as downlink.

Examples
The following command creates access ruledef for analyzing user traffic using an IP packet direction to downlink (to subscriber):

```
ip downlink = TRUE
```
**ip dst-address**

This command configures an access ruledef to analyze user traffic based on IP destination address.

**Product**

PSF

NAT

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service service_name > access-ruledef access_ruledef_name

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-acs-fw-ruledef)#
```

**Syntax Description**

```
[ no ] ip dst-address { operator { ipv4/ipv6_address | ipv4/ipv6_address/mask } | { !range | range } host-pool
host_pool }
```

**no**

Removes previously configured IP destination address ruledef.

**operator { ipv4/ipv6_address | ipv4/ipv6_address/mask }**

**operator** specifies how to logically match the IP destination address.

**operator** must be one of the following:

- `!=`: Does not equal
- `<=`: Less than or equals
- `=`: Equals
- `>=`: Greater than or equals

**ipv4/ipv6_address**: Specifies the IP address of destination node for outgoing traffic. `ipv4/ipv6_address` must be the IP address entered using IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation.

**ipv4/ipv6_address/mask**: Specifies the IP address of destination node for outgoing traffic. `ipv4/ipv6_address/mask` must be the IP address entered using IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation. The mask bit is a numeric value which is the number of bits in the subnet mask.
{ !range | range } host-pool host_pool }

!range | range: Specifies the range criteria:
  
  • !range: Not in the range of
  
  • range: In the range of

host-pool host_pool: Specifies the host pool name. host_pool must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to specify an access ruledef to analyze user traffic based on the IP destination address.

Examples

The following command creates IP ruledef for analyzing user traffic using an IP destination address of 10.1.1.1:

ip dst-address = 10.1.1.1
ip protocol

This command configures an access ruledef to analyze user traffic based on the protocol being transported by IP packets.

**Product**

- PSF
- NAT

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service service_name > access-ruledef access_ruledef_name

Entering the above command sequence results in the following prompt:

[local]\host_name(config-acs-fw-ruledef)#

**Syntax Description**

```
{ no | ip protocol { { operator { protocol | protocol_assignment } } } | { operator protocol_assignment } }
```

- **no**
  
  Removes previously configured IP protocol address ruledef.

- **operator { protocol | protocol_assignment }**
  
  **operator**: Specifies how to logically match the IP protocol.

  **operator** must be one of the following:

  - !=: Does not equal
  - ==: Equals

  **protocol**: Specifies the protocol by name.

  **protocol** must be one of the following:

  - ah
  - esp
  - gre
  - icmp
  - tcp
- udp

**protocol_assignment**: Specifies the protocol by assignment number. *protocol_assignment* must be an integer from 0 through 255 (for example, 1 for ICMP, 6 for TCP, and 17 for UDP).

**operator protocol_assignment**

**operator**: Specifies how to logically match the IP protocol.

*operator* must be one of the following:

- <=: Less than or equals
- >=: Greater than or equals

**Usage Guidelines**

Use this command to specify an access ruledef to analyze user traffic based on the IP protocol.

**Examples**

The following command creates IP ruledef for analyzing user traffic using a protocol assignment of 1:

```plaintext
ip protocol = 1
```
**ip server-ip-address**

This command configures an access ruledef to analyze user traffic based on IP server address.

**Product**
- PSF
- NAT

**Privilege**
- Security Administrator, Administrator

**Command Modes**
- Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

`active-charging service service_name > access-ruledef access_ruledef_name`

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-acs-fw-ruledef)#
```

**Syntax Description**

```
| no | ip server-ip-address { operator { ipv4/ipv6_address | ipv4/ipv6_address/mask } | { range | range } host-pool host_pool_name |
```

**no**

Removes previously configured IP server address.

**operator { ipv4/ipv6_address | ipv4/ipv6_address/mask}**

`operator`: Specifies how to logically match the IP server address.

`operator` must be one of the following:

- `!=`: Does not equal
- `<=`: Less than or equals
- `==`: Equals
- `>=`: Greater than or equals

`ipv4/ipv6_address`: Specifies the server IP address. For uplink packets (subscriber to network), this field matches the destination IP address in the IP header. For downlink packets (network to subscriber), this field matches the source IP address in the IP header. `ipv4/ipv6_address` must be an IP address in IPv4-dotted decimal notation or IPv6 colon-separated hexadecimal notation.

`ipv4/ipv6_address/mask`: Specifies the server IP address with subnet mask bit. For uplink packets (subscriber to network), this field matches the destination IP address in the IP header. For downlink packets (network to subscriber), this field matches the source IP address in the IP header. `ipv4/ipv6_address/mask` must be an IP
address in IPv4 dotted-decimal notation or IPv6 colon-separated hexadecimal notation with subnet mask bit. The mask bit is a numeric value which is the number of bits in the subnet mask.

```
{ !range | range } host-pool host_pool_name
```

{ !range | range }: Specifies the range criteria.

- !range: Not in the range of
- range: In the range of

**host-pool host_pool_name**: Specifies name of the host pool. `host_pool_name` must be an alphanumeric string of 1 through 63 characters.

**Usage Guidelines**

Use this command to specify an access ruledef to analyze user traffic based on IPv4 or IPv6 server address. For uplink packets, this field matches the destination IP address in the IP header. For downlink packets, this field matches the source IP address in the IP header.

**Examples**

The following command creates an IP ruledef for analyzing user traffic using IPv4 server address `10.1.1.1`:

```
ip server-ip-address = 10.1.1.1
```

### ip server-ipv6-network-prefix

This command configures an access ruledef to analyze user traffic based on IPv6 server prefix.

**Product**
- PSF
- NAT

**Privilege**
- Security Administrator, Administrator

**Command Modes**
- Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service service_name > access-ruledef access_ruledef_name

Entering the above command sequence results in the following prompt:

```
[local] host_name(config-acs-fw-ruledef)#
```

**Syntax Description**

```
| no | ip server-ipv6-network-prefix operator ipv6_prefix/prefix_length
```

- **no**
  - Removes previously configured IPv6 server prefix.

- **operator ipv6_prefix/prefix_length**
  - `operator`: Specifies how to logically match the IPv6 server prefix.
  - `ipv6_prefix/prefix_length` must be one of the following:
    - `!=`: Does not equal
    - `==`: Equals

  - `ipv6_prefix/prefix_length`: Specifies the server's IPv6 address with subnet mask bit. `ipv6_prefix/prefix_length` must be in IPv6 colon-separated-hexadecimal notation with subnet mask bit. The `prefix_length` is the number of bits to match. The configurable prefix length values are 32, 40, 48, 56, 64 and 96.

**Usage Guidelines**

Use this command to specify an access ruledef to analyze user traffic based on IPv6 server prefix. When a first packet for a flow is received, it is matched against a set of rules configured in the Firewall-and-NAT policy. If the incoming IPv6 packet matches a ruledef and configured prefix, then it indicates that NAT64 needs to be applied on the packet. If the packet did not match the prefix configured, then NAT64 will not be applied on the packet. If there is no rule matching the packet or if there is no rule configured, then the incoming
IPv6 packet is matched against the well-known prefix. If the well-known prefix matches, then NAT64 is applied on the packet.

**Examples**

The following command creates an IP ruledef to analyze user traffic using the IPv6 server prefix `abcd:dcba` with 32 bits of the server IPv6 address:

```
ip server-ipv6-network-prefix = abcd:dcba::/32
```
**ip src-address**

This command configures an access ruledef to analyze user traffic based on IP source address.

**Product**

PSF

NAT

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

`active-charging service service_name > access-ruledef access_ruledef_name`

Entering the above command sequence results in the following prompt:

```
[local] host_name(config-acs-fw-ruledef) #
```

**Syntax Description**

```
[ no ] ip src-address { operator { ipv4/ipv6_address | ipv4/ipv6_address/mask } | { !range | range } host-pool host_pool }
```

**no**

Removes previously configured IP destination address ruledef.

**operator**

```
operator { ipv4/ipv6_address | ipv4/ipv6_address/mask }
```

**operator**: Specifies how to logically match the IP source address.

**operator** must be one of the following:

- `!=`: Does not equal
- `<=`: Less than or equals
- `=`: Equals
- `>=`: Greater than or equals

**ipv4/ipv6_address**: Specifies the IP address using IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation.

**ipv4/ipv6_address/mask**: Specifies the IP address using IPv4 dotted-decimal notation or IPv6 colon-separated-hexadecimal notation with subnet mask bit. The mask bit is a numeric value which is the number of bits in the subnet mask.
{ !range | range } host-pool host_pool

!range | range: Specifies the range criteria:
  - !range: Not in the range of
  - range: In the range of

host-pool host_pool: Specifies the host pool name. host_pool must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines
Use this command to specify an access ruledef to analyze user traffic based on the IP source address.

Examples
The following command creates IP ruledef for analyzing user traffic using an IP source address of 10.1.1.1:

\texttt{ip src-address = 10.1.1.1}
ip uplink

This command configures an access ruledef to analyze user traffic based on IP packet flow in the uplink direction (from subscriber).

**Product**

PSF

NAT

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service service_name > access-ruledef access_ruledef_name

Entering the above command sequence results in the following prompt:

[local]host_name(config-acs-fw-ruledef)#

**Syntax Description**

| no | ip uplink operator condition |

**no**

Removes previously configured IP uplink match ruledef.

**operator**

Specifies how to logically match the IP packet flow direction.

- !=: Does not equal
- =: Equals

**condition**

Specifies the condition to match.

- TRUE: Not analyzed
- FALSE: Analyzed
Usage Guidelines

Use this command to define an access ruledef to analyze user traffic based on the IP packet flow direction as uplink.

Examples

The following command creates access ruledef for analyzing user traffic using an IP packet direction to uplink (from subscriber):

```
ip uplink = TRUE
```
**ip version**

This command defines rule expressions to match version number in IP header.

**Product**

PSF

NAT

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

`active-charging service service_name > access-ruledef access_ruledef_name`

Entering the above command sequence results in the following prompt:

```
[local] host_name(config-acs-fw-ruledef)#
```

**Syntax Description**

```
[ no ] ip version = { ipv4 | ipv6 }
```

- **no**
  
  Deletes the specified rule expression.

- **ipv4**
  
  Specifies the rule expression for IP version 4.

- **ipv6**
  
  Specifies the rule expression for IP version 6.

**Usage Guidelines**

Use this command to define rule expressions to match IPv4/IPv6 version number in IP header.

**Examples**

The following command defines a rule expression to match user traffic for the IP version `ipv6`:

```
ip version = ipv6
```
tcp any-match

This command configures an access ruledef to match any TCP traffic for the user.

**Product**
- PSF
- NAT

**Privilege**
- Security Administrator, Administrator

**Command Modes**
Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

```
active-charging service service_name > access-ruledef access_ruledef_name
```

Entering the above command sequence results in the following prompt:

```
[local] host_name (config-acs-fw-ruledef)#
```

**Syntax Description**

```
[ no ] tcp any-match operator condition
```

- **no**
  - Removes previously configured TCP any-match ruledef.

- **operator**
  - Specifies how to logically match the analyzed state.
  - **operator** must be one of the following:
    - `!=`: Does not equal
    - `=`: Equals

- **condition**
  - Specifies the condition to be matched for the user traffic.
  - **condition** must be one of the following:
    - `FALSE`: Specified condition is FALSE.
    - `TRUE`: Specified condition is TRUE.

**Usage Guidelines**
Use this command to specify an access ruledef to match any TCP traffic of the user.
Examples

The following command creates an access ruledef to match any non-TCP traffic of the user:

```
tcp any-match = FALSE
```
 tcp client-port

This command configures an access ruledef to analyze user traffic based on client TCP port.

Product

PSF

Privilege

Security Administrator, Administrator

Command Modes

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service service_name > access-ruledef access_ruledef_name

Entering the above command sequence results in the following prompt:

[local] host_name(config-acs-fw-ruledef)#

Syntax Description

| no | tcp client-port { operator port_number | { !range | range } { start_range to end_range | port-map port_map } } |

no

Removes the previously configured client TCP port ruledef.

operator

Specifies how to logically match the port number.

operator must be one of the following:

- !=: Does not equal
- <=: Less than or equals
- =: Equals
- >=: Greater than or equals

port_number

Specifies the port number to match.

port_number must be an integer from 1 through 65535.

range | !range

Specifies the range criteria:
• !range: Not in the range
• range: In the range

`start_range to end_range`
Specifies the starting and ending port numbers for the range of destination TCP ports.
`start_range` must be an integer from 1 through 65535.
`end_range` must be an integer from 1 through 65535 that is greater than `start_range`.

`port-map port_map`
Specifies name of the port-map for the port range.
`port_map` must be an alphanumeric string of 1 through 63 characters.

**Usage Guidelines**
Use this command to specify an access ruledef to analyze user traffic based on client TCP port.

**Examples**
The following command creates an access ruledef for analyzing user traffic matching client port for TCP as 50:
```
tcp client-port = 50
```
**tcp dst-port**

This command configures an access ruledef to analyze user traffic based on destination TCP port.

**Product**

PSF  
NAT

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

**Syntax Description**

```
[no] tcp dst-port { port_map } |

| operator port_number | { !range | range } | start_range to end_range | port-map |
```

**no**

Removes the previously configured destination TCP port ruledef.

**operator**

Specifies how to logically match the port number.

* operator must be one of the following:

- !==: Does not equal
- <=: Less than or equals
- ==: Equals
- >=: Greater than or equals

**port_number**

Specifies the port number to match.

* port_number must be an integer from 1 through 65535.*
range | !range
Specifies the range criteria:
  • !range: Not in the range
  • range: In the range

start_range to end_range
Specifies the starting and ending port numbers for the range of destination TCP ports.
start_range must be an integer from 1 through 65535.
end_range must be an integer from 1 through 65535 that is greater than start_range.

port-map port_map
Specifies name of the port-map for the port range.
port_map must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines
Use this command to specify an access ruledef to analyze user traffic based on destination TCP port.

Examples
The following command creates an access ruledef for analyzing user traffic matching destination port for TCP as 10:
tcp dst-port = 10
tcp either-port

This command configures an access ruledef to analyze user traffic based on either (destination or source) TCP ports.

**Product**

PSF
NAT

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

**Syntax Description**

```
| no | tcp either-port { operator port_number | { !range | range } { start_range to end_range | port-map port_map } } |
```

no
Removes previously configured TCP either-port (destination or source) ruledef.

**operator**

Specifies how to logically match the port number.

*operator* must be one of the following:

- `!=`: Does not equal
- `<=`: Less than or equals
- `=`: Equals
- `>=`: Greater than or equals

**port_number**

Specifies the port number to match.

*port_number* must be an integer from 1 through 65535.
range | !range
Specifies the range criteria:
  • !range: Not in the range
  • range: In the range

start_range to end_range
Specifies the starting and ending port numbers for the port range.
start_range must be an integer from 1 through 65535.
end_range must be an integer from 1 through 65535 that is greater than start_range.

port-map port_map
Specifies name of the port-map for the port range.
port_map must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines
Use this command to specify an access ruledef to analyze user traffic based on either TCP port.

Examples
The following command creates an access ruledef for analyzing user traffic matching destination or source port for TCP as 10:
tcp either-port = 10
**tcp server-port**

This command configures an access ruledef to analyze user traffic based on server TCP port.

**Product**

PSF

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

`active-charging service service_name > access-ruledef access_ruledef_name`

Entering the above command sequence results in the following prompt:

```
[local] host_name(config-acs-fw-ruledef)#
```

**Syntax Description**

```
| no | tcp server-port { operator port_number | { !range | range } { start_range to end_range | port-map port_map } }
```

- **no**
  Removes the previously configured server TCP port ruledef.

- **operator**
  Specifies how to logically match the port number.
  `operator` must be one of the following:

  - `!`: Does not equal
  - `<=`: Less than or equals
  - `=`: Equals
  - `>=`: Greater than or equals

- **port_number**
  Specifies the port number to match.
  `port_number` must be an integer from 1 through 65535.

- **range | !range**
  Specifies the range criteria:

Command Line Interface Reference, Modes E - F, StarOS Release 19
• **!range**: Not in the range
• **range**: In the range

**start_range to end_range**
Specifies the starting and ending port numbers for the range of destination TCP ports.
*start_range* must be an integer from 1 through 65535.
*end_range* must be an integer from 1 through 65535 that is greater than *start_range*.

**port-map port_map**
Specifies name of the port-map for the port range.
*port_map* must be an alphanumeric string of 1 through 63 characters.

**Usage Guidelines**
Use this command to specify an access ruledef to analyze user traffic based on server TCP port.

**Examples**
The following command creates an access ruledef for analyzing user traffic matching server port for TCP as 100:

tcp server-port = 100
**tcp src-port**

This command configures an access ruledef to analyze user traffic based on source TCP port.

**Product**
- PSF
- NAT

**Privilege**
- Security Administrator, Administrator

**Command Modes**
- Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration
- **active-charging service service_name > access-ruledef access_ruledef_name**

Entering the above command sequence results in the following prompt:

```
[local]host_name(config-acs-fw-ruledef)#
```

**Syntax Description**

```
[no] tcp src-port { operator port_number | !range range } { start_range to end_range | port-map port_map } }
```

**no**

Removes previously configured source TCP port ruledef.

**operator**

Specifies how to logically match the port number.

**operator** must be one of the following:

- !==: Does not equal
- <=: Less than or equals
- =: Equals
- >=: Greater than or equals

**port_number**

Specifies the port number to match.

**port_number** must be an integer from 1 to 65535.
range | !range

Specifies the range criteria:

- !range: Not in the range
- range: In the range

start_range to end_range

Specifies the starting and ending port numbers for the port range.

- start_range must be an integer from 1 through 65535.
- end_range must be an integer from 1 through 65535 that is greater than start_range.

port-map port_map

Specifies name of the port-map for the port range.

- port_map must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines

Use this command to specify an access ruledef to analyze user traffic based on source TCP port.

Examples

The following command creates an access ruledef for analyzing user traffic matching source port for TCP as 10:

tcp src-port = 10
udp any-match

This command configures an access ruledef to match any UDP traffic for the user.

**Product**
PSF
NAT

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration
active-charging service service_name > access-ruledef access_ruledef_name

Entering the above command sequence results in the following prompt:

[local]host_name(config-acs-fw-ruledef)#

**Syntax Description**
[ no ] udp any-match operator condition

**no**
Removes previously configured UDP any-match ruledef.

**operator**
Specifies how to logically match the analyzed state.
operator must be one of the following:

- !=: does not equal
- =: equals

**condition**
Specifies the condition to be matched for the user traffic.
condition must be one of the following:

- **FALSE**: Specified condition is FALSE.
- **TRUE**: Specified condition is TRUE.

**Usage Guidelines**
Use this command to specify an access ruledef to match any UDP traffic of the user.
Examples

The following command creates an access ruledef to match any UDP traffic of the user:

```plaintext
udp any-match = TRUE
```
udp client-port

This command configures an access ruledef to analyze user traffic based on client UDP port.

**Product**
PSF
NAT

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

```
active-charging service service_name > access-ruledef access_ruledef_name
```

Entering the above command sequence results in the following prompt:
```
[local] host_name(config-acs-fw-ruledef)#
```

**Syntax Description**

```
[ no ] udp client-port { operator port_number | { !range | range } { start_range to end_range | port-map port_map } }
```

- **no**
  Removes previously configured client UDP port ruledef.

- **operator**
  Specifies how to logically match the port number.
  `operator` must be one of the following:
  - `!=`: Does not equal
  - `<=`: Less than or equals
  - `=:` Equals
  - `>=`: Greater than or equals

- **port_number**
  Specifies the port number to match.
  `port_number` must be an integer from 1 through 65535.
!range | range  
Specifies the range criteria.
  • !range: Not in the range  
  • range: In the range  

start_range to end_range  
Specifies the starting and ending port numbers for the port range.
start_range must be an integer from 1 through 65535.
end_range must be an integer from 1 through 65535 that is greater than start_range.

port-map port_map  
Specifies name of the port-map for the port range.
port_map must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines  
Use this command to specify an access ruledef to analyze user traffic based on client UDP port.

Examples  
The following command creates an access ruledef for analyzing user traffic matching client port for UDP as 10:
udp client-port = 10
udp dst-port

This command configures an access ruledef to analyze user traffic based on destination UDP port.

**Product**
PSF
NAT

**Privilege**
Security Administrator, Administrator

**Command Modes**
Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration
active-charging service service_name > access-ruledef access_ruledef_name

Entering the above command sequence results in the following prompt:
[local]host_name(config-acs-fw-ruledef)#

**Syntax Description**

```plaintext
[ no ] udp dst-port { operator port_number | { !range | range } { start_range to end_range | port-map port_map } }
```

- **no**
  Removes previously configured destination UDP ports ruledef.

- **operator**
  Specifies how to logically match the port number.
  `operator` must be one of the following:
  - `!=`: Does not equal
  - `<=`: Less than or equals
  - `=:` Equals
  - `>=`: Greater than or equals

- **port_number**
  Specifies the port number to match.
  `port_number` must be an integer from 1 through 65535.
!range | range
Specifies the range criteria.
  • !range: Not in the range
  • range: In the range

start_range to end_range
Specifies the starting and ending port numbers for the port range.
  start_range must be an integer from 1 through 65535.
  end_range must be an integer from 1 through 65535 that is greater than start_range.

port-map port_map
Specifies name of the port-map for the port range.
  port_map must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines
Use this command to specify an access ruledef to analyze user traffic based on destination UDP port.

Examples
The following command creates an access ruledef for analyzing user traffic matching destination port for UDP as 10:
  udp dst-port = 10
udp either-port

This command configures an access ruledef to analyze user traffic based on either (destination or source) UDP port.

**Product**

PSF
NAT

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

*active-charging service service_name > access-ruledef access_ruledef_name*

Entering the above command sequence results in the following prompt:

[local]host_name(config-acs-fw-ruledef)#

**Syntax Description**

| no | udp either-port { operator port_number | { !range | range } { start_range to end_range | port-map port_map } } |

**no**

Removes previously configured either-port (destination or source) UDP ruledef.

**operator**

Specifies how to logically match the port number.

*operator* must be one of the following:

- !==: Does not equal
- <=: Less than or equals
- ==: Equals
- >=: Greater than or equals

**port_number**

Specifies the port number to match.

*port_number* must be an integer from 1 through 65535.
!range | range
Specifies the range criteria.
  • !range: Not in the range
  • range: In the range

start_range to end_range
Specifies the starting and ending port numbers for the port range.
start_range must be an integer from 1 through 65535.
end_range must be an integer from 1 through 65535 that is greater than start_range.

port-map port_map
Specifies name of the port-map for the port range.
port_map must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines
Use this command to specify an access ruledef to analyze user traffic based on either UDP port.

Examples
The following command creates an access ruledef for analyzing user traffic matching destination or source port for UDP as 10:
udp either-port = 10
udp server-port

This command configures an access ruledef to analyze user traffic based on server UDP port.

**Product**

PSF
NAT

**Privilege**

Security Administrator, Administrator

**Command Modes**

Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

active-charging service service_name > access-ruledef access_ruledef_name

Entering the above command sequence results in the following prompt:

[local]host_name(config-acs-fw-ruledef)#

**Syntax Description**

```plaintext
[ no ] udp server-port { operator port_number | { !range | range } { start_range to end_range } | port-map port_map } }
```

**no**

Removes previously configured server UDP port ruledef.

**operator**

 Specifies how to logically match the port number.

**port_number**  
S specifyes the port number to match.

**port_number** must be an integer from 1 through 65535.


!range | range
Specifies the range criteria.
  • !range: Not in the range
  • range: In the range

\texttt{start\_range} to \texttt{end\_range}
Specifies the starting and ending port numbers for the port range.
\texttt{start\_range} must be an integer from 1 through 65535.
\texttt{end\_range} must be an integer from 1 through 65535 that is greater than \texttt{start\_range}.

\texttt{port-map port\_map}
Specifies name of the port-map for the port range.
\texttt{port\_map} must be an alphanumeric string of 1 through 63 characters.

**Usage Guidelines**
Use this command to specify an access ruledef to analyze user traffic based on server UDP port.

**Examples**
The following command creates an access ruledef for analyzing user traffic matching server port for UDP as 100:
\texttt{udp server-port = 100}
udp src-port

This command configures an access ruledef to analyze user traffic based on source UDP port.

**Product**  
PSF  
NAT

**Privilege**  
Security Administrator, Administrator

**Command Modes**  
Exec > ACS Configuration > Firewall-and-NAT Access Ruledef Configuration

```
active-charging service service_name > access-ruledef access_ruledef_name
```

Entering the above command sequence results in the following prompt:

```
[local] host_name(config-acs-fw-ruledef)#
```

**Syntax Description**

```
[no] udp src-port { operator port_number | { !range | range } { start_range to end_range | port-map port_map } }
```

- **no**  
  Removes previously configured source UDP port ruledef.

- **operator**  
  Specifies how to logically match the port number.  
  `operator` must be one of the following:

  - `!=`: Does not equal  
  - `<=`: Less than or equals  
  - `=:` Equals  
  - `>=`: Greater than or equals

- **port_number**  
  Specifies the port number to match.  
  `port_number` must be an integer from 1 through 65535.
!range | range
Specifies the range criteria.
  • !range: Not in the range
  • range: In the range

start_range to end_range
Specifies the starting and ending port numbers for the port range.
  start_range must be an integer from 1 through 65535.
  end_range must be an integer from 1 through 65535 that is greater than start_range.

port-map port_map
Specifies name of the port-map for the port range.
  port_map must be an alphanumeric string of 1 through 63 characters.

Usage Guidelines
Use this command to specify an access ruledef to analyze user traffic based on source UDP port.

Examples
The following command creates an access ruledef for analyzing user traffic matching source port for UDP as 10:
udp src-port = 10