

gprs gtp echo-timer dynamic enable

To enable the dynamic echo timer on the gateway GPRS support node (GGSN), use the **gprs gtp echo-timer dynamic enable** command in global configuration mode. To disable the dynamic echo timer, use the `no gprs gtp echo-timer dynamic enable` form of this command.

Syntax Description This command has no arguments or keywords.

Defaults Disabled

Command Modes

Command History

Release	Modification
12.2(4)MX	This command was introduced.
12.2(8)YD	This command was integrated into Cisco IOS Release 12.2(8)YD.
12.2(8)YW	This command was integrated into Cisco IOS Release 12.2(8)YW.
12.3(2)XB	This command was integrated into Cisco IOS Release 12.3(2)XB.
12.3(8)XU	This command was integrated into Cisco IOS Release 12.3(8)XU.
12.3(11)YJ	This command was integrated into Cisco IOS Release 12.3(11)YJ.
12.3(14)YQ	This command was integrated into Cisco IOS Release 12.3(14)YQ.
12.3(14)YU	This command was integrated into Cisco IOS Release 12.3(14)YU.
12.4(2)XB	This command was integrated into Cisco IOS Release 12.4(2)XB.
12.4(9)XG	This command was integrated into Cisco IOS Release 12.4(9)XG.

Usage Guidelines

For a GPRS tunneling protocol (GTP) path to be active, the serving GPRS support node (SGSN) needs to be active. To determine that an SGSN is active, the GGSN and SGSN exchange echo messages. Although the GGSN supports different methods of echo message timing, the basic echo flow begins when the GGSN sends an echo request message to the SGSN. The SGSN sends a corresponding echo response message back to the GGSN.

If the GGSN does not receive a response after a certain number of retries (a configurable value), the GGSN assumes that the SGSN is not active. This indicates a GTP path failure, and the GGSN clears all packet data protocol (PDP) context requests associated with that path.

The GGSN supports two different methods of echo timing—the default echo timer and the dynamic echo timer.

Because the GGSN's default echo timer cannot be configured to accommodate network congestion, the GTP path could be cleared prematurely. The dynamic echo timer feature enables the GGSN to better manage the GTP path during periods of network congestion. Use the `gprs gtp echo-timer dynamic` command to enable the GGSN to perform dynamic echo timing.

Default echo timer

The default echo timer configuration uses the following commands:

- **gprs gtp n3-requests**
echo-request message. The default is 5 times.

gprs gtp path-echo-interval
an echo-request message. The default is 60 seconds.

—Specifies the number of seconds that the GGSN waits before resending an echo-request message after the path echo interval has expired and the echo response has not been received. The default is 1 second.

If the GGSN receives the echo response within the path echo interval (as specified in the `gprs gtp path-echo-interval` command; default is 60 seconds), it sends another echo request message after 60 seconds (or whatever time was configured in the `gprs gtp path-echo-interval` command). This message flow continues as long as the GGSN receives an echo response message within the specified path echo interval.

If the GGSN fails to receive an echo response message within the path echo interval, it resends echo request messages until the N3-requests counter is reached (as specified by the `gprs gtp n3-requests` command; default is 5). Because the initial request message is included in the N3-requests counter, the total number of retries is N3-1. The T3 timer increases by a factor of 2 for each retry (the factor value is not configurable).

For example, if N3 is set to the default of 5, and T3 is set to the default of 1 second, the GGSN will resend 4 echo request messages (the initial request + 4 retries = 5). The T3 time increments for each additional echo request by a factor of 2 seconds. So, the GGSN resends a message in 2 seconds, 4 seconds, 8 seconds, and 16 seconds. If the GGSN fails to receive an echo response message within the time period of the N3-requests counter, it clears the GTP path and deletes all the PDP contexts.

For the above example, the total elapsed time from when the first request message is sent, to when the GTP path is cleared, is: $60 + 2 + 4 + 8 + 16 = 90$ seconds,

where 60 is the initial value of the path echo interval, and the remaining four time periods are the increments of the T3 timer for the subsequent retries.

Dynamic echo timer

- **gprs gtp echo-timer dynamic**
—Enables the dynamic echo timer on the GGSN.
—Specifies the minimum time period (in seconds) for the dynamic echo timer. If the RTT is less than this value, the GGSN uses the value set in this command.

gprs gtp echo-timer dynamic smooth-factor

gprs gtp n3-requests

gprs gtp path-echo-interval

gprs gtp echo-timer dynamic minimum

gprs gtp t3-response

so the GGSN sends a retry echo request message in 36 seconds, 72 seconds, 144 seconds, and 288 seconds. If the GGSN fails to receive an echo response message in this time period, it clears the GTP path and deletes all PDP contexts. The total elapsed time from when the first request message is sent to when the GTP path is cleared is: $60 + 36 + 72 + 144 + 288 = 600$ seconds,

where 60 is the initial value of the path echo interval, and the remaining 4 time periods are the increments of the T-dynamic for the subsequent retries.

Examples

```
gprs gtp echo-timer dynamic enable
gprs gtp echo-timer dynamic minimum 5
gprs gtp echo-timer dynamic smooth-factor 3
```

gprs gtp echo-timer dynamic minimum

number

number

number

timer. Value must be an integer. The default value is 5 seconds.

12.2(4)MX	This command was introduced.
12.2(8)YD	This command was integrated into Cisco IOS Release 12.2(8)YD.
12.2(8)YW	This command was integrated into Cisco IOS Release 12.2(8)YW.
12.3(2)XB	This command was integrated into Cisco IOS Release 12.3(2)XB.
12.3(8)XU	This command was integrated into Cisco IOS Release 12.3(8)XU.
12.3(11)YJ	This command was integrated into Cisco IOS Release 12.3(11)YJ.
12.3(14)YQ	This command was integrated into Cisco IOS Release 12.3(14)YQ.
12.3(14)YU	This command was integrated into Cisco IOS Release 12.3(14)YU.
12.4(2)XB	This command was integrated into Cisco IOS Release 12.4(2)XB.
12.4(9)XG	This command was integrated into Cisco IOS Release 12.4(9)XG.

If the GGSN fails to receive an echo response message from the serving GPRS support node (SGSN) within the path echo interval, the GGSN goes into retransmission, or path failure mode. During path failure mode, the GGSN uses a value referred to as the T-dynamic. The T-dynamic is the greater of either the dynamic minimum, or the RTT statistic multiplied by the smooth factor.

The T-dynamic essentially replaces the use of the `gprs gtp echo-timer dynamic` command, which is used in the default echo timer method on the GGSN. The T-dynamic timer increases by a factor of 2 for each retry (again, this factor is not configurable), until the N3-requests counter is reached (the N3-requests counter includes the initial request message).



Note

For more information about the dynamic echo timer on the GGSN, see the “Usage Guidelines” section for the `gprs gtp echo-timer dynamic` command.

The following example turns on the dynamic echo timer, sets the minimum value to 6 seconds, and configures a smooth factor of 2:

```
gprs gtp echo-timer dynamic minimum 6
gprs gtp echo-timer dynamic smooth-factor 2
```

gprs gtp echo-timer dynamic smooth-factor

Syntax Description

Defaults

Command Modes

Command History

Release	Modification

Usage Guidelines



Note

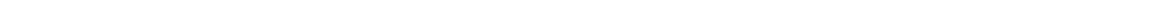
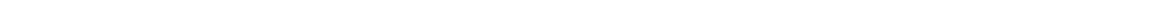
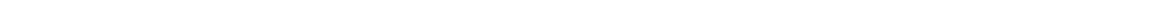
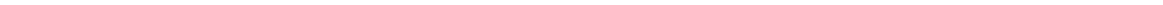
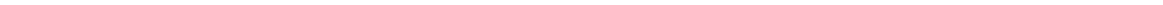
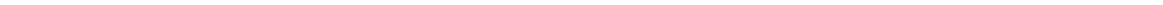
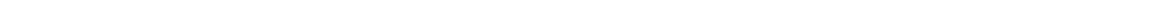
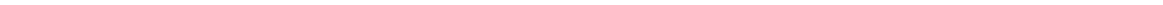
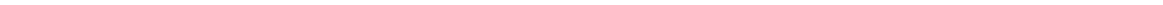
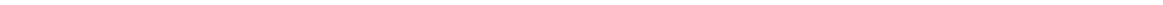
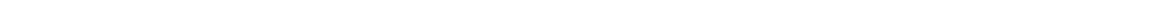
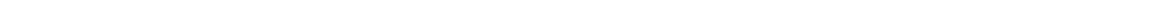
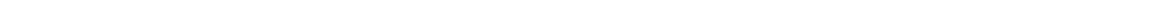
```
gprs gtp echo-timer dynamic minimum 1  
gprs gtp echo-timer dynamic smooth-factor 2
```



window-size *size*



size



is decremented each time an error indication message is sent. When the counter reaches zero, the GGSN stops transmitting error indication messages. The GGSN resets this counter to the configured throttle value after one second.

If you do not issue the command, error indication throttling is not enabled. To restore the default value (error indication throttling is disabled) use the form of this command.

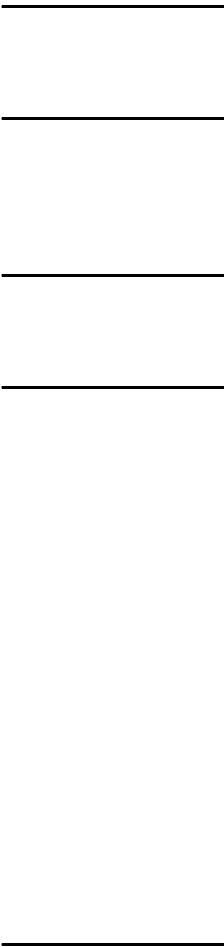
The following example shows a throttle value of 150:

```
gprs gtp error-indication-throttle window-size 150
```

gprs gtp ip udp ignore checksum

gprs gtp ip udp ignore checksum
no

gprs gtp ip udp ignore checksum
no gprs gtp ip udp ignore checksum



gprs gtp ip udp ignore checksum



gprs gtp ip udp ignore checksum

Configuration Guide

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```
gprs gtp ip udp ignore checksum
```

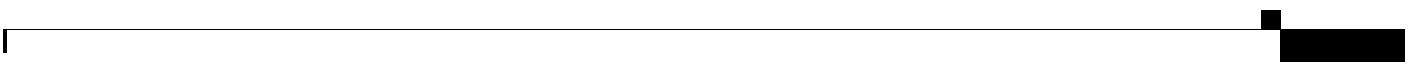
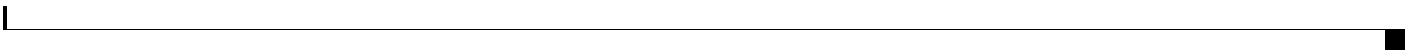


tos-value

tos-value

_____ *tos-value* _____





gprs gtp n3-buffer-size

bytes

no gprs gtp n3-buffer-size

gprs gtp n3-buffer-size

`gprs gtp n3-buffer-size 2048`

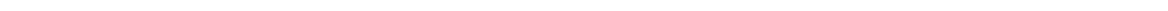
gprs gtp n3-requests

requests

requests

requests

gprs gtp n3-requests 3



number

number

gprs gtp path history 250

gprs gtp path-echo-interval

Syntax Description

Defaults

Command Modes

Command History

Release	Modification

Usage Guidelines



Examples

```
gprs gtp path echo-interval 90
```

gprs gtp pdp-context timeout idle

pdp-context timeout idle

no

gprs gtp pdp-context timeout idle []

Time, in seconds, that the GGSN allows a PDP context to remain idle on any access point before terminating the context. Specify a value between 30 and 4294967 seconds.

(Optional) Enables the session idle timer in the uplink direction only. When the keyword option is not specified, the session idle timer is enabled in both directions (uplink and downlink).

259200 seconds (72 hours)

Global configuration

12.3(8)XU	This command was introduced.
12.3(8)XU1	This command was integrated into Cisco IOS Release 12.3(8)XU1 and the keyword option was added.
12.3(11)YJ	This command was integrated into Cisco IOS Release 12.3(11)YJ.
12.3(14)YQ	This command was integrated into Cisco IOS Release 12.3(14)YQ.
12.3(14)YU	This command was integrated into Cisco IOS Release 12.3(14)YU.
12.4(2)XB	This command was integrated into Cisco IOS Release 12.4(2)XB.
12.4(9)XG	This command was integrated into Cisco IOS Release 12.4(9)XG.

The GGSN supports the RADIUS Idle-Timeout (Attribute 28) field. The GGSN stores the attribute 28 value if it is present in the access request packets sent by the authentication, authorization, and accounting (AAA) server. When a PDP context is idle for an amount of time that exceeds the session idle timeout duration, the GGSN terminates it.

The duration specified for the session idle timer applies to all PDP contexts of a session, however, a session idle timer is started for each PDP context. Therefore, the session idle timer is per-PDP, but the timer duration is per-session.

**Note****Note**

the GGSN, and PPP regenerated PDPs (not PPP L2TP PDPs). The absolute session timeout (Attribute 27) support applies to IP PDPs and PPP PDPs terminated at the GGSN (not PPP Regen or PPP L2TP PDPs). If configured, a session idle timer is started on every PDP context; an absolute session timer is started on the session.

**Note**

Alternately, you can configure the idle timer globally using the `global configuration command`, however, the two methods cannot be configured at the same time.

Examples

The following example shows configuring the GGSN to wait 18000 seconds before ending an idle PDP context:

```
gprs gtp pdp-context timeout idle 18000
```









gprs gtp pdp-context timeout session 86400







The virtual template interface for PPP is a different virtual template interface than the GPRS/UMTS virtual template interface for GTP encapsulation.

The first section of commands configures the GPRS virtual template interface for GTP:

```
interface Virtual-Template 1
 ip unnumber loopback 1
 no ip directed-broadcast
 encapsulation gtp
 no ip route-cache
 gprs access-point-list gprs
```

```
interface Virtual-Template 2
 ip unnumbered FastEthernet 1/0
 no ip directed-broadcast
 no peer default ip address
 ppp authentication chap
 ppp timeout retry 30
```

```
gprs gtp ppp vtemplate 2
```







```
interface Virtual-Template 1
 ip unnumber loopback 1
 no ip directed-broadcast
 encapsulation gtp
 no ip route-cache
 gprs access-point-list gprs
```



```
interface Virtual-Template 11
 ip address negotiated
 no peer neighbor-route
 encapsulation ppp
```

```
gprs gtp ppp-regeneration vtemplate 11
```

{ | }

{ | }

Specifies for the GGSN to return an IPCP Conf-Nack (Code 03) in the GTP PCO IE of the Create PDP Context response when returning IPCP options for which the granted values (non-zero) differ from those requested. (IPCP Conf-Reject [Code 04] is returned for those options for which the returned address values are zero).

Configures an extra field that indicates the message length to be added to the header in the PCO IE of the Create PDP Context response when returning IPCP options.

The GGSN sends an IPCP Conf-Ack (Code 02) in the PCO IE of the Create PDP Context response for the requested IPCP address options supported by the GGSN. The values being returned might be the same as or differ from those requested, or be zero. For unsupported options, an IPCP Conf-Reject is returned.

The GGSN does not add an extra field that indicates the message length to the PCO IE, when returning IPCP options.

Global configuration

12.3(2)XB	This command was introduced.
12.3(8)XU	This command was integrated into Cisco IOS Release 12.3(8)XU.
12.3(11)YJ	This command was integrated into Cisco IOS Release 12.3(11)YJ.
12.3(14)YQ	This command was integrated into Cisco IOS Release 12.3(14)YQ.
12.3(14)YU	This command was integrated into Cisco IOS Release 12.3(14)YU.
12.4(2)XB	This command was integrated into Cisco IOS Release 12.4(2)XB and the keyword option was added.
12.4(9)XG	This command was integrated into Cisco IOS Release 12.4(9)XG.

Use the `ipcp-options` command to configure IPCP options returned by the GGSN in the PCO IE of a Create PDP Context response.

Use the `ipcp-options` command, with the `no-ack` keyword option specified, to configure the GGSN to return an IPCP Conf-Nack in the PCO IE of a Create PDP Context response when returning IPCP options for which the granted values differ from those requested (non-zero values).

When the `ipcp-options` command is configured, and the PCO IE of the Create PDP Context request contains IPCP options, the PCO IE in the create PDP response includes the following, depending on the whether options are supported by (and values are acceptable to) the GGSN:

IPCP Conf-Ack—One or (zero) IPCP Conf-Ack for the IPCP options for which the requested values are acceptable by the GGSN.

IPCP Conf-Nack—One or (zero) IPCP Conf-Nack containing the IPCP options for which the granted values differ from those requested.

IPCP Conf-Reject—One (or zero) IPCP Conf-Reject containing the requested options which are not supported by the GGSN, or, if supported, for which no values can be granted.

Use the `ipcp-options` command, with the `length` keyword option specified, to configured the GGSN to add a message length field to the PCO IE in the Create PDP Context response, when returning IPCP options.

The following configures the GGSN to include an extra field in the header of the PCO IE when returning IPCP options that indicates the message length in Create PDP Context responses.

Displays information about access points on the GGSN.

gprs gtp response-message wait-accounting

Syntax Description

Defaults

Command Modes

Command History

Release	Modification

Usage Guidelines

command and observe the value reported in the wait_accounting output field.

The following example globally configures the GGSN to wait for a RADIUS accounting response from the RADIUS accounting server before sending an Activate PDP Context response to the SGSN, for PDP context requests received across all access points except access point 1. RADIUS response message waiting has been overridden at access point 1 using the

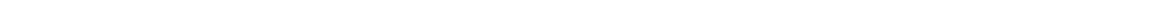


command. This example shows only a partial configuration of the GGSN, to highlight the commands for implementing RADIUS response message waiting. Additional configuration statements are required to complete a full configuration of the GGSN.

```

!
aaa group server radius abc
  server 10.2.3.4
  server 10.6.7.8
!
aaa authentication ppp abc group abc
aaa authorization network default group radius
aaa accounting exec default start-stop group abc
!
gprs access-point-list gprs
  access-point 1
    access-mode non-transparent
    access-point-name www.pdn1.com
    aaa-group authentication abc
    no gtp response-message wait-accounting
  exit
  access-point 2
    access-mode non-transparent
    access-point-name www.pdn2.com
    aaa-group authentication abc
!
gprs gtp response-message wait-accounting
!
radius-server host 10.2.3.4 auth-port 1645 acct-port 1646 non-standard
radius-server host 10.6.7.8 auth-port 1645 acct-port 1646 non-standard
radius-server key ggsntel

```



response-interval

response-interval

Handwriting practice lines consisting of a solid top line, a dashed midline, and a solid bottom line. The word 'response-interval' is written at the beginning of the first line.



gprs gtp t3-response 524



gprs idle-pdp-context purge-timer

no gprs idle-pdp-context purge-timer

gprs

idle-pdp-context purge-timer

session idle-time



gtp pdp-context timeout idle

gprs

**gprs gtp pdp-context
timeout idle**

**gprs gtp pdp-context
timeout session**

**gtp pdp-context
timeout idle**

**gtp pdp-context
timeout session**

session idle-time









IOS Server Load Balancing



mcc-num *mnc-num* [trusted]
no gprs mcc mnc [trusted]

mcc

mnc

trusted

trusted

gprs mcc mnc

gprs mcc mnc

trusted

The GGSN automatically specifies values of 000 for the MCC and MNC. However, you must configure non-zero values for both the MCC and MNC before you can enable the GGSN to create charging CDRs for roamers.

To properly issue the `gprs mcc mnc` command, you must specify both the `trusted` keyword with its argument and the `charging` keyword with its argument. You cannot issue the command without specifying both keywords.

It is important that you configure the `gprs mcc mnc` and `gprs trusted` commands in their proper order. After you configure the MCC and MNC values, use the `gprs charging` command to enable charging for roamers on the GGSN. You can change the MCC and MNC values by reissuing the `gprs mcc mnc` command.

Using the `gprs trusted` command, you can also configure up to 5 “trusted” PLMNs by specifying the `trusted` keyword. A Create PDP Context request from a mobile subscriber in a trusted PLMN is treated the same as a Create PDP Context request from a mobile subscriber in the home PLMN.

To verify your configuration of these codes on the GGSN, use the `show gprs` command.



To see a list of some established MCC and MNC codes, see the “Table of MCC and MNC Codes” appendix in the *Cisco GGSN Configuration Guide*
Identification Plan for Land Mobile Stations

threshold

<i>threshold</i>	Memory threshold, that when fallen below enables the memory protection feature on the GGSN. Valid range is 0 to 1024.
------------------	---

The default is 10% of the total memory available at the time GGSN services are enabled.

Global configuration

12.3(2)XB	This command was introduced.
12.3(8)XU	This command was integrated into Cisco IOS Release 12.3(8)XU and changed to enabled by default.
12.3(11)YJ	This command was integrated into Cisco IOS Release 12.3(11)YJ.
12.3(14)YQ	This command was integrated into Cisco IOS Release 12.3(14)YQ.
12.3(14)YU	This command was integrated into Cisco IOS Release 12.3(14)YU.
12.4(2)XB	This command was integrated into Cisco IOS Release 12.4(2)XB.
12.4(9)XG	This command was integrated into Cisco IOS Release 12.4(9)XG.

The GGSN memory protection feature prevents processor memory from being drained during periods of abnormal conditions (such as when all charging gateways are down and the GGSN is buffering call detail records (CDRs) into memory.

By default, the memory threshold is 10% of the total memory available at the time GGSN services are enabled using the `memory-protection threshold` global configuration command. You can use the `memory-protection threshold` global configuration command to configure the threshold according to the router and memory size.

When the amount of memory remaining on the system reaches the defined threshold, the memory protection feature activates and the GGSN performs the following actions to keep the processor memory from falling below the threshold:

- Rejects new Create packet data protocol (PDP) Context requests with the cause value “No Resource.”

- Drops any existing PDPs for which an update is received with the cause value “Management Intervention.”

- Drops any PDPs for which a volume trigger has occurred.

The following example sets the memory threshold to 50 KB:

To specify the IP address range(s) used by the GPRS/UMTS network, and thereby excluded from the mobile station (MS) IP address range, use the _____ command in global configuration mode. To remove the specified range(s), use the _____ form of this command.

IP address at the beginning of the range.

IP address at the end of the range.

No default behavior or values.

Global configuration

12.2(4)MX	This command was introduced.
12.2(8)YD	This command was integrated into Cisco IOS Release 12.2(8)YD.
12.2(8)YW	This command was integrated into Cisco IOS Release 12.2(8)YW.
12.3(2)XB	This command was integrated into Cisco IOS Release 12.3(2)XB.
12.3(8)XU	This command was integrated into Cisco IOS Release 12.3(8)XU.
12.3(11)YJ	This command was integrated into Cisco IOS Release 12.3(11)YJ.
12.3(14)YQ	This command was integrated into Cisco IOS Release 12.3(14)YQ.
12.3(14)YU	This command was integrated into Cisco IOS Release 12.3(14)YU.
12.4(2)XB	This command was integrated into Cisco IOS Release 12.4(2)XB.
12.4(9)XG	This command was integrated into Cisco IOS Release 12.4(9)XG.

An MS cannot have the same IP address as another GPRS network entity. Use the _____ command to reserve certain IP address ranges for use by the GPRS/UMTS network, and to disallow these address ranges from use by an MS.

The _____ command verification is performed only for IP PDPs and does not apply to MS addresses assigned to virtual private networks (VPNs) or for PPP Regen or PPP PDP types.

During processing of a Create packet data protocol (PDP) Context request, the gateway GPRS support node (GGSN) verifies whether the IP address of an MS falls within the specified excluded range. If there is an overlap of the MS IP address with an excluded range, then the Create PDP Context request is rejected. This measure prevents duplicate IP addressing in the network.

You can configure up to 100 IP address ranges. A range can be one or more addresses. However, you can configure only one IP address range per command entry. To exclude a single IP address, you can repeat the IP address in the _____ and _____ arguments. IP addresses are 32-bit values.



Example 1

Example 2

Related Commands

Command

Description

gprs plmn ip address

start_ip end_ip

start_ip end_ip

Syntax Description

start_ip

end_ip

Defaults

Command Modes

Command History

Release

Modification

Usage Guidelines

- *start_ip end_ip* *start_ip end_ip*
 - *end_ip* *start_ip*
-
-

Configuration Guidelines

Examples

Related Commands	Command	Description

gprs pcscf

(

Syntax Description

Defaults

Command Modes

Command History

Release	Modification

Usage Guidelines



Note

Examples

```
gprs pcscf groupA
```

Related Commands

Command	Description

gprs qos bandwidth-pool

Syntax Description

Defaults

Command Modes

Command History

Release	Modification

Usage Guidelines

```
gprs bandwidth-pool A
  bandwidth 100000
  traffic-class conversational percent 40
  traffic-class streaming percent 30
  traffic-class interactive percent 20
  traffic-class background percent 10
```



Note

GGSN Release

6.0 Configuration Guide

policy-name

policy-name

policy-name

maximum QoS policy

CAC



Guide

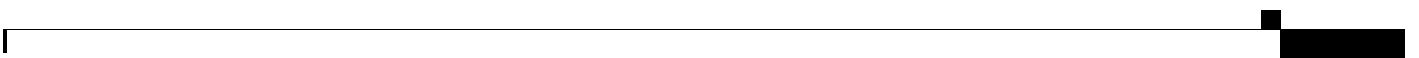
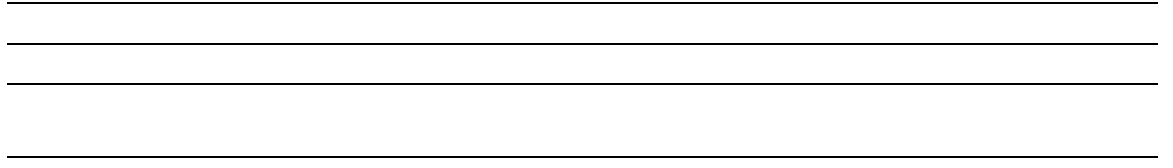
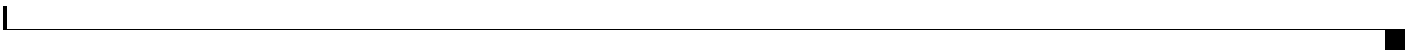
GGSN Release 6.0 Configuration















| _____ ■

| _____ ■



GGSN Configuration Guide



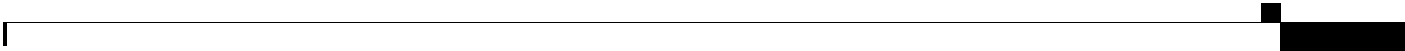
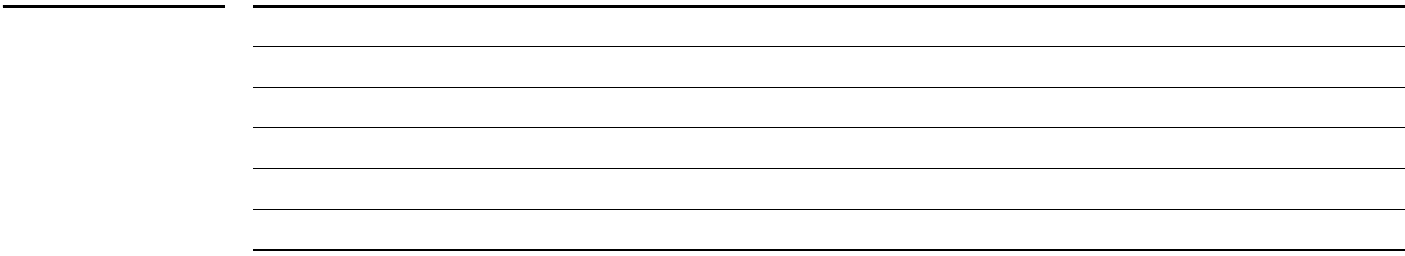
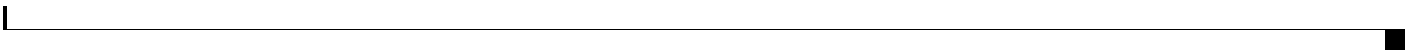
```
gprs radius attribute quota-server ocs-address
```

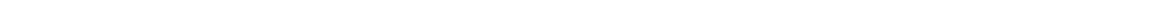
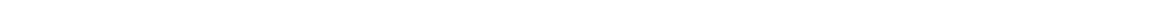
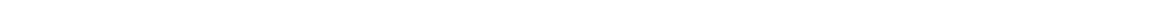


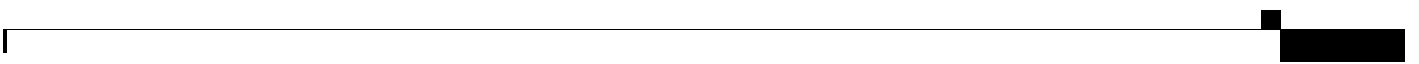
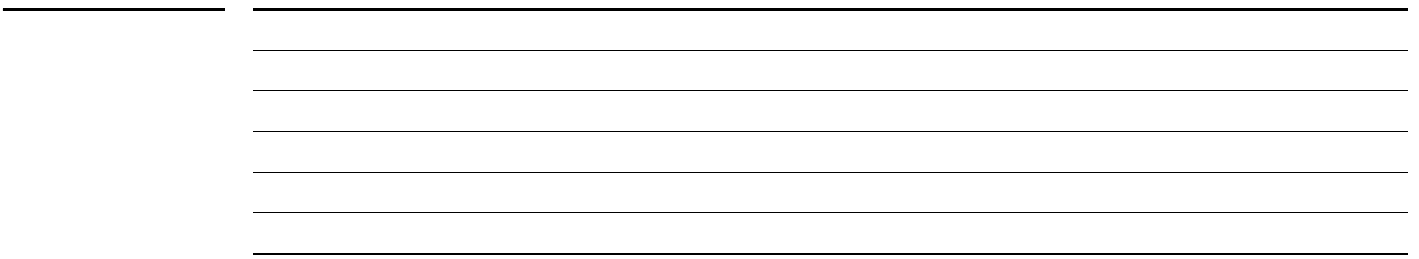
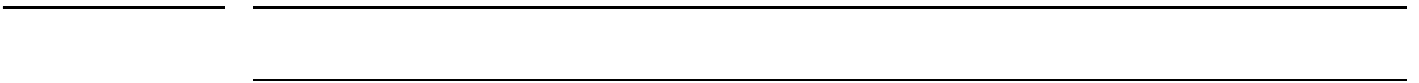
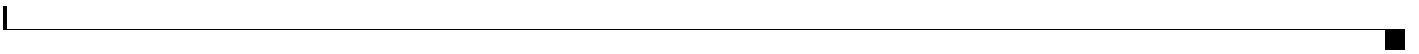


| _____ ■

| _____ ■











gprs service-aware

Syntax Description

Defaults

Command Modes

Command History

Release	Modification

Usage Guidelines



Note

Examples

Related Commands

Command	Description

gprs service-mode

gprs service-mode {operational | maintenance}

no gprs service-mode {operational | maintenance}

operational
maintenance

gprs service-mode



service-mode

**gprs service-mode test
imsi**

**show gprs
service-mode**

gprs service-mode

service-mode

show gprs

service-mode

gprs slb mode

gprs slb mode {dispatched | directed}

Release	Modification

gprs slb mode

GGSN-IOS SLB Messaging CAC Failure Notification Support


Note

GGSN-IOS SLB Messaging Delete Notification Support

Examples

Related Commands

Command	Description

gprs slb notify

Syntax Description

Defaults

Command Modes

Command History

Release	Modification

Usage Guidelines

CAC Failure Notifications



Note

Delete Notifications (GTP IMSI Sticky Database Support)



Note

Examples

Example 1

Example 2

Example 3

Example 4

Related Commands

Command	Description

gprs slb vserver

Syntax Description

Defaults

Command Modes

Command History

Release	Modification

Usage Guidelines



Note

Examples

Example 1

Related Commands

Command	Description

gprs throughput intervals

interval1 interval2

interval1 interval2

interval1

interval2

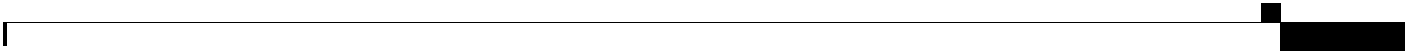
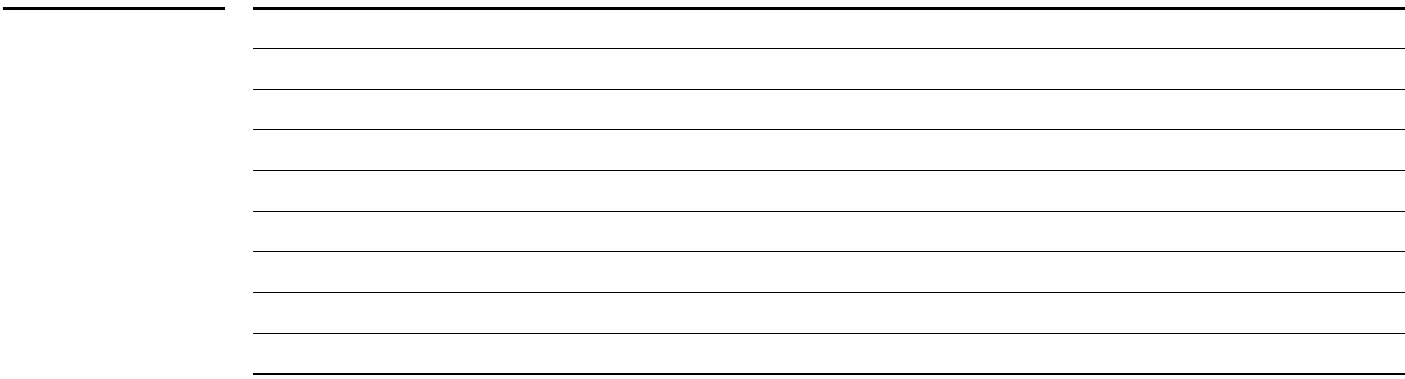
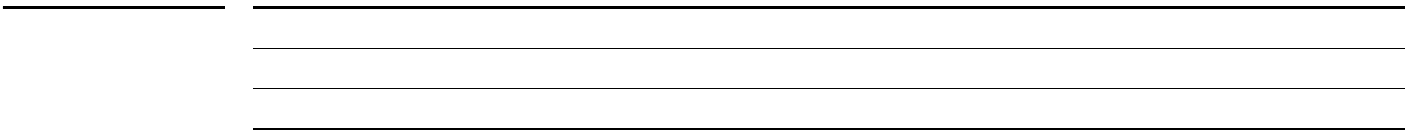
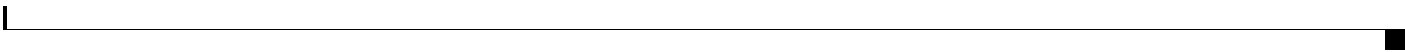
interval1

interval1

interval2

interval1 interval2







Seven horizontal lines for writing, starting from the second line from the top and ending at the seventh line from the top.



Table 1 **Default DSCP Values per PHB Group**

PHB	DSCP
	5?
EF	101110 (46)
AF11	001010 (10)
AF12	001100 (12)
AF13	001110 (14)
AF21	010010 (18)
AF22	010100 (20)
AF23	010110 (22)
AF31	011010 (26)
AF32	011100 (28)
AF33	011110 (30)
AF41	100010 (34)
AF42	100100 (36)
AF43	100110 (38)
Best effort	000000 (0)

The following example assigns a DSCP value of 31 to the EF class and three DSCP values to AF class2 of 51, 52, and 53:

Enables UMTS QoS on the GGSN.

Specifies a QoS mapping from the UMTS traffic classes to a differentiated services (DiffServ) per-hop behavior (PHB) group.

Specifies that the subscriber datagram be forwarded through the GTP path without modifying its DSCP.

Displays QoS statistics for the GGSN.

Displays UMTS QoS mapping information.

Creates a class map to be used for matching packets to a specified class.

Configures the match criteria for a class map on the basis of the specified protocol.

To specify a QoS mapping from the UMTS traffic classes to a differentiated services (DiffServ) per-hop behavior (PHB) group, use the `diffserv-traffic-class` command in global configuration mode. To remove a QoS mapping and set the specified traffic class to the default mapping, use the form of this command.

Specifies the traffic class. The UMTS traffic classes are:

- signalling
- conversational
- streaming
- interactive
- background

Specifies the DiffServ PHB group. The PHB groups are:

- signalling-class
- ef-class
- af1-class
- af2-class
- af3-class
- af4-class
- best-effort

You must enable UMTS QoS using the `qos` command before entering this command.



Use the `diffserv-traffic-class` command only if you want to use mapping values other than the defaults.

The default mapping values for the UMTS traffic classes are as follows:

- signalling traffic class to the signalling-class DiffServ PHB group
- conversational traffic class to the ef-class DiffServ PHB group
- streaming traffic class to the af2-class DiffServ PHB group
- interactive traffic class to the af3-class DiffServ PHB group
- background traffic class to the best-effort DiffServ PHB group

Global configuration

12.2(8)YW	This command was introduced.
12.3(8)XU	This command was integrated into Cisco IOS Release 12.3(8)XU.
12.3(11)YJ	This command was integrated into Cisco IOS Release 12.3(11)YJ.
12.3(14)YQ	This command was integrated into Cisco IOS Release 12.3(14)YQ.
12.3(14)YU	This command was integrated into Cisco IOS Release 12.3(14)YU.
12.4(2)XB	This command was integrated into Cisco IOS Release 12.4(2)XB.

Use the _____ command to specify a mapping between various QoS UMTS traffic categories and the DiffServ PHB groups.

The following example specifies a QoS mapping from the UMTS traffic class conversational to the DiffServ PHB group af-class1:

Enables UMTS QoS on the GGSN.

Assigns a differentiated services code point (DSCP) to a DiffServ PHB group.

Specifies that the subscriber datagram be forwarded through the GTP path without modifying its DSCP.

Displays QoS statistics for the GGSN.

Displays UMTS QoS mapping information.

To configure the gateway GPRS support node (GGSN) to delete the primary PDP context, and any associated secondary PDP contexts, of a PDP session upon receiving a new create request from the same MS that shares the same IP address of the hanging PDP context, use the command in global configuration mode. To return to the default value, use the form of this command.

```

[ ]
[ ]

```

Specifies that the primary PDP context and any associated secondary PDP contexts be deleted regardless of the RADIUS user profile configuration.

Create PDP Context requests that share the IP address of an existing PDP context for the same MS are rejected.

Access point configuration

12.3(8)XU2	This command was introduced.
12.3(11)YJ	This command was integrated into Cisco IOS Release 12.3(11)YJ.
12.3(14)YQ	This command was integrated into Cisco IOS Release 12.3(14)YQ.
12.3(14)YU	This command was integrated into Cisco IOS Release 12.3(14)YU.
12.4(2)XB	This command was integrated into Cisco IOS Release 12.4(2)XB.
12.4(9)XG	This command was integrated into Cisco IOS Release 12.4(9)XG.

Use the command to configure the GGSN to delete the primary PDP context, and any associated secondary PDP contexts, of a PDP session upon receiving a new create request from the same MS that shares the same IP address of the hanging PDP context.

A hanging PDP context is a PDP context on the GGSN whose corresponding PDP context on the SGSN has already been deleted for some reason.

When this condition occurs and the command is not configured, if on the same APN, the same MS sends a new Create PDP Context request that has a different NSAPI but has been assigned the same IP address used by the hanging PDP context, the GGSN rejects the new Create PDP Context request.

When the _____ is configured on an APN, the single PDP session per MS feature is enabled and applies to all users for whom the “gtp-pdp-session=single-session” Cisco VSA has been defined in their RADIUS user profile. If the command is not configured, the feature is not enabled and does not apply to any user regardless of their RADIUS user profile configuration. If the command is configured with the _____ keyword option specified, the feature is enabled and applies to all users on that APN regardless of their RADIUS user profile configuration.



If this feature is used with GTP load balancing, it might not function properly.

The following example configures the GGSN to delete the primary PDP context, and associated secondary PDP contexts, of a _____ PDP context when it receives a new Create PDP Context request that shares the same IP address:

Displays information about access points on the GGSN.

Displays PDP contexts by tunnel ID. This value corresponds to the IMSI plus NSAPI and can be up to 16 numeric digits.

To specify the time, in seconds, that a gateway GPRS support node (GGSN) allows a session to be idle at a particular access point before terminating the session, use the `session-idle-timeout` access point configuration command in global configuration mode. To return to the default value, use the form of this command.

[]

Time, in seconds, that the GGSN allows a session to be idle at a particular access point before terminating the session. Specify a value between 30 and 4294967 seconds. The value 0 disables the session timeout feature.

(Optional) Enables the session idle timer in the uplink direction only. When the `uplink` keyword option is not specified, the session idle timer is enabled in both directions (uplink and downlink).

259200 seconds (72 hours)

Access point configuration

12.3(8)XU	This command was introduced.
12.3(8)XU1	This command was integrated into Cisco IOS Release 12.3(8)XU1 and the <code>uplink</code> keyword option was added.
12.3(11)YJ	This command was integrated into Cisco IOS Release 12.3(11)YJ.
12.3(14)YQ	This command was integrated into Cisco IOS Release 12.3(14)YQ.
12.3(14)YU	This command was integrated into Cisco IOS Release 12.3(14)YU.
12.4(2)XB	This command was integrated into Cisco IOS Release 12.4(2)XB.
12.4(9)XG	This command was integrated into Cisco IOS Release 12.4(9)XG.

The GGSN supports the RADIUS Idle-Timeout (Attribute 28) field. The GGSN stores the attribute 28 value if it is present in the access request packets sent by the AAA server. When a PDP context is idle for an amount of time that exceeds the session idle timeout duration, the GGSN terminates it.

The duration specified for the session idle timer applies to all PDP contexts of a session, however, a session idle timer is started for each PDP context. Therefore, the session idle timer is per-PDP, but the timer duration is per-session.



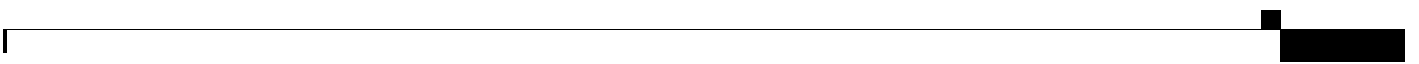
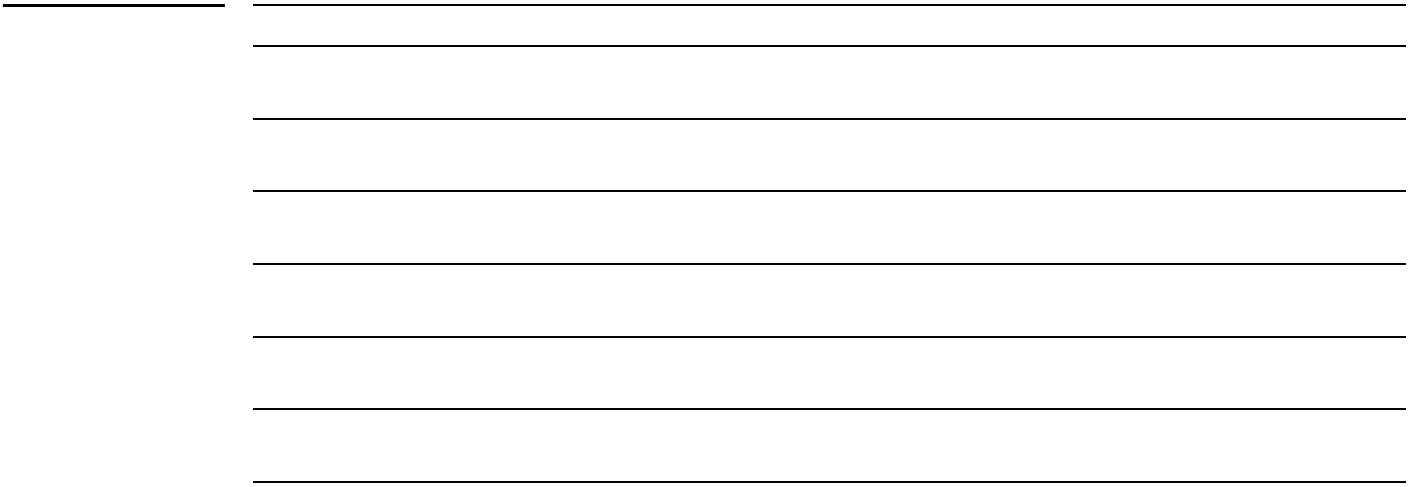
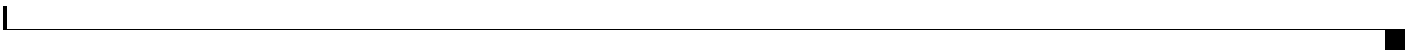
hours

seconds

seconds

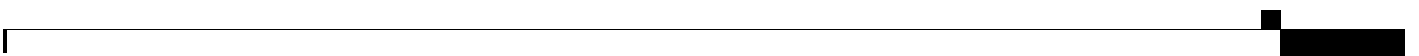
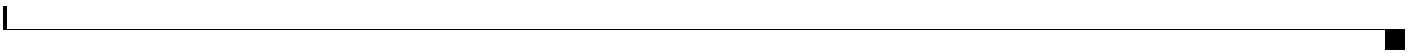
seconds











interface-name

interface-name

interface-name



Command	Description







```
interface Loopback0
 ip address 10.88.0.1 255.255.255.255
!
interface virtual-template 1
 ip unnumber Loopback0
 no ip directed-broadcast
 encapsulation gtp
 gprs access-point-list abc
!
gprs access-point-list abc
 access-point 1
  access-point-name gprs.pdn1.com
  ip address-pool dhcp-proxy-client
  aggregate auto
```



```
dhcp-server 10.100.0.3
dhcp-gateway-address 10.88.0.1
exit
!
access-point 2
access-point-name gprs.pdn2.com
access-mode non-transparent
aaa-group authentication abc
exit
!
gprs default ip-address-pool radius-client
!
radius-server host 10.2.3.4 auth-port 1645 acct-port 1646 non-standard
radius-server host 10.6.7.8 auth-port 1645 acct-port 1646 non-standard
radius-server host 10.10.0.1 auth-port 1645 acct-port 1646 non-standard
radius-server key ggsntel
```





Release

Modification



Cisco IOS Terminal Services Configuration Guide
Cisco IOS Configuration Fundamentals Configuration Guide

Recycle Delay

Examples



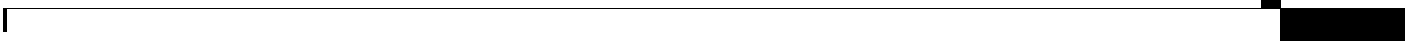
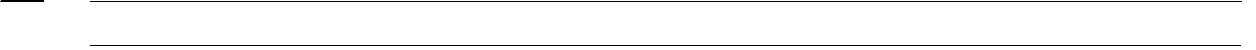
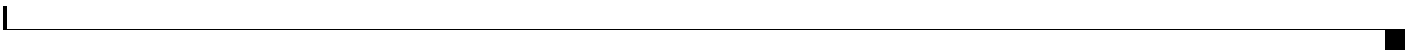
Note

```
ip local pool p1_g1 10.1.1.1 10.1.1.50 group grp1
ip local pool p2_g1 10.1.1.100 10.1.1.110 group grp1
ip local pool p1_g2 10.1.1.1 10.1.1.40 group grp2
ip local pool lp1 10.1.1.1 10.1.1.10
ip local pool p3_g1 10.1.2.1 10.1.2.30 group grp1
ip local pool p2_g2 10.1.1.50 10.1.1.70 group grp2
ip local pool lp2 10.1.2.1 10.1.2.10
```

```
ip local pool p1_vpn1 10.1.1.1 10.1.1.50 group vpn1
ip local pool p2_vpn1 10.1.1.100 10.1.1.110 group vpn1
ip local pool p1_vpn2 10.1.1.1 10.1.1.40 group vpn2
ip local pool lp1 10.1.1.1 10.1.1.10
ip local pool p3_vpn1 10.1.2.1 10.1.2.30 group vpn1
ip local pool p2_vpn2 10.1.1.50 10.1.1.70 group vpn2
ip local pool lp2 10.1.2.1 10.1.2.10
```







ipv6 (access point)

ipv6
no

ipv6 enable exclusive
no ipv6 enable exclusive

Syntax Description

Defaults

Command Modes

Command History

Usage Guidelines

ipv6 enable
exclusive

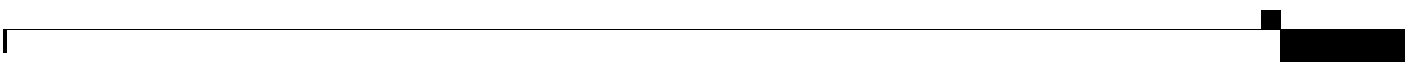
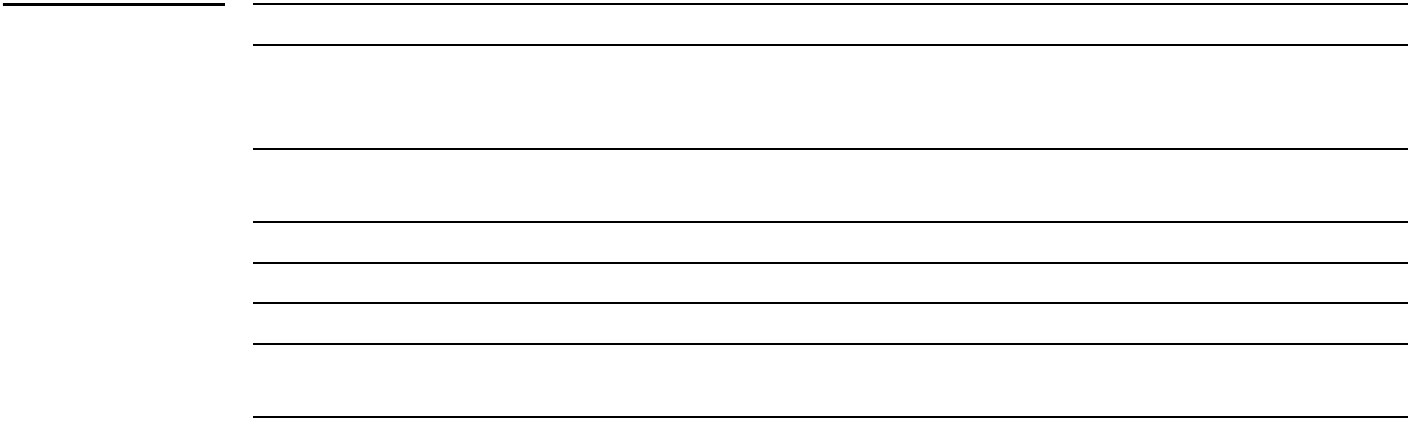
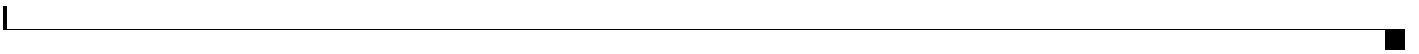

Note

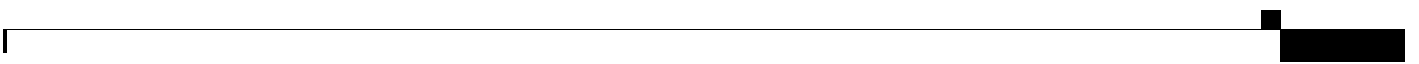
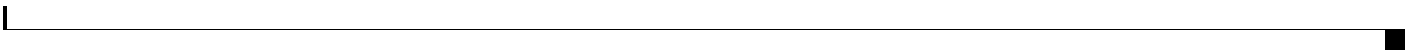

Note

ipv6

Examples

```
Router(config)# access-point 1  
Router(access-point-config)# ipv6 enable
```





Release

Modification

1.

2.



Note



Examples

```
ipv6 dns primary 3001::99 secondary 4001::99
```



ipv6 ipv6-access-group IPv6acl up



| _____ ■

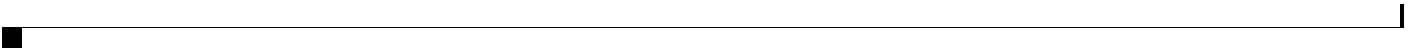
| _____ ■





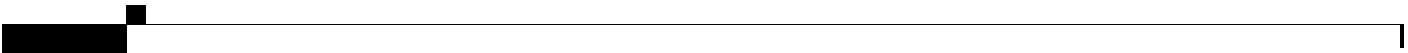
ipv6 ipv6-address-pool local localv6







(



ipv6 redirect all 3001::99

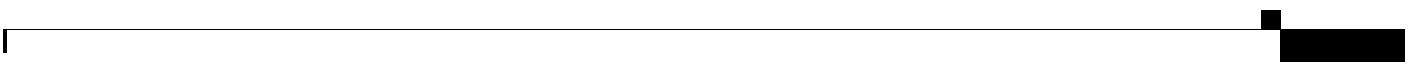
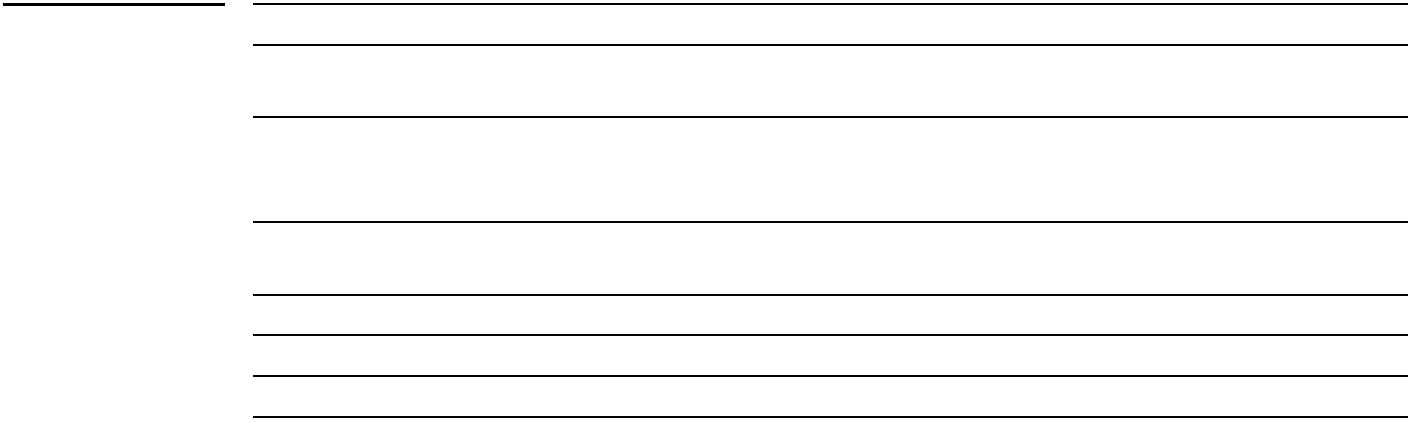
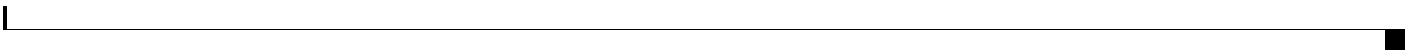
ipv6 redirect intermobile 3001::99





ipv6 security verify source









category

cdr suppression

charging profile

content dcca profile

content postpaid time

**content postpaid
validity**

**content postpaid
volume**

content rulebase

description

**gprs charging
characteristics reject**

**gprs charging
container time-trigger**

gprs charging profile

limit duration

limit volume

tariff-time

gprs charging tariff-time



limit volume
no

limit volume

[reset]

no limit volume

[reset]

reset

reset

limit duration

limit volume



limit duration

limit sgsn-change

tariff-time

gprs charging tariff-time

match flow pdp
no

match flow pdp
no match flow pdp

match flow pdp



match-any



match flow pdp

class-map

```
GGSN(config)# class-map class-pdp
GGSN(config-cmap)# Match flow pdp
GGSN(config-cmap)# exit
```

```
GGSN(config)# policy-map policy-gprs
GGSN(config-pmap)# class class-pdp
```

3.

```
GGSN(config-pmap-c)# police rate pdp [burst bytes          bytes
                        action          action          action]
GGSN(config-pmap-c)# exit
GGSN(config-pmap)# exit
```

4.

Examples

Related Commands

Command	Description

maximum delay-class

Syntax Description

Defaults

Command Modes

Command History

Release	Modification

Usage Guidelines

maximum pdp-context

Syntax Description

Defaults

Command Modes

Command History

Release	Modification

Usage Guidelines

Examples

Related Commands

Command	Description

maximum peak-throughput

Syntax Description

Defaults

Command Modes

Command History

Release	Modification

Usage Guidelines

maximum traffic-class

Syntax Description

Defaults

Command Modes

Command History

Release	Modification

Usage Guidelines

mbr traffic-class

Syntax Description

Note

Defaults

Command Modes

Command History

Release	Modification

msisdn suppression

Syntax Description

including the integers 0–9, and characters a, b, c, *, and #. The default value is that no string is sent.

Defaults

Command Modes

Command History

12.2(2)	This command was introduced.
12.2(4)MX2	This command was integrated into Cisco IOS Release 12.2(4)MX2.
12.2(8)YD	This command was integrated into Cisco IOS Release 12.2(8)YD.
12.2(8)YW	This command was integrated into Cisco IOS Release 12.2(8)YW.
12.3(2)XB	This command was integrated into Cisco IOS Release 12.3(2)XB.
12.3(8)XU	This command was integrated into Cisco IOS Release 12.3(8)XU.
12.3(11)YJ	This command was integrated into Cisco IOS Release 12.3(11)YJ.
12.3(14)YQ	This command was integrated into Cisco IOS Release 12.3(14)YQ.
12.3(14)YU	This command was integrated into Cisco IOS Release 12.3(14)YU.
12.4(2)XB	This command was integrated into Cisco IOS Release 12.4(2)XB.
12.4(9)XG	This command was integrated into Cisco IOS Release 12.4(9)XG.

Certain countries have privacy laws which prohibit service providers from identifying the MSISDN number of mobile stations in authentication requests. Use the `radius-auth-id` command to specify a value that the GGSN sends in place of the MSISDN number in its authentication requests to a RADIUS server. If no value is configured, then no number is sent to the RADIUS server.

To use the `radius-auth-id` command, you must configure a RADIUS server either globally or at the access point and specify non-transparent access mode.

The following example will override the MSISDN ID sent in the create request and will not send any ID to the RADIUS server:

Specifies whether the GGSN requests user authentication at the access point to a PDN.

Specifies an AAA server group and assigns the type of AAA services to be supported by the server group for a particular access point on the GGSN.

Specifies a default AAA server group and assigns the type of AAA services to be supported by the server group for all access points on the GGSN.

To specify the maximum number of times that the quota server attempts to send a signaling request to the CSG, use the _____ command in quota server configuration mode. To return to the default value, use the _____ form of this command.

Number between 1 and 65535 that specifies the number of times a request is attempted.

5 requests.

Quota server configuration

12.3(14)YQ	This command was introduced.
12.3(14)YU	This command was integrated into Cisco IOS Release 12.3(14)YU.
12.4(2)XB	This command was integrated into Cisco IOS Release 12.4(2)XB.
12.4(9)XG	This command was integrated into Cisco IOS Release 12.4(9)XG.

Use the _____ command to configure the maximum number of times the quota server will attempt to send a signaling request to the CSG.

The following example configures the quota server to attempt to send a signaling request no more than 3 times:

Associates the quota server to a CSG group that is to be used for quota server-to-CSG communication.

Specifies the number of seconds that the quota server waits before sending an echo-request message to the CSG.

Configures the quota server process that interfaces with the CSG for enhanced service-aware billing.

Specifies the logical interface, by name, that the quota server will use to communicate with the CSG.

Specifies the initial time that the quota server waits before resending a signaling request message when a response to a request has not been received.

Displays quota server parameters or statistics about the quota server message and error counts.

To specify a primary (and backup) NBNS to be sent in IPv4 create PDP responses at the access point, use the `ip nbns` command in access point configuration mode. To remove the NBNS from the access point configuration, use the `no ip nbns` form of this command

[`ip nbns`]

IPv4 address of the primary NBNS.

(Optional) Specifies the IPv4 address of the backup NBNS.

No default behavior or values.

Access point configuration

12.3(2)XB	This command was introduced.
12.3(8)XU	This command was integrated into Cisco IOS Release 12.3(8)XU.
12.3(11)YJ	This command was integrated into Cisco IOS Release 12.3(11)YJ.
12.3(14)YQ	This command was integrated into Cisco IOS Release 12.3(14)YQ.
12.3(14)YU	This command was integrated into Cisco IOS Release 12.3(14)YU.
12.4(2)XB	This command was integrated into Cisco IOS Release 12.4(2)XB.
12.4(9)XG	This command was integrated into Cisco IOS Release 12.4(9)XG.

Use the `ip nbns` command to specify the primary (and backup) NBNS at the access point level.



The `ip nbns` configuration applies to IPv4 PDPs only.

This feature is benefits address allocation schemes where there is no mechanism to obtain these address. Also, for a RADIUS-based allocation scheme, it prevents the operator from having to configure a NBNS and DNS under each user profile.

The NBNS address can come from three possible sources: DHCP server, RADIUS server, or local APN configuration. The criterion for selecting the NBNS address depends on the IP address allocation scheme configured under the APN.

Depending on the configuration, the criterion for selecting the DNS and NBNS addresses is as follows:

DHCP-based IP address allocation scheme (local and external)—NBNS address returned from the DHCP server is sent to the MS. If the DHCP server does not return an NBNS address, the local APN configuration is used.

RADIUS-based IP address allocation scheme—NBNS address returned from the RADIUS server (in Access-Accept responses) is used. If the RADIUS server does not return an NBNS address, the local APN configuration is used.

Local IP Address Pool-based IP address allocation scheme—Local APN configuration is used.

Static IP Addresses—Local APN configuration is used.



The GGSN sends DNS addresses in the create PDP response only if the MS is requesting the DNS address in the PCO IE.

The following example specifies a primary and secondary NBNS at the access point level:

Specifies a dynamic address allocation method using IP address pools for the current access point.

Specifies a primary (and backup) DNS at the access point level.

To enable an access point to support routing behind the mobile station (MS), use the `network-behind-mobile` command in access point configuration mode. To disable support for routing behind the MS, use the `no network-behind-mobile` form of this command.

This command has no arguments or keywords.

No default behavior or values.

Access point configuration

12.3(8)T	This command was introduced.
12.3(8)XU	This command was integrated into Cisco IOS Release 12.3(8)XU.
12.3(11)YJ	This command was integrated into Cisco IOS Release 12.3(11)YJ.
12.3(14)YQ	This command was integrated into Cisco IOS Release 12.3(14)YQ.
12.3(14)YU	This command was integrated into Cisco IOS Release 12.3(14)YU.
12.4(2)XB	This command was integrated into Cisco IOS Release 12.4(2)XB.
12.4(9)XG	This command was integrated into Cisco IOS Release 12.4(9)XG.

Use the `network-behind-mobile` access point configuration command to enable an access point to support routing behind the MS. The routing behind the MS feature enables the routing of packets to IP addresses that do not belong to the PDP context (the MS), but exist behind it. The network address of the destination can be different than the MS address.

Before enabling routing behind the MS, the following requirements must be met:

- The MS must use RADIUS for authentication and authorization.

- At minimum, one Framed-Route, attribute 22 as defined in Internet Engineering Task Force (IETF) standard RFC 2865, must be configured in the RADIUS server for each MS that wants to use this feature.

- When configured, the Framed-Route attribute is automatically downloaded to the GGSN during the authentication and authorization phase of the PDP context creation. If routing behind the MS is not enabled, the GGSN ignores the Framed-Route attribute. If multiple Framed-Route attributes have been configured for an MS, the GGSN uses the first attribute configured. When the MS session is no longer active, the route is deleted.

For PDP Regen or PPP with L2TP sessions, the Framed-Route attribute must be configured in the RADIUS server of the LNS.

For PPP Regen sessions, if the `ppp-regen` command is configured, the Framed-Route attribute must also be configured in the user profile in the GGSN RADIUS server. Packets routed behind the MS share the same 3GPP QoS settings of the MS.

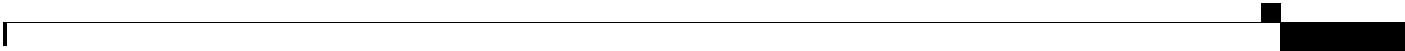
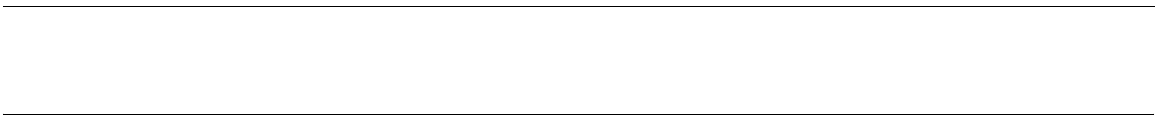
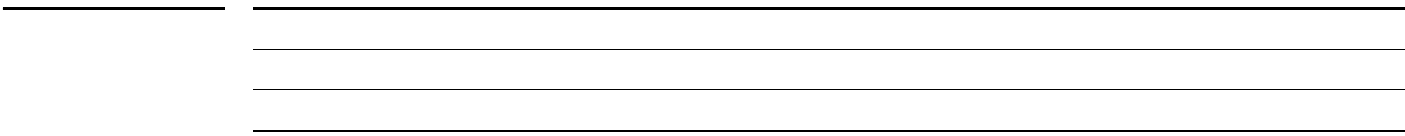
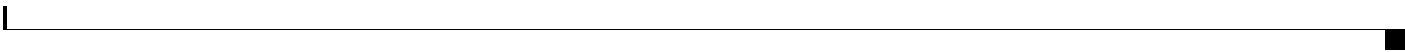
Static routes are not configured. The configuration of the routing behind the mobile station feature (Framed Route, attribute 22) and static routes at the same time is not supported.



The `ppp-regen` command configuration applies to IPv4 PDPs only.

The following example shows how to enable support for routing behind the MS at access point 200:

```
network-behind-mobile
```





set-dscp-transmit new-dscp—Sets the IP differentiated services code point (DSCP) value and sends the packet with the new IP DSCP value setting.

set-prec-transmit new-prec—Sets the IP precedence and sends the packet with the new IP precedence value setting.

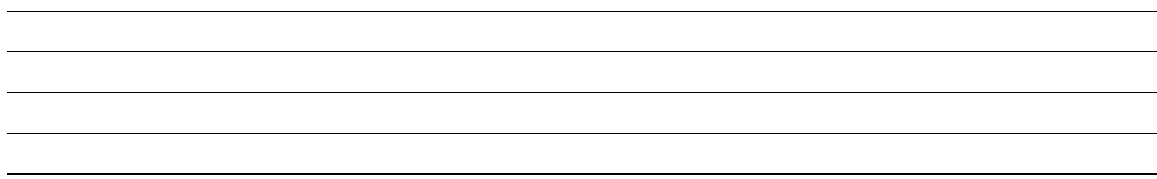
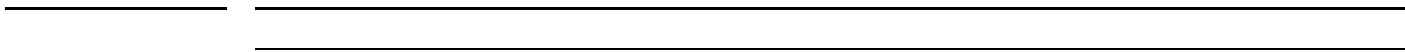
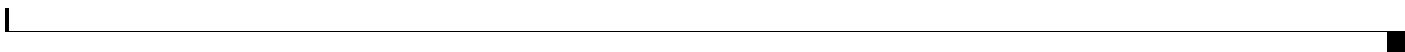
transmit—Sends the packet with no alteration.



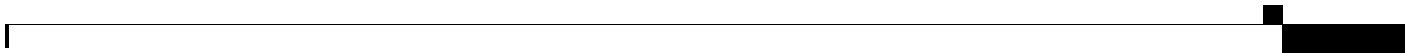
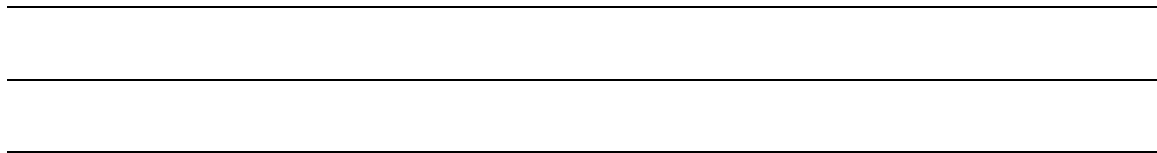
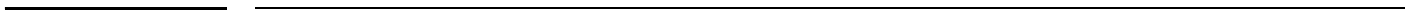
```
! Configures a policy-map and attaches this class map into it.

policy-map policy-gprs
class class-pdp
  police rate pdp
    conform-action set-dscp-transmit 15
    exceed-action set-dscp-transmit 15
    violate-action drop
```



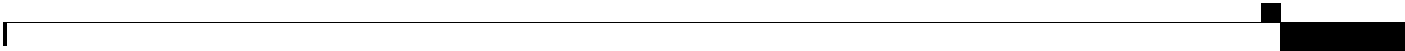
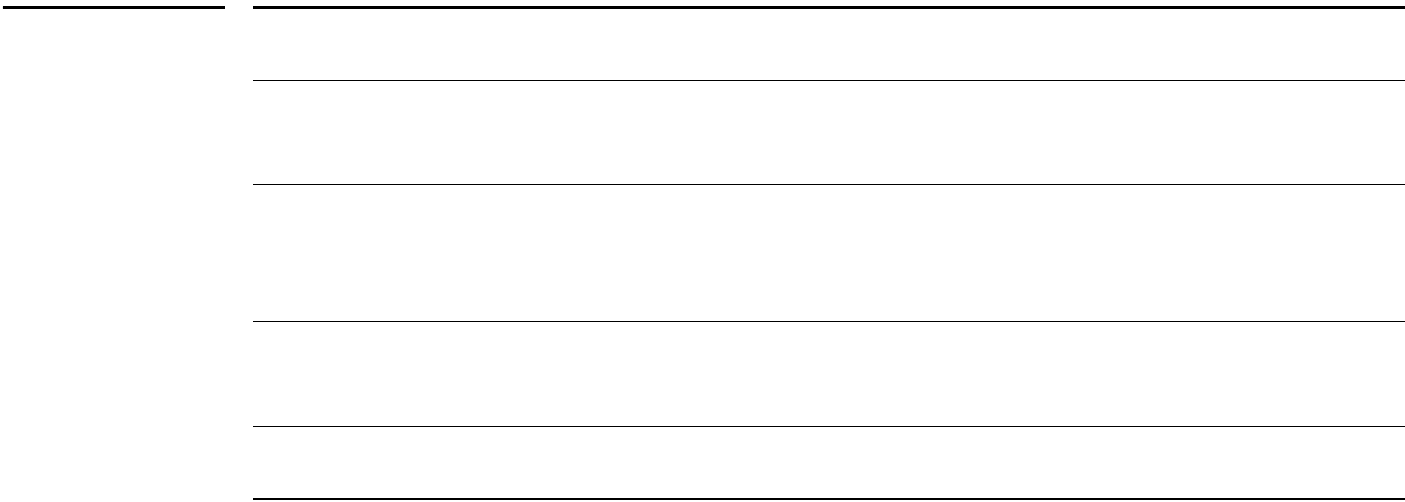
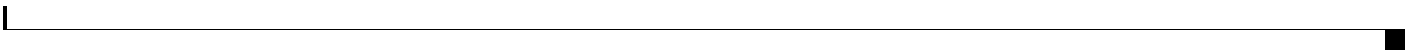


port 4444















Configuration Guide

Cisco IOS Mobile Wireless

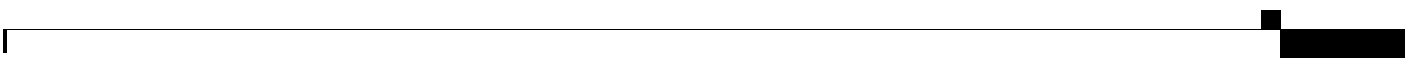
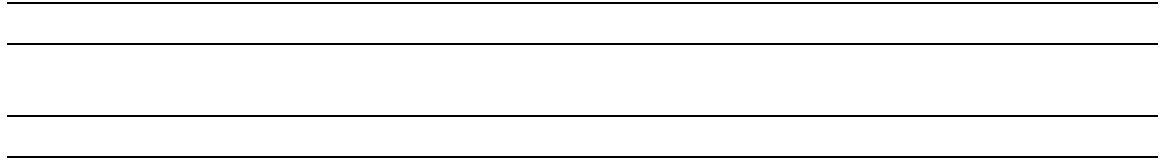
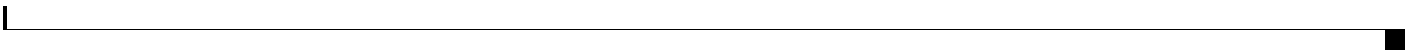


| _____ ■

| _____ ■







word

Text string sent in attribute 32 that identifies the NAS originating in the access-request packets.

12.3(2)XB	This command was introduced.
12.3(8)XU	This command was integrated into Cisco IOS Release 12.3(8)XU.
12.3(11)YJ	This command was integrated into Cisco IOS Release 12.3(11)YJ.
12.3(14)YQ	This command was integrated into Cisco IOS Release 12.3(14)YQ.
12.3(14)YU	This command was integrated into Cisco IOS Release 12.3(14)YU.
12.4(2)XB	This command was integrated into Cisco IOS Release 12.4(2)XB.
12.4(9)XG	This command was integrated into Cisco IOS Release 12.4(9)XG.

format

radius-server attribute 32 include-in-access-req

GGSN GATEWAY1

Specifies whether the GGSN requests user authentication at the access point to a PDN.

Specifies an AAA server group and assigns the type of AAA services to be supported by the server group for a particular access point on the GGSN.

Specifies a default AAA server group and assigns the type of AAA services to be supported by the server group for all access points on the GGSN.

Displays information about access points on the GGSN.

To specify that the gateway GPRS support node (GGSN) suppress the Third Generation Partnership Project (3GPP) vendor-specific attribute (VSA) 3GPP-IMSI number in its authentication and accounting requests to a RADIUS server, use the `radius-server` command in access point configuration mode. To enable the GGSN to send the 3GPP VSA 3GPP-IMSI number in authentication and accounting requests to a RADIUS server, use the `radius-server` form of the command.

This command has no arguments or keywords.

The default is to send the 3GPP VSA 3GPP-IMSI number in authentication and accounting requests to a RADIUS server.

Access point configuration

12.2(8)YD	This command was introduced.
12.2(8)YW	This command was integrated into Cisco IOS Release 12.2(8)YW.
12.3(2)XB	This command was integrated into Cisco IOS Release 12.3(2)XB.
12.3(8)XU	This command was integrated into Cisco IOS Release 12.3(8)XU.
12.3(11)YJ	This command was integrated into Cisco IOS Release 12.3(11)YJ.
12.3(14)YQ	This command was integrated into Cisco IOS Release 12.3(14)YQ.
12.3(14)YU	This command was integrated into Cisco IOS Release 12.3(14)YU.
12.4(2)XB	This command was integrated into Cisco IOS Release 12.4(2)XB.
12.4(9)XG	This command was integrated into Cisco IOS Release 12.4(9)XG.

Use the `radius-server` command to have GGSN suppress the 3GPP VSA 3GPP-IMSI number in its authentication and accounting requests to a RADIUS server.

The following example will not send the 3GPP VSA 3GPP-IMSI to the RADIUS server:

Specifies whether the GGSN requests user authentication at the access point to a PDN.

Specifies an AAA server group and assigns the type of AAA services to be supported by the server group for a particular access point on the GGSN.

Specifies a default AAA server group and assigns the type of AAA services to be supported by the server group for all access points on the GGSN.

Displays information about access points on the GGSN.

To specify that the gateway GPRS support node (GGSN) suppress the 3GPP VSA 3GPP-GPRS-QoS-Profile in its authentication and accounting requests to a RADIUS server, use the `no radius-server-attributes` command in access point configuration mode. To enable the GGSN to send the 3GPP VSA 3GPP-GPRS-QoS-Profile in authentication and accounting requests to a RADIUS server, use the `radius-server-attributes` form of the command.

This command has no arguments or keywords.

The default is to send the 3GPP VSA 3GPP-GPRS-QoS-Profile in authentication and accounting requests to a RADIUS server.

Access point configuration

12.2(8)B	This command was introduced.
12.2(8)YW	This command was integrated into Cisco IOS Release 12.2(8)YW.
12.3(2)XB	This command was integrated into Cisco IOS Release 12.3(2)XB.
12.3(8)XU	This command was integrated into Cisco IOS Release 12.3(8)XU.
12.3(11)YJ	This command was integrated into Cisco IOS Release 12.3(11)YJ.
12.3(14)YQ	This command was integrated into Cisco IOS Release 12.3(14)YQ.
12.3(14)YU	This command was integrated into Cisco IOS Release 12.3(14)YU.
12.4(2)XB	This command was integrated into Cisco IOS Release 12.4(2)XB.
12.4(9)XG	This command was integrated into Cisco IOS Release 12.4(9)XG.

Use the `radius-server-attributes` command to have GGSN suppress the 3GPP VSA 3GPP-GPRS-QoS-Profile in its authentication and accounting requests to a RADIUS server.

The following example will not send the 3GPP VSA 3GPP-GPRS-QoS-Profile to the RADIUS server:

Specifies whether the GGSN requests user authentication at the access point to a PDN.

Specifies an AAA server group and assigns the type of AAA services to be supported by the server group for a particular access point on the GGSN.

Specifies a default AAA server group and assigns the type of AAA services to be supported by the server group for all access points on the GGSN.

Displays information about access points on the GGSN.

To specify that the gateway GPRS support node (GGSN) suppress the 3GPP VSA 3GPP-SGSN-Address in its authentication and accounting requests to a RADIUS server, use the _____ command in access point configuration mode. To enable the GGSN to send the 3GPP VSA 3GPP-SGSN-Address in authentication and accounting requests to a RADIUS server, use the _____ form of the command.

This command has no arguments or keywords.

The default is to send the 3GPP VSA 3GPP-SGSN-Address in authentication and accounting requests to a RADIUS server.

Access point configuration

12.2(8)B	This command was introduced.
12.2(8)YW	This command was integrated into Cisco IOS Release 12.2(8)YW.
12.3(2)XB	This command was integrated into Cisco IOS Release 12.3(2)XB.
12.3(8)XU	This command was integrated into Cisco IOS Release 12.3(8)XU.
12.3(11)YJ	This command was integrated into Cisco IOS Release 12.3(11)YJ.
12.3(14)YQ	This command was integrated into Cisco IOS Release 12.3(14)YQ.
12.3(14)YU	This command was integrated into Cisco IOS Release 12.3(14)YU.
12.4(2)XB	This command was integrated into Cisco IOS Release 12.4(2)XB.
12.4(9)XG	This command was integrated into Cisco IOS Release 12.4(9)XG.

Use the _____ command to have GGSN suppress the 3GPP VSA 3GPP-SGSN-Address in its authentication and accounting requests to a RADIUS server.

The following example will not send the 3GPP VSA 3GPP-SGSN-Address to the RADIUS server:

Specifies whether the GGSN requests user authentication at the access point to a PDN.

Specifies an AAA server group and assigns the type of AAA services to be supported by the server group for a particular access point on the GGSN.

Specifies a default AAA server group and assigns the type of AAA services to be supported by the server group for all access points on the GGSN.

Displays information about access points on the GGSN.

To specify that the gateway GPRS support node (GGSN) include the MSISDN in the User-Name (attribute 1) in access requests at an APN, use the `ggsn user-name msisdn` command in access point configuration mode. To disable this configuration, use the `no ggsn user-name msisdn` form of this command.

This command has no arguments or keywords.

The default is to send the user name in the attribute 1.

Access point configuration

12.3(8)XU	This command was introduced.
12.3(11)YJ	This command was integrated into Cisco IOS Release 12.3(11)YJ.
12.3(14)YQ	This command was integrated into Cisco IOS Release 12.3(14)YQ.
12.3(14)YU	This command was integrated into Cisco IOS Release 12.3(14)YU.
12.4(2)XB	This command was integrated into Cisco IOS Release 12.4(2)XB.
12.4(9)XG	This command was integrated into Cisco IOS Release 12.4(9)XG.

Use the `ggsn user-name msisdn` command to have GGSN send the MSISDN in the User-Name (attribute 1) instead of the user name in authentication and accounting requests to a RADIUS server.

The following example will send the MSISDN in access requests to the RADIUS server:

Specifies whether the GGSN requests user authentication at the access point to a PDN.

Specifies an AAA server group and assigns the type of AAA services to be supported by the server group for a particular access point on the GGSN.

Specifies a default AAA server group and assigns the type of AAA services to be supported by the server group for all access points on the GGSN.

Displays information about access points on the GGSN.

To configure the IP address of a real Content Services Gateway (CSG) for source checking on inbound messages from a CSG, use the `real-address` command in CSG group configuration mode.
To deconfigure the IP address of a real CSG, use the `no real-address` form of this command

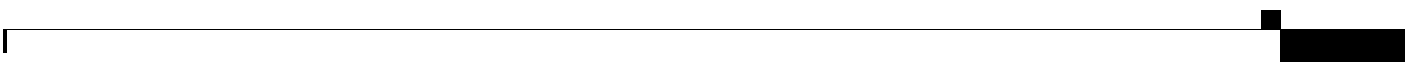
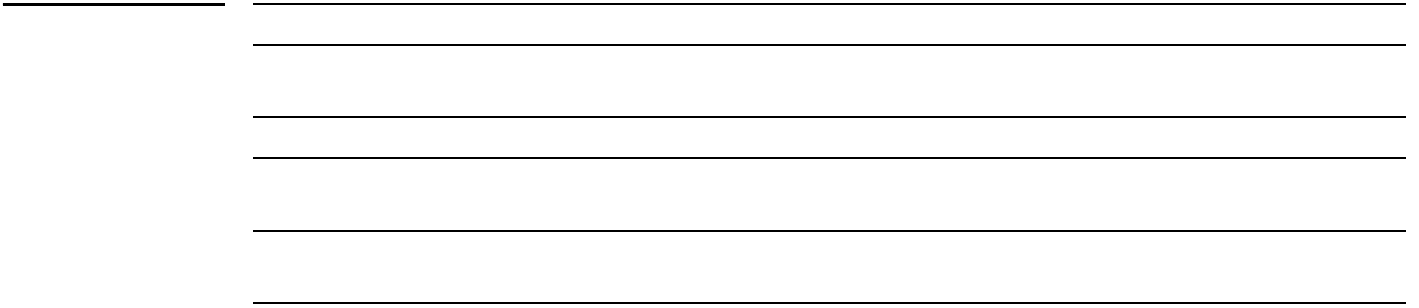
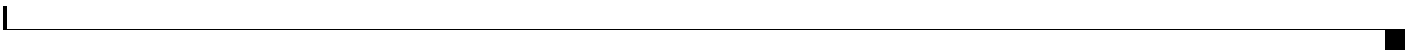
No default behavior or values.

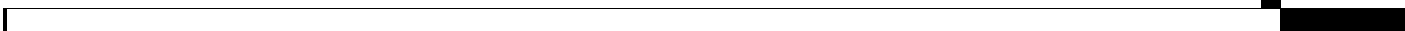
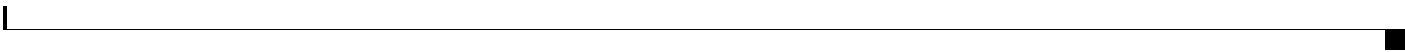
CSG group configuration

Use the `real-address` CSG group configuration command to configure the IP address of a real CSG. Configuring the IP address of a real CSG provides an additional security check against the source of messages. When configured, source address checking is performed on inbound message from the CSG. For redundancy, you can configure up to two real IP addresses of CSGs in a CSG server group. Using the `no real-address` form of this command will remove the IP address from the list of IP addresses of a CSG server group.

The following configuration example configures two real IP addresses in CSG group csg1:

```
real-address 5.1.1.1
real-address 5.1.1.2
```

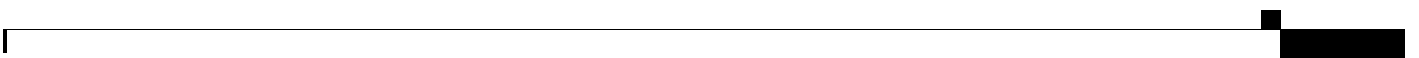
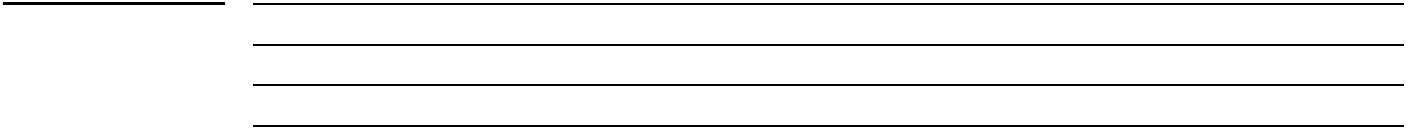
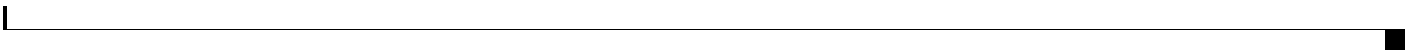








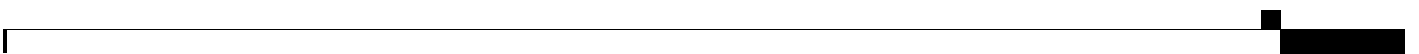
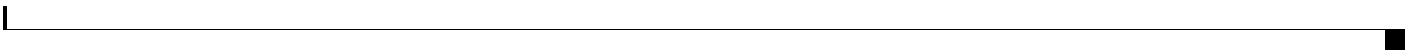


















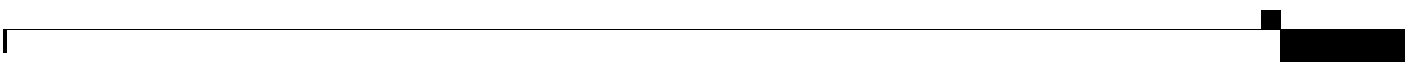
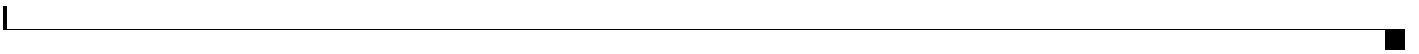








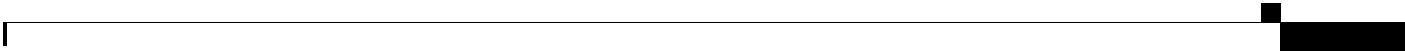
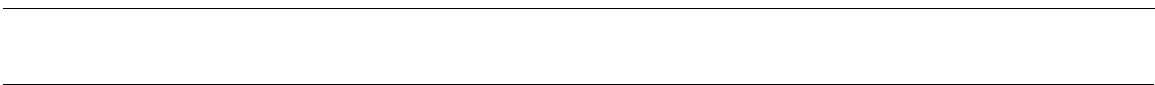
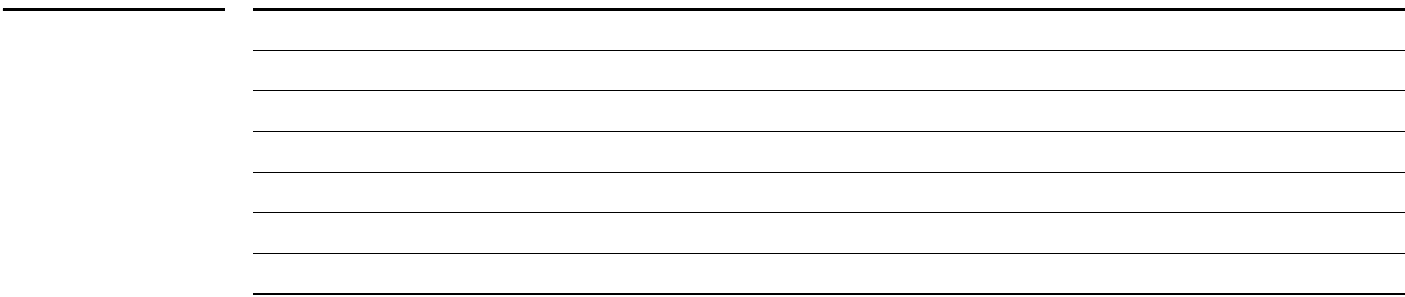
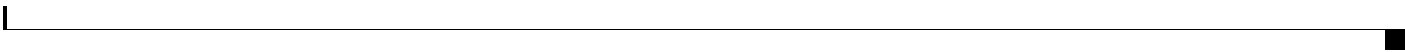






service-aware













Caution

1.

2.

```
GGSN(config)# Policy-map policy-gprs  
GGSN(config-pmap)# Class class-pdp
```

3.

```
GGSN(config-pmap-c)# police rate pdp [burst          [peak-rate pdp peak-burst  
conform-action          exceed-action          [violate-action          ]  
GGSN(config-pmap-c)# exit  
GGSN(config-pmap)# exit
```

4.

```
GGSN(config)# Access-point 1  
GGSN(access-point-config) Service-policy in policy-gprs
```

Examples

```
access-point 1  
service-policy in policy-gprs
```

Related Commands

Command	Description
---------	-------------



Note

Examples

```
gprs access-point-list abc
  access-point 1
    access-point-name gprs.pdn1.com
    session idle-time 5

gprs idle-pdp-context purge-timer 60
```

Related Commands

Command	Description

session-failover

Syntax Description

Defaults

Command Modes

Command History

Release	Modification

Usage Guidelines

Examples

```
gprs dcca profile dcca-profile1
  authorization dcca-method
  tx-timeout 12
  ccfh continue
```

Related Commands

Command

Description

Command	Description