



Ultra Cloud Core 5G Session Management Function, Release 2022.04 - CLI Command Reference

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About this Guide



Note The documentation set for this product strives to use bias-free language. For purposes of this documentation set, bias-free is defined as language that does not imply discrimination based on age, disability, gender, racial identity, ethnic identity, sexual orientation, socioeconomic status, and intersectionality. While any existing biased terms are being substituted, exceptions may be present in the documentation due to language that is hardcoded in the user interfaces of the product software, language used based on RFP documentation, or language that is used by a referenced third-party product.

This preface describes the *5G Session Management Function Guide*, how it is organized and its document conventions.

This guide describes the Cisco Session Management Function (SMF) and includes infrastructure and interfaces, feature descriptions, specification compliance, session flows, configuration instructions, and CLI commands for monitoring and troubleshooting the system.

- [Conventions Used, on page xxix](#)

Conventions Used

The following tables describe the conventions used throughout this documentation.

Notice Type	Description
Information Note	Provides information about important features or instructions.
Caution	Alerts you of potential damage to a program, device, or system.
Warning	Alerts you of potential personal injury or fatality. May also alert you of potential electrical hazards.

Typeface Conventions	Description
Text represented as a screen display	This typeface represents displays that appear on your terminal screen, for example: <code>Login:</code>

Typeface Conventions	Description
Text represented as commands	<p>This typeface represents commands that you enter, for example:</p> <p>show ip access-list</p> <p>This document always gives the full form of a command in lowercase letters. Commands are not case sensitive.</p>
Text represented as a command <i>variable</i>	<p>This typeface represents a variable that is part of a command, for example:</p> <p>show card <i>slot_number</i></p> <p><i>slot_number</i> is a variable representing the desired chassis slot number.</p>
Text represented as menu or sub-menu names	<p>This typeface represents menus and sub-menus that you access within a software application, for example:</p> <p>Click the File menu, then click New</p>



CHAPTER 1

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aaa

Configures AAA-based user management parameters.

Command Modes

Exec

Syntax Description

```
aaa { authentication { users list_of_local_users admin change-password
old-password user_password new-password user_password confirm-password
user_password } }
```

users *list_of_local_users*

Specify the user name.

Must be a string.

old-password *user_password*

Specify the user's current password.

Must be a string.

new-password *user_password*

Specify the user's new password.

Must be a string.

confirm-password *user_password*

Reenter the user's new password.

Must be a string.

Usage Guidelines Use this command to configure the AAA based user management parameters.

active-charging service

Configures Active Charging Service (ACS) parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **active-charging service** *service_name*

service *service_name*

Specify name of the Active Charging Service.

Must be a string of 1-15 characters.

Usage Guidelines Use this command to configure the ACS parameters.

You can configure a maximum of one element with this command.

active-charging service bandwidth-policy

Configures ACS bandwidth policy parameters.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name)

Syntax Description **bandwidth-policy** *bandwidth_policy_name*

bandwidth-policy *bandwidth_policy_name*

Specify name of the ACS Bandwidth Policy.

Must be a string of 1-63 characters.

Usage Guidelines

Use this command to configure ACS bandwidth policy parameters. The CLI prompt changes to the Bandwidth Policy Configuration mode (`config-bandwidth-policy-<policy_name>`).

You can configure a maximum of 64 elements with this command.

active-charging service bandwidth-policy flow limit-for-bandwidth id

Configures bandwidth ID and bandwidth policy group parameters.

Command Modes

Exec > Global Configuration (`config`) > ACS Configuration (`config-service-acs_name`) > Bandwidth Policy Configuration (`config-bandwidth-policy-policy_name`)

Syntax Description

flow limit-for-bandwidth id *id* **group-id** *group_id*

group-id *group_id*

Specify the bandwidth policy group ID.

Must be an integer in the range of 1-65535.

id *id*

Specify the bandwidth ID.

Must be an integer in the range of 1-65535.

Usage Guidelines

Use this command to configure the bandwidth ID and bandwidth policy group parameters.

You can configure a maximum of 1000 elements with this command.

active-charging service bandwidth-policy group-id

Configures bandwidth policy group ID.

Command Modes

Exec > Global Configuration (`config`) > ACS Configuration (`config-service-acs_name`) > Bandwidth Policy Configuration (`config-bandwidth-policy-policy_name`)

Syntax Description

group-id *group_id*

group-id *group_id*

Specify the bandwidth policy group ID.

Must be an integer in the range of 1-65535.

Usage Guidelines

Use this command to configure the bandwidth policy group ID.

You can configure a maximum of 1000 elements with this command.

active-charging service bandwidth-policy group-id direction downlink grpPeakBwp

Configures peak bandwidth parameters.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Bandwidth Policy Configuration (config-bandwidth-policy-policy_name)

Syntax Description **group-id** *group_id* **direction downlink** **peak-data-rate-kbps** *peak_data_rate* **peak-burst-size** *peak_burst_size* **violate-action lower-ip-precedence** **committed-data-rate-kbps**

Syntax Description **group-id** *group_id* **direction uplink** **peak-data-rate-kbps** *peak_data_rate* **peak-burst-size** *peak_burst_size* **violate-action lower-ip-precedence** **committed-data-rate-kbps**

committed-burst-size *committed_burst_size*

Specify the committed burst size in bytes.

Must be an integer in the range of 1-4294967295.

committed-options *committed_option*

Specify the committed option.

Must be one of the following:

- **committed-data-rate-kbps**: Specify Committed Data Rate in kilo bits per second. This can also be used to specify GBR for Bearer Binding (without the exceed-action).
- **committed-data-rate**: Specify Committed Data Rate in bits per second. This can also be used to specify GBR for flow Binding (without the exceed-action).

committed-value *committed_value*

Specify the bandwidth in bits per second.

Must be an integer in the range of 1-4294967295.

exceed-action *exceed_action*

Specify the action to be taken if committed data rate is surpassed.

Must be one of the following:

- **discard**: Specify to discard the packet.
- **lower-ip-precedence**: Specify to lower the IP precedence of the packet.

peak-burst-size *peak_burst_size*

Specify the burst size in bytes.

Must be an integer in the range of 1-4294967295.

peak-options *peak_options*

Specify the peak data rate option.

Must be one of the following:

- **peak-data-rate-kbps**: Specify Peak Data Rate in kilo bits per second.
- **peak-data-rate**: Specify Peak Data Rate in bits per second.

peak-value *peak_value*

Specify the bandwidth in bits per second.

Must be an integer in the range of 1-4294967295.

violate-action *violate_action*

Specify the action to be taken if Peak Data Rate is surpassed.

Must be one of the following:

- **discard**: Specify to discard the packet.
- **lower-ip-precedence**: Specify to lower the IP precedence of the packet.

Usage Guidelines

Configures bandwidth control in downlink or uplink directions. Use this command to configure the peak bandwidth parameters.

active-charging service bandwidth-policy group-id direction uplink grpPeakBwp

Configures peak bandwidth parameters.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Bandwidth Policy Configuration (config-bandwidth-policy-policy_name)

Syntax Description

group-id *group_id* **direction** **downlink** **peak-data-rate-kbps** *peak_data_rate*
peak-burst-size *peak_burst_size* **violate-action** **lower-ip-precedence**
committed-data-rate-kbps

Syntax Description

group-id *group_id* **direction** **uplink** **peak-data-rate-kbps** *peak_data_rate*
peak-burst-size *peak_burst_size* **violate-action** **lower-ip-precedence**
committed-data-rate-kbps

committed-burst-size *committed_burst_size*

Specify the committed burst size in bytes.

Must be an integer in the range of 1-4294967295.

committed-options *committed_option*

Specify the committed option.

Must be one of the following:

- **committed-data-rate-kbps**: Specify Committed Data Rate in kilo bits per second. This can also be used to specify GBR for Bearer Binding (without the exceed-action).
- **committed-data-rate**: Specify Committed Data Rate in bits per second. This can also be used to specify GBR for flow Binding (without the exceed-action).

committed-value *committed_value*

Specify the bandwidth in bits per second.

Must be an integer in the range of 1-4294967295.

exceed-action *exceed_action*

Specify the action to be taken if committed data rate is surpassed.

Must be one of the following:

- **discard**: Specify to discard the packet.
- **lower-ip-precedence**: Specify to lower the IP precedence of the packet.

peak-burst-size *peak_burst_size*

Specify the burst size in bytes.

Must be an integer in the range of 1-4294967295.

peak-options *peak_options*

Specify the peak data rate option.

Must be one of the following:

- **peak-data-rate-kbps**: Specify Peak Data Rate in kilo bits per second.
- **peak-data-rate**: Specify Peak Data Rate in bits per second.

peak-value *peak_value*

Specify the bandwidth in bits per second.

Must be an integer in the range of 1-4294967295.

violate-action *violate_action*

Specify the action to be taken if Peak Data Rate is surpassed.

Must be one of the following:

- **discard**: Specify to discard the packet.
- **lower-ip-precedence**: Specify to lower the IP precedence of the packet.

Usage Guidelines Configures bandwidth control in downlink or uplink directions. Use this command to configure the peak bandwidth parameters.

active-charging service buffering-limit

Configures flow/session-based packet buffering.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name)

Syntax Description **buffering-limit** { [**flow-max-packets** *flow_max_packets*] [**subscriber-max-packets** *subscriber_max_packets*] }

flow-max-packets *flow_max_packets*

Specify the maximum number of packets to be buffered per flow.

Must be an integer in the range of 1-255.

subscriber-max-packets *subscriber_max_packets*

Specify the maximum number of packets to be buffered per subscriber.

Must be an integer in the range of 1-255.

Usage Guidelines Use this command to configure flow/session-based packet buffering configuration.

active-charging service charging-action

Configures ACS charging actions.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name)

Syntax Description **charging-action** *charging_action_name* [[**content-id** *content_id*] [**nexthop-forwarding-address** { *ipv4_address* | *ipv6_address* } [**qos-class-identifier** *qos_class_id*] [**service-identifier** *service_id*] [**ft-notify-ue**]]

charging-action *charging_action_name*

Specify name of the charging action.

Must be a string of 1-63 characters.

content-id *content_id*

Specify the content ID to use in the generated billing records, as well as the AVP used by the Credit Control Application, such as the "Rating-Group" AVP for use by the Diameter Credit Control Application (DCCA). This identifier assists the carrier's billing post processing and is also used by the credit-control system to use independent quotas for different value of content-id.

Must be an integer in the range of 1-2147483647.

nexthop-forwarding-address { *ipv4_address* | *ipv6_address* }

Specify the nexthop forwarding address for this charging action. When an uplink packet matches a rule and a charging action is applied to it this nexthop forwarding address is used.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

-Or-

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

qos-class-identifier *qos_class_id*

Specify the QoS Class Identifier (QCI).

Must be an integer in the range of 1-9.

service-identifier *service_id*

Specify the service identifier to use in the generated billing records, as well as the AVP used by the Credit Control Application, such as the "Service-Identifier" AVP for use by DCCA. This is a more general classifier than content-id.

Must be an integer in the range of 1-2147483647.

tft-notify-ue

Specify whether or not TFT updates are sent to UE. Use this command to suppress the selected TFT updates from being sent to the UE. This helps to identify if the appropriate TFT defined in the charging action needs to be sent to the UE or not.

Usage Guidelines

Use this command to create and configure an ACS charging action. A charging action represents actions to be taken when a configured rule is matched. Actions could range from generating an accounting record (for example, an EDR) to dropping the IP packet, etc. The charging action will also determine the metering principle whether to count retransmitted packets and which protocol field to use for billing (L3/L4/L7 etc).

Example

The following command creates a charging action named action123 and changes to the ACS Charging Action Configuration Mode:

```
charging-action action123
```

active-charging service charging-action allocation-retention-priority

Configures the Allocation Retention Priority (ARP).

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-*acs_name*) > Charging Action Configuration (config-charging-action-*charging_action_name*)

Syntax Description `allocation-retention-priority` *priority_level* { **pci** *preemption_capability_indicator* | **pvi** *preemption_vulnerability_indicator* }

allocation-retention-priority *priority_level*

Specify the priority.

Must be an integer in the range of 1-15.

pci *preemption_capability_indicator*

Specify the Pre-emption Capability Indicator (PCI).

Must be one of the following:

- **MAY_PREEMPT**
- **NOT_PREEMPT**

pvi *preemption_vulnerability_indicator*

Specify the Pre-emption Vulnerability Indicator (PVI).

Must be one of the following:

- **NOT_PREEMPTABLE**
- **PREEMPTABLE**

Usage Guidelines

This command configures the ARP, which indicates the priority of allocation and retention of the service data flow. The ARP resolves conflicts in demand for network resources. At the time of resource crunch, this parameter prioritizes allocation of resources during bearer establishment and modification. In a congestion situation, a lower ARP flow may be dropped to free up capacity. Once a service flow is successfully established, this parameter plays no role in quality of service (QoS) experienced by the flow.

Example

The following command sets the ARP to 10:

```
allocation-retention-priority 10
```

active-charging service charging-action billing-action

Configures the billing action for packets that match specific ruledefs.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description `billing-action` **egcdr**

egcdr

Specify to enable eG-CDR billing.

Usage Guidelines Use this command to enable eG-CDR type of billing for content matching this charging action.

active-charging service charging-action cca charging credit

Configures the Credit Control Charging Credit behavior.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description `cca charging credit [rating-group coupon_id] [preemptively-request]`

preemptively-request

Specify preemptively requested charging credit behavior.

rating-group coupon_id

Specify the coupon ID used in prepaid charging as rating-group which maps to the coupon ID for prepaid customer. This option also assigns different content-types for the same charging action depending upon whether or not prepaid is enabled. This rating-group overrides the content ID, if present in the same charging-action for the prepaid customer in Diameter Credit Control Application (DCCA). But, only the content IDs will be used in eG-CDRs irrespective of the presence of rating-group in that charging action.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to configure RADIUS/Diameter Prepaid Credit Control Charging Credit behavior.

active-charging service charging-action flow action

Configures to take the redirect-url or terminate-flow action on packets that match ruledefs.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description `flow action { redirect-url redirect_url | terminate-flow }`

redirect-url redirect_url

Specify to redirect URL.

Must be a string.

terminate-flow

Specify to terminate flow.

Usage Guidelines Use this command to specify the action to take on packets, for example to terminate.

Example

The following command sets the flow action to terminate:

```
flow action terminate-flow
```

active-charging service charging-action flow action discard

Configures discard action on packets that match ruledefs.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description `flow action discard [downlink | uplink]`

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines Use this command to configure discard action on packets that match ruledefs.

active-charging service charging-action flow action readdress

Configures the readdress server for this charging action.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description `flow action readdress server { ipv4_address | ipv6_address }`

server { ipv4_address | ipv6_address }

Specify IP address of the readdress server.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

-Or-

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

Usage Guidelines Use this command to configure the readdress server for this charging action.

active-charging service charging-action flow limit-for-bandwidth

For Session Control functionality, this command allows you to enable or disable bandwidth limiting.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description `flow limit-for-bandwidth { direction | id bw_limit_id }`

id bw_limit_id

Specify the bandwidth limiting ID.

Must be an integer in the range of 1-65535.

Usage Guidelines Use this command to limit the bandwidth a subscriber uses in the uplink and downlink directions under Session Control.

active-charging service charging-action flow limit-for-bandwidth direction downlink peak-data-rate

Configures the peak data rate in bits per second.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description `flow limit-for-bandwidth direction downlink peak-data-rate peak_data_rate peak-burst-size peak_burst_size violate-action violate_action [committed-data-rate committed_data_rate committed-burst-size committed_burst_size exceed-action exceed_action]`

Syntax Description `flow limit-for-bandwidth direction uplink peak-data-rate peak_data_rate peak-burst-size peak_burst_size violate-action violate_action [committed-data-rate committed_data_rate committed-burst-size committed_burst_size exceed-action exceed_action]`

committed-burst-size committed_burst_size

Specify the committed burst size in bytes.

Must be an integer in the range of 1-4294967295.

Default Value: 3000.

committed-data-rate *committed_data_rate*

Specify the Committed Data Rate in bits per second. This can also be used to specify GBR for Bearer Binding (without the exceed-action).

Must be an integer in the range of 1-4294967295.

Default Value: 144000.

exceed-action *exceed_action*

Specify the action to be taken if the Committed Data Rate is surpassed.

Must be one of the following:

- **discard**: Specify to discard the packet.
- **lower-ip-precedence**: Specify to lower the IP precedence of the packet.

peak-burst-size *peak_burst_size*

Specify the peak burst size in bytes.

Must be an integer in the range of 1-4294967295.

violate-action *violate_action*

Specify the action to be taken if the Peak Data Rate is surpassed.

Must be one of the following:

- **discard**: Specify to discard the packet.
- **lower-ip-precedence**: Specify to lower the IP precedence of the packet.

peak_data_rate

Specify the peak data rate in bits per second.

Must be an integer in the range of 1-4294967295.

Usage Guidelines

Configures bandwidth control in downlink or uplink directions. Use this command to configure the peak data rate in bits per second.

active-charging service charging-action flow limit-for-bandwidth direction uplink peak-data-rate

Configures the peak data rate in bits per second.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description

flow limit-for-bandwidth direction downlink peak-data-rate *peak_data_rate*
peak-burst-size *peak_burst_size* **violate-action** *violate_action* [

```
committed-data-rate committed_data_rate committed-burst-size committed_burst_size
exceed-action exceed_action ]
```

Syntax Description

```
flow limit-for-bandwidth direction uplink peak-data-rate peak_data_rate
peak-burst-size peak_burst_size violate-action violate_action [
committed-data-rate committed_data_rate committed-burst-size committed_burst_size
exceed-action exceed_action ]
```

committed-burst-size *committed_burst_size*

Specify the committed burst size in bytes.

Must be an integer in the range of 1-4294967295.

Default Value: 3000.

committed-data-rate *committed_data_rate*

Specify the Committed Data Rate in bits per second. This can also be used to specify GBR for Bearer Binding (without the exceed-action).

Must be an integer in the range of 1-4294967295.

Default Value: 144000.

exceed-action *exceed_action*

Specify the action to be taken if the Committed Data Rate is surpassed.

Must be one of the following:

- **discard**: Specify to discard the packet.
- **lower-ip-precedence**: Specify to lower the IP precedence of the packet.

peak-burst-size *peak_burst_size*

Specify the peak burst size in bytes.

Must be an integer in the range of 1-4294967295.

violate-action *violate_action*

Specify the action to be taken if the Peak Data Rate is surpassed.

Must be one of the following:

- **discard**: Specify to discard the packet.
- **lower-ip-precedence**: Specify to lower the IP precedence of the packet.

peak_data_rate

Specify the peak data rate in bits per second.

Must be an integer in the range of 1-4294967295.

Usage Guidelines Configures bandwidth control in downlink or uplink directions. Use this command to configure the peak data rate in bits per second.

active-charging service charging-action tft packet-filter

Configures the packet filter to use in Traffic Flow Template (TFT) sent to the MS.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description `tft packet-filter packet_filter_name`

packet-filter packet_filter_name

Specify name of the packet filter.

Must be a string of 1-63 characters.

Usage Guidelines Use this command to configure the packet filter to be sent to the MS. Up to eight packet filters can be specified in a charging action.

You can configure a maximum of eight elements with this command.

Example

The following command configures the packet filter filter23 to be sent to the MS:

```
tft packet-filter filter23
```

active-charging service charging-action tos af11

Configures using Assured Forwarding 11 Per Hop Behavior (PHB).

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description `tos af11 [downlink | uplink]`

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines Use this command to configure using Assured Forwarding 11 Per Hop Behavior (PHB).

active-charging service charging-action tos af12

Configures using Assured Forwarding 12 Per Hop Behavior (PHB).

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description `tos af12 [downlink | uplink]`

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines Use this command to configure using Assured Forwarding 12 Per Hop Behavior (PHB).

active-charging service charging-action tos af13

Configures using Assured Forwarding 13 Per Hop Behavior (PHB).

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description `tos af13 [downlink | uplink]`

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines Use this command to configure using Assured Forwarding 13 Per Hop Behavior (PHB).

active-charging service charging-action tos af21

Configures using Assured Forwarding 21 Per Hop Behavior (PHB).

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description `tos af21 [downlink | uplink]`

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines Use this command to configure using Assured Forwarding 21 Per Hop Behavior (PHB).

active-charging service charging-action tos af22

Configures using Assured Forwarding 22 Per Hop Behavior (PHB).

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description `tos af22 [downlink | uplink]`

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines Use this command to configure using Assured Forwarding 22 Per Hop Behavior (PHB).

active-charging service charging-action tos af23

Configures using Assured Forwarding 23 Per Hop Behavior (PHB).

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description `tos af23 [downlink | uplink]`

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines Use this command to configure using Assured Forwarding 23 Per Hop Behavior (PHB).

active-charging service charging-action tos af31

Configures using Assured Forwarding 31 Per Hop Behavior (PHB).

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description `tos af31 [downlink | uplink]`

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines Use this command to configure using Assured Forwarding 31 Per Hop Behavior (PHB).

active-charging service charging-action tos af32

Configures using Assured Forwarding 32 Per Hop Behavior (PHB).

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description `tos af32 [downlink | uplink]`

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines Use this command to configure using Assured Forwarding 32 Per Hop Behavior (PHB).

active-charging service charging-action tos af33

Configures using Assured Forwarding 33 Per Hop Behavior (PHB).

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description `tos af33 [downlink | uplink]`

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines Use this command to configure using Assured Forwarding 33 Per Hop Behavior (PHB).

active-charging service charging-action tos af41

Configures using Assured Forwarding 41 Per Hop Behavior (PHB).

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description `tos af41 [downlink | uplink]`

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines Use this command to configure using Assured Forwarding 41 Per Hop Behavior (PHB).

active-charging service charging-action tos af42

Configures using Assured Forwarding 42 Per Hop Behavior (PHB).

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description `tos af42 [downlink | uplink]`

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines Use this command to configure using Assured Forwarding 42 Per Hop Behavior (PHB).

active-charging service charging-action tos af43

Configures using Assured Forwarding 43 Per Hop Behavior (PHB).

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description `tos af43 [downlink | uplink]`

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines Use this command to configure using Assured Forwarding 43 Per Hop Behavior (PHB).

active-charging service charging-action tos be

Configures using Best Effort Forwarding PHB.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description `tos be [downlink | uplink]`

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines Use this command to configure using Best Effort Forwarding Per Hop Behavior (PHB).

active-charging service charging-action tos ef

Configures using Expedited Forwarding PHB.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description `tos ef [downlink | uplink]`

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines Use this command to configure using Expedited Forwarding Per Hop Behavior (PHB).

active-charging service charging-action tos lower-bits

Configures the least-significant six bits in the ToS byte with the specified numeric value.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description `tos lower-bits value [downlink | uplink]`

downlink

Specify the ToS only for downlink packets.

lower-bits value

Specify the value.

Must be an integer in the range of 0-63.

uplink

Specify the ToS only for uplink packets.

Usage Guidelines Use this command to configure the least-significant six bits in the ToS byte with the specified numeric value.

active-charging service content-filtering category policy-id

Configures Content Filtering Category Policy ID.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name)

Syntax Description `content-filtering category policy-id cf_category_policy_id`

policy-id cf_category_policy_id

Specify the Content Filtering Category Policy ID.

Must be an integer in the range of 1-4294967295.

Usage Guidelines Use this command to configure the Content Filtering Category Policy ID. The CLI prompt changes to the Content Filtering Category Policy Configuration mode (config-policy-id-<content_filtering_policy_id>).

active-charging service content-filtering category policy-id analyze priority

Assigns priority to a Content Filtering Category in the Content Filtering Policy.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Content Filtering Category Policy Configuration (config-policy-id-content_filtering_policy_id)

Syntax Description **analyze priority** *cf_category_priority*

priority *cf_category_priority*

Specify priority of the Content Filtering Category in the Content Filtering Policy.

Must be an integer in the range of 1-65535.

Usage Guidelines Use this command to assign priority to a Content Filtering Category in a Content Filtering Policy.

active-charging service content-filtering category policy-id analyze priority all

Configures all content to be rated.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Content Filtering Category Policy Configuration (config-policy-id-content_filtering_policy_id)

Syntax Description **analyze priority** *cf_category_priority* **all action { allow | content-insert content_to_insert }**

action

Specify an action.

allow

Specify the allow action.

content-insert *content_to_insert*

Specify the content insert action, and the content string to insert.

Must be a string.

Usage Guidelines Use this command to configure the all content to be rated.

active-charging service content-filtering category policy-id analyze priority category

Configures category of the content to be rated.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Content Filtering Category Policy Configuration (config-policy-id-content_filtering_policy_id)

Syntax Description **analyze priority** *cf_category_priority* **category** *category_name* **action** { **allow** | **content-insert** *content_to_insert* }

action

Specify an action.

allow

Specify the allow action.

category *category_name*

Specify name of the category.

Must be one of the following:

- **ABOR**
- **ADULT**
- **ADVERT**
- **ANON**
- **ART**
- **AUTO**
- **BACKUP**
- **BLACK**
- **BLOG**
- **BUSI**
- **CAR**
- **CDN**
- **CHAT**
- **CMC**
- **CRIME**
- **CULT**

- DRUG
- DYNAM
- EDU
- ENERGY
- ENT
- FIN
- FORUM
- GAMB
- GAME
- GLAM
- GOVERN
- HACK
- HATE
- HEALTH
- HOBBY
- HOSTS
- KIDS
- LEGAL
- LIFES
- MAIL
- MIL
- NEWS
- OCCULT
- PEER
- PERS
- PHOTO
- PLAG
- POLTIC
- PORN
- PORTAL
- PROXY
- REF

- REL
- SCI
- SEARCH
- SHOP
- SPORT
- STREAM
- SUIC
- SXED
- TECH
- TRAVE
- UNKNOW
- VIOL
- VOIP
- WEAP
- WHITE

content-insert *content_to_insert*

Specify the content insert action, and the content string to insert.

Must be a string.

Usage Guidelines Use this command to configure the category of the content to be rated.

active-charging service content-filtering category policy-id analyze priority x-category

Configures unclassified categories to be rated.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Content Filtering Category Policy Configuration (config-policy-id-content_filtering_policy_id)

Syntax Description `analyze priority cf_category_priority x-category xcategory_name action { allow | content-insert content_to_insert }`

action

Specify an action.

allow

Specify the allow action.

content-insert *content_to_insert*

Specify the content insert action, and the content string to insert.

Must be a string.

x-category *xcategory_name*

Specify name of the x-category.

Must be a string of 1-6 characters.

Usage Guidelines Use this command to configure unclassified categories to be rated.

active-charging service credit-control group

Configures prepaid services for Diameter/RADIUS applications.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-*acs_name*)

Syntax Description **credit-control group** *cc_group_name*

group *cc_group_name*

Specify name of the credit control group.

Must be a string of 1-63 characters.

Usage Guidelines Use this command to enable/disable Prepaid Credit Control Configuration for RADIUS/Diameter charging mode, and specify the credit control group.

active-charging service credit-control group associate

Associates the failure handling template.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-*acs_name*) > Credit Control Group Configuration (config-group-*credit_control_group_name*)

Syntax Description **associate failure-handling-template** *template_name*

failure-handling-template *template_name*

Specify name of the failure handling template.

Must be a string of 1-63 characters.

Usage Guidelines Use this command to associate the failure handling template.

active-charging service credit-control group diameter

Configures accepting/ignoring service ID in the Service-Identifier AVP defined in the Diameter dictionaries.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description **diameter ignore-service-id { false | true }**

ignore-service-id { false | true }

Specify to enable or disable usage of service ID. To disable, set to true.

Must be one of the following:

- false
- true

Default Value: false.

Usage Guidelines Use this command to ignore/accept service ID value in the Service-Identifier AVP in the Diameter dictionaries.

Example

The following command specifies to ignore service ID in the Diameter dictionaries:

```
diameter ignore-service-id
```

active-charging service credit-control group diameter origin

Configures the Diameter Credit Control Origin Endpoint parameter.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description **diameter origin endpoint** *origin_endpoint_name*

origin endpoint *origin_endpoint_name*

Specify name of the Diameter Credit Control Origin Endpoint.

Must be a string of 1-63 characters.

Usage Guidelines Use this command to configure the Diameter Credit Control Origin Endpoint parameter.

active-charging service credit-control group diameter service-context-id

Configures the value to be sent in the Service-Context-Id AVP, which defines the context in which DCCA is used.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description `diameter service-context-id service_context_id`

`service-context-id service_context_id`

Specify the value to be sent in the Service-Context-Id AVP.

Must be a string of 1-63 characters.

Usage Guidelines Use this command to specify the value to be sent in the Service-Context-Id AVP, which defines the context in which DCCA is used.

active-charging service credit-control group diameter session

Configures Diameter Credit Control Session Failover.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description `diameter session failover`

`failover`

Specify Diameter Credit Control Session Failover.

Usage Guidelines Use this command to configure Diameter Credit Control Session Failover.

active-charging service credit-control group failure-handling initial-request continue

Configures Diameter Credit Control Failure Handling action to continue.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description `failure-handling initial-request continue continue_action`

Syntax Description `failure-handling terminate-request continue continue_action`

Syntax Description `failure-handling update-request continue continue_action`

continue *continue_action*

Specify the continue action.

Must be one of the following:

- **go-offline-after-tx-expiry**: After Tx expiry, start offline charging.
- **retry-after-tx-expiry**: After Tx expiry, retry.

Usage Guidelines Use this command to configure Diameter Credit Control Failure Handling action for CCR-Initial/CCR-Terminate/CR-Update to continue.

active-charging service credit-control group failure-handling initial-request retry-and-terminate

Configures Diameter Credit Control Failure Handling action to retry, and in case of failure, to terminate.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description `failure-handling initial-request retry-and-terminate retry_and_terminate_action`

Syntax Description `failure-handling terminate-request retry-and-terminate retry_and_terminate_action`

Syntax Description `failure-handling update-request retry-and-terminate retry_and_terminate_action`

retry-and-terminate *retry_and_terminate_action*

Specify the retry-and-terminate action.

Must be one of the following:

- **retry-after-tx-expiry**: After Tx expiry, retry.

Usage Guidelines Configures Diameter Credit Control Failure Handling action for CCR-Initial/CCR-Terminate/CR-Update to retry, and in case of failure, to terminate.

active-charging service credit-control group failure-handling initial-request terminate

Configures Diameter Credit Control Failure Handling action as terminate.

Command Modes	Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Credit Control Group Configuration (config-group-credit_control_group_name)
Syntax Description	failure-handling initial-request terminate
Syntax Description	failure-handling terminate-request terminate
Syntax Description	failure-handling update-request terminate
Usage Guidelines	Configures Diameter Credit Control Failure Handling action for CCR-Initial/CCR-Terminate/CR-Update to terminate.

active-charging service credit-control group failure-handling terminate-request continue

Configures Diameter Credit Control Failure Handling action to continue.

Command Modes	Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Credit Control Group Configuration (config-group-credit_control_group_name)
Syntax Description	failure-handling initial-request continue continue_action
Syntax Description	failure-handling terminate-request continue continue_action
Syntax Description	failure-handling update-request continue continue_action

continue continue_action

Specify the continue action.

Must be one of the following:

- **go-offline-after-tx-expiry**: After Tx expiry, start offline charging.
- **retry-after-tx-expiry**: After Tx expiry, retry.

Usage Guidelines	Use this command to configure Diameter Credit Control Failure Handling action for CCR-Initial/CCR-Terminate/CR-Update to continue.
-------------------------	--

active-charging service credit-control group failure-handling terminate-request retry-and-terminate

Configures Diameter Credit Control Failure Handling action to retry, and in case of failure, to terminate.

Command Modes	Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Credit Control Group Configuration (config-group-credit_control_group_name)
----------------------	--

Syntax Description `failure-handling initial-request retry-and-terminate` *retry_and_terminate_action*

Syntax Description `failure-handling terminate-request retry-and-terminate`
retry_and_terminate_action

Syntax Description `failure-handling update-request retry-and-terminate` *retry_and_terminate_action*
retry-and-terminate *retry_and_terminate_action*

Specify the retry-and-terminate action.

Must be one of the following:

- **retry-after-tx-expiry**: After Tx expiry, retry.

Usage Guidelines Configures Diameter Credit Control Failure Handling action for CCR-Initial/CCR-Terminate/CR-Update to retry, and in case of failure, to terminate.

active-charging service credit-control group failure-handling terminate-request terminate

Configures Diameter Credit Control Failure Handling action as terminate.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description `failure-handling initial-request terminate`

Syntax Description `failure-handling terminate-request terminate`

Syntax Description `failure-handling update-request terminate`

Usage Guidelines Configures Diameter Credit Control Failure Handling action for CCR-Initial/CCR-Terminate/CR-Update to terminate.

active-charging service credit-control group failure-handling update-request continue

Configures Diameter Credit Control Failure Handling action to continue.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description `failure-handling initial-request continue` *continue_action*

Syntax Description `failure-handling terminate-request continue` *continue_action*

Syntax Description `failure-handling update-request continue` *continue_action*

continue *continue_action*

Specify the continue action.

Must be one of the following:

- **go-offline-after-tx-expiry**: After Tx expiry, start offline charging.
- **retry-after-tx-expiry**: After Tx expiry, retry.

Usage Guidelines Use this command to configure Diameter Credit Control Failure Handling action for CCR-Initial/CCR-Terminate/CR-Update to continue.

active-charging service credit-control group failure-handling update-request retry-and-terminate

Configures Diameter Credit Control Failure Handling action to retry, and in case of failure, to terminate.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description `failure-handling initial-request retry-and-terminate` *retry_and_terminate_action*

Syntax Description `failure-handling terminate-request retry-and-terminate` *retry_and_terminate_action*

Syntax Description `failure-handling update-request retry-and-terminate` *retry_and_terminate_action*

retry-and-terminate *retry_and_terminate_action*

Specify the retry-and-terminate action.

Must be one of the following:

- **retry-after-tx-expiry**: After Tx expiry, retry.

Usage Guidelines Configures Diameter Credit Control Failure Handling action for CCR-Initial/CCR-Terminate/CR-Update to retry, and in case of failure, to terminate.

active-charging service credit-control group failure-handling update-request terminate

Configures Diameter Credit Control Failure Handling action as terminate.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description `failure-handling initial-request terminate`

Syntax Description `failure-handling terminate-request terminate`

Syntax Description `failure-handling update-request terminate`

Usage Guidelines Configures Diameter Credit Control Failure Handling action for CCR-Initial/CCR-Terminate/CR-Update to terminate.

active-charging service credit-control group pending-traffic-treatment forced-reauth

Configures the Diameter Credit Control pending traffic treatment to forced reauthorization.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description `pending-traffic-treatment forced-reauth { drop | pass }`

drop

Specify to drop.

pass

Specify to pass.

Usage Guidelines Use this command to configure the Diameter Credit Control pending traffic treatment to forced reauthorization.

active-charging service credit-control group pending-traffic-treatment noquota

Configures the Diameter Credit Control Pending Traffic Treatment.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description `pending-traffic-treatment noquota { buffer | drop | pass }`

buffer

Specify to tentatively count/time traffic, and then buffer traffic pending arrival of quota. Buffered traffic will be forwarded and fully charged against the quota when the quota is eventually obtained and the traffic is passed.

drop

Specify to drop any traffic when there is no quota present.

pass

Specify to pass all traffic more or less regardless of quota state.

Usage Guidelines

Controls the pass/drop treatment of traffic while waiting for definitive credit information from the server. Use this command to configure the Credit Control pending traffic treatment.

active-charging service credit-control group pending-traffic-treatment noquota limited-pass

Enables limited access for subscribers when the OCS is unreachable.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description

pending-traffic-treatment noquota limited-pass volume *volume*

volume *volume*

Specify limited volume access to subscriber in case OCS is unreachable.

Must be an integer in the range of 1-4294967295.

Usage Guidelines

Use this command to enable limited access for subscribers when the OCS is unreachable.

active-charging service credit-control group pending-traffic-treatment quota-exhausted

Configures the Diameter Credit Control Pending Traffic Treatment parameter for quota exhaustion.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description

pending-traffic-treatment quota-exhausted { buffer | drop | pass }

buffer

Specify to tentatively count/time traffic, and then buffer traffic pending arrival of quota. Buffered traffic will be forwarded and fully charged against the quota when the quota is eventually obtained and the traffic is passed.

drop

Specify to drops any traffic when there is no quota present.

pass

Specify to pass all traffic more or less regardless of quota state.

Usage Guidelines

Use this command to configure the Diameter Credit Control Pending Traffic Treatment for quota exhaustion.

active-charging service credit-control group pending-traffic-treatment trigger

Configures the Diameter Credit Control pending traffic treatment to trigger.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description

```
pending-traffic-treatment trigger { drop | pass }
```

drop

Specify to drop.

pass

Specify to pass.

Usage Guidelines

Use this command to configure the Diameter Credit Control pending traffic treatment to trigger.

active-charging service credit-control group pending-traffic-treatment validity-expired

Configures the Diameter Credit Control pending traffic treatment to validity-expired.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description

```
pending-traffic-treatment validity-expired { drop | pass }
```

drop

Specify to drop.

pass

Specify to pass.

Usage Guidelines

Use this command to configure the Diameter Credit Control pending traffic treatment to validity-expired.

active-charging service credit-control group quota holding-time

Configures the Credit Control Quota Holding Time (QHT).

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Credit Control Configuration (config-group-credit_control_group_name)

Syntax Description **quota holding-time** *holding_time*

holding-time *holding_time*

Specify the quota holding time in seconds.

Must be an integer in the range of 1-4000000000.

Usage Guidelines This command configures the time-based quotas in the prepaid credit control service. Use this command to configure the Credit Control Quota Holding Time.

active-charging service credit-control group quota request-trigger

Configures Credit Control include/exclude packet causing threshold.

Syntax Description **quota request-trigger** { **exclude-packet-causing-trigger** | **include-packet-causing-trigger** }

exclude-packet-causing-trigger

Specify to exclude packet causing trigger.

include-packet-causing-trigger

Specify to include packet causing trigger.

Usage Guidelines This command sets the time-based quotas in the prepaid credit control service. Use this command to configure the Credit Control include/exclude packet causing threshold.

active-charging service credit-control group timestamp-rounding

Configures the timestamp rounding mechanism for quota consumption.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description **timestamp-rounding** *timestamp_rounding_mechanism*

timestamp-rounding *timestamp_rounding_mechanism*

Specify the timestamp rounding mechanism for quota consumption.

Must be one of the following:

- **ceiling**: Specify to round off to the smallest integer greater than the fraction.
- **floor**: Specify to always discard the fraction.
- **roundoff**: If the fractional part is greater than or equal to 0.5, specify to round off to the smallest integer greater than the fraction.

Usage Guidelines Use this command to configure the timestamp rounding mechanism for quota consumption.

active-charging service credit-control group usage-reporting quotas-to-report based-on-grant

Configures the ACS Credit Control usage reporting type.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description **usage-reporting quotas-to-report based-on-grant [report-only-granted-volume]**

report-only-granted-volume

Suppresses the input and output octets. If the Granted-Service-Unit (GSU) AVP comes with CC-Total-Octets, then the device will send total, input and output octets in Used-Service-Unit (USU) AVP. If it comes with Total-Octets, the device will send only Total-Octets in USU.

Usage Guidelines Use this command to configure reporting usage only for granted quota. On issuing this command, the Used-Service-Unit AVP will report quotas based on grant i.e, only the quotas present in the Granted-Service-Unit AVP. With this command only the units for which the quota was granted by the DCCA server will be reported irrespective of the reporting reason.

active-charging service group-of-ruledefs

Configures ACS group-of-ruledefs parameters.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Group of Ruledefs Configuration (config-group-of-ruledefs-group_name)

Syntax Description **group-of-ruledefs *group_of_ruledefs_name***

group-of-ruledefs *group_of_ruledefs_name*

Specify name of the group-of-ruledefs.

Must be a string.

Usage Guidelines

Use this command to create/configure a group-of-ruledefs. A group-of-ruledefs is a collection of ruledefs to use in access policy creation. Maximum of 384 group-of-ruledefs can be created.

You can configure a maximum of 384 elements with this command.

Example

The following command creates a group-of-ruledefs named group1:

```
group-of-ruledefs group1
```

active-charging service group-of-ruledefs add-ruledef priority

Configures the priority of the ruledef in the current group-of-ruledefs.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Group of Ruledefs Configuration (config-group-of-ruledefs-group_name)

Syntax Description

add-ruledef priority *ruledef_priority* **ruledef** *ruledef_name*

priority *ruledef_priority*

Specify the priority of the ruledef. The priority must be unique within the group-of-ruledefs.

Must be an integer in the range of 1-10000.

ruledef *ruledef_name*

Specify name of the ruledef to add to the current group-of-ruledefs.

Must be a string of 1-63 characters.

Usage Guidelines

Use this command to add ruledefs to a group-of-ruledefs, and configure the priority of the ruledef in the current group-of-ruledefs. A maximum of 512 ruledefs can be added to a group of ruledefs.

You can configure a maximum of 512 elements with this command.

active-charging service p2p-detection attribute ssl-renegotiation

Specify the supported attribute of configurable P2P detection attributes populated from the currently loaded P2P plugin.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name)

Syntax Description

```
p2p-detection attribute ssl-renegotiation { [ id-reduce-factor id_reduce_factor ] [ max-entry-per-sessmgr max_entry_per_sessmgr ] }
```

id-reduce-factor *id_reduce_factor*

Specify by what factor the SSL ID is stored in the SSL Session ID Tracker table.

Must be an integer in the range of 0-65535.

max-entry-per-sessmgr *max_entry_per_sessmgr*

Specify maximum SSL Session IDs tracked per session manager.

Must be an integer in the range of 0-65535.

Usage Guidelines

Configures the detection of SSL renegotiation flows. Use this command to specify the supported attribute of configurable P2P detection attributes populated from the currently loaded P2P plugin.

Example

The following command enables SSL renegotiation with SSL session IDs as 40000 and factor as 4:

```
p2p-detection attribute ssl-renegotiation max-entry-per-sessmgr 40000 id-reduce-factor 4
```

active-charging service p2p-detection ecs-analysis

Enables or disables ACS analysis for all or specified analyzer.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-*acs_name*)

Syntax Description

p2p-detection ecs-analysis *analyzer*

ecs-analysis *analyzer*

Specify the ACS analyzers.

Must be one of the following:

- **all**: ACS analysis for all analyzers.
- **ftp**: ACS analysis for FTP analyzer.
- **http**: ACS analysis for HTTP analyzer.
- **https**: ACS analysis for HTTPS analyzer.
- **rtsp**: ACS analysis for RTSP analyzer.
- **sip**: ACS analysis for SIP analyzer.

Usage Guidelines

Use this command to enable or disable ACS analysis for analyzers. This feature is enabled by default if P2P protocols are enabled.

Example

The following command enables ACS analysis for the FTP analyzer:

```
p2p-detection ecs-analysis ftp
```

active-charging service p2p-detection protocol

Enables or disables the detection of all or specified peer-to-peer (P2P) protocols.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name)

Syntax Description **p2p-detection protocol** *p2p_protocol*

protocol *p2p_protocol*

Specify the P2P protocol.

Must be one of the following:

- **all**
- **cisco-jabber**
- **eros**
- **fasttrack**
- **googlemaps**
- **skype**
- **teamspeak**
- **uber**
- **ufc**
- **yahoo**

Usage Guidelines Use this command to configure detection of all or specified P2P protocol.

Example

The following command enables detection of all P2P protocols:

```
p2p-detection protocol all
```

active-charging service packet-filter

Configures ACS Packet Filter parameters.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name)

Syntax Description **packet-filter** *packet_filter_name*

direction *direction*

Specify the direction in which the current packet filter will be applied.

Must be one of the following:

- **bi-directional**: Specify to apply the filter both in the uplink and downlink directions. This is the default value.
- **downlink**: Specify to apply the filter only in the downlink direction.
- **uplink**: Specify to apply the filter only in the uplink direction.

Default Value: bi-directional.

packet-filter *packet_filter_name*

Specify name of the packet filter.

Must be a string of 1-63 characters.

priority *priority*

Specify the priority of the packet filter.

Must be an integer in the range of 0-255.

Usage Guidelines Use this command to configure ACS Packet Filter parameters.

active-charging service packet-filter ip local-port operator

Configures the port number of the local or remote transport protocol.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Packet Filter Configuration (config-service-packet-filter-packet_filter_name)

Syntax Description `ip local-port operator port_number`

Syntax Description `ip remote-port operator port_number`

operator

Specify how to match.

Must be one of the following:

- =: Equals.

port_number

Specify the port number of the transport protocol.

Must be an integer in the range of 0-65535.

Usage Guidelines Configures the IP 5-tuple port(s) for the current packet filter. Use this command to configure the port number of the local or remote transport protocol.

active-charging service packet-filter ip local-port range

Configures a range of port numbers of the local or remote transport protocol.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Packet Filter Configuration (config-service-packet-filter-packet_filter_name)

Syntax Description `ip local-port range start_port_number to end_port_number`

Syntax Description `ip remote-port range start_port_number to end_port_number`

to end_port_number

Specify the ending port number for the port number range. The ending port number must be greater than the starting port number.

Must be an integer in the range of 0-65535.

start_port_number

Specify the starting port number for the port number range. The starting port number must be lesser than the ending port number.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to configure a range of port number of the local or remote transport protocol.

active-charging service packet-filter ip protocol

Configures the IP protocol(s) for the current packet filter.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Packet Filter Configuration (config-service-packet-filter-packet_filter_name)

Syntax Description `ip protocol operator protocol_number`

operator

Specify how to match.

Must be one of the following:

- =: Equals.

protocol_number

Specify the protocol number.

Must be an integer in the range of 0-255.

Usage Guidelines

Configures the IP 5-tuple local port(s) for the current packet filter. Use this command to configure the protocol(s) for a packet filter.

Example

The following command configures the protocol assignment number 300:

```
ip protocol = 300
```

active-charging service packet-filter ip remote-address

Configures the IP remote address(es) for the current packet filter.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Packet Filter Configuration (config-service-packet-filter-packet_filter_name)

Syntax Description

ip remote-address *operator ip_address/mask*

ip_address_mask

Specify the IP address and mask.

Must be a string in the ipv4-prefix pattern. For information on the ipv4-prefix pattern, see the Input Pattern Types section.

-Or-

Must be a string in the ipv6-prefix pattern. For information on the ipv6-prefix pattern, see the Input Pattern Types section.

operator

Specify how to match.

Must be one of the following:

- =: Equals.

Usage Guidelines

Configures the IP 5-tuple local port(s) for the current packet filter. Use this command to configure the remote address(es) for a packet filter.

Example

The following command configures the IP remote address as 10.2.3.4/24:

```
ip remote-address = 10.2.3.4/24
```

active-charging service packet-filter ip remote-port operator

Configures the port number of the local or remote transport protocol.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Packet Filter Configuration (config-service-packet-filter-packet_filter_name)

Syntax Description `ip local-port operator port_number`

Syntax Description `ip remote-port operator port_number`

operator

Specify how to match.

Must be one of the following:

- =: Equals.

port_number

Specify the port number of the transport protocol.

Must be an integer in the range of 0-65535.

Usage Guidelines Configures the IP 5-tuple port(s) for the current packet filter. Use this command to configure the port number of the local or remote transport protocol.

active-charging service packet-filter ip remote-port range

Configures a range of port numbers of the local or remote transport protocol.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Packet Filter Configuration (config-service-packet-filter-packet_filter_name)

Syntax Description `ip local-port range start_port_number to end_port_number`

Syntax Description `ip remote-port range start_port_number to end_port_number`

to end_port_number

Specify the ending port number for the port number range. The ending port number must be greater than the starting port number.

Must be an integer in the range of 0-65535.

start_port_number

Specify the starting port number for the port number range. The starting port number must be lesser than the ending port number.

Must be an integer in the range of 0-65535.

Usage Guidelines

Use this command to configure a range of port number of the local or remote transport protocol.

active-charging service packet-filter ip tos-traffic-class

Configures the type of service (TOS) traffic class under charging action in the Packet filter mode.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Packet Filter Configuration (config-service-packet-filter-packet_filter_name)

Syntax Description

ip tos-traffic-class *tos_traffic_class_operator traffic_class* **mask** *mask_operator mask_field_value*

mask *mask_operator*

Specify how to match the specified mask.

Must be one of the following:

- =: Equals.

mask *mask_field_value*

Specify the traffic-class mask field.

Must be an integer in the range of 0-255.

tos *traffic_class_operator*

Specify how to match the specified TOS Traffic Class.

Must be one of the following:

- =: Equals.

traffic *class*

Specify the traffic class value to filter the traffic.

Must be an integer in the range of 0-255.

Usage Guidelines

Use this command to configure the TOS traffic class under charging action in the Packet filter mode.

active-charging service rulebase

Configures ACS rulebases.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name)

Syntax Description

rulebase *rulebase_name* [**retransmissions-counted** | **transactional-rule-matching**]

retransmissions-counted { false | true }

Specify whether to count retransmissions in all charging modules.

Must be one of the following:

- false
- true

Default Value: true.

rulebase *rulebase_name*

Specify name of the rulebase. If the named rulebase does not exist, it is created, and the CLI mode changes to the ACS Rulebase Configuration Mode wherein the rulebase can be configured. If the named rulebase already exists, the CLI mode changes to the ACS Rulebase Configuration Mode for that rulebase.

Must be a string.

transactional-rule-matching

Specify to enable or disable transactional rule matching (TRM), which allows the ACS to bypass per-packet rule matching on a transaction once the transaction is fully classified.

Usage Guidelines

Use this command to create/configure an ACS rulebase. A rulebase is a collection of protocol rules to match a flow and associated actions to be taken for matching flow. The default rulebase is used when a subscriber/APN is not configured with a specific rulebase to use.

Example

The following command creates a rulebase named test1:

```
rulebase test1
```

active-charging service rulebase action

Configures the action priority for a ruledef / group-of-ruledefs in the current rulebase.

Syntax Description

```
action priority action_priority { dynamic-only | static-and-dynamic | timedef
timedef_name }
```

Usage Guidelines

Use this command to configure action priorities for ruledefs / group-of-ruledefs in a rulebase. This CLI command can be entered multiple times to specify multiple ruledefs and charging actions. The ruledefs are examined in priority order, until a match is found and the corresponding charging action is applied.

Example

The following command assigns a rule and action with the action priority of 23, a ruledef named test, and a charging action named test1 to the current rulebase:

```
action priority 23 ruledef test charging-action test1
```

active-charging service rulebase action priority

Configures priority for the specified ruledef / group-of-ruledefs in the current rulebase.

Syntax Description `priority action_priority`

priority *action_priority*

Specify the action priority.

Must be an integer in the range of 1-65535.

Usage Guidelines Use this command to assign priority to a rule in a rulebase.

active-charging service rulebase action priority dynamic-only

Enables matching of dynamic rules with static rules for this action priority on a flow.

Syntax Description `dynamic-only`

Usage Guidelines Use this command to enable matching of dynamic rules with static rules for this action priority on a flow.

active-charging service rulebase action priority dynamic-only group-of-ruledefs

Assigns a group-of-ruledefs to the rulebase. Or, associates a time definition with a group-of-ruledefs.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description `action priority action_priority static-and-dynamic group-of-ruledefs group_of_ruledefs_name`

Syntax Description `action priority action_priority timedef group-of-ruledefs group_of_ruledefs_name charging-action charging_action_name [description description] [monitoring-key monitoring_key]`

charging-action *charging_action_name*

Assigns the specified charging action to the rulebase.

Must be a string of 1-63 characters.

description *description*

Adds specified text to the rule and action.

Must be a string of 1-63 characters.

group-of-ruledefs *group_of_ruledefs_name*

Specify name of the group-of-ruledefs.

Must be a string of 1-63 characters.

monitoring-key *monitoring_key*

Associates the specified monitoring-key with ruledefs for usage monitoring.

Must be an integer in the range of 1-134217727.

Usage Guidelines

Use this command to assign a group-of-ruledefs to the rulebase. Or, associate a time definition with a group-of-ruledefs. Timedefs activate or deactivate groups-of-ruledefs, making them available for rule matching only when they are active.

active-charging service rulebase action priority dynamic-only ruledef

Assigns ruledefs to the rulebase. Or, associates a time definition with a ruledef.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description

```
action priority action_priority static-and-dynamic ruledef ruledef_name
charging-action charging_action_name ruledef ruledef_name [ description description ]
[ monitoring-key monitoring_key ]
```

Syntax Description

```
action priority action_priority timedef ruledef ruledef_name charging-action
charging_action_name [ description description ] [ monitoring-key monitoring_key ]
```

charging-action *charging_action_name*

Assigns the specified charging action to the rulebase.

Must be a string of 1-63 characters.

description *description*

Adds specified text to the rule and action.

Must be a string of 1-63 characters.

monitoring-key *monitoring_key*

Associates the specified monitoring-key with ruledefs for usage monitoring.

Must be an integer in the range of 1-134217727.

ruledef *ruledef_name*

Specify name of the ruledef.

Must be a string of 1-63 characters.

Usage Guidelines

Use this command to assign ruledefs to the rulebase. Or, associate a time definition with a ruledef. Timedefs activate or deactivate ruledefs, making them available for rule matching only when they are active.

active-charging service rulebase action priority group-of-ruledefs

Assigns a group-of-ruledefs to the rulebase. Or, associates a time definition with a group-of-ruledefs.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description

action priority *action_priority* **static-and-dynamic** **group-of-ruledefs** *group_of_ruledefs_name*

Syntax Description

action priority *action_priority* **timedef** **group-of-ruledefs** *group_of_ruledefs_name* **charging-action** *charging_action_name* [**description** *description*] [**monitoring-key** *monitoring_key*]

charging-action *charging_action_name*

Assigns the specified charging action to the rulebase.

Must be a string of 1-63 characters.

description *description*

Adds specified text to the rule and action.

Must be a string of 1-63 characters.

group-of-ruledefs *group_of_ruledefs_name*

Specify name of the group-of-ruledefs.

Must be a string of 1-63 characters.

monitoring-key *monitoring_key*

Associates the specified monitoring-key with ruledefs for usage monitoring.

Must be an integer in the range of 1-134217727.

Usage Guidelines

Use this command to assign a group-of-ruledefs to the rulebase. Or, associate a time definition with a group-of-ruledefs. Timedefs activate or deactivate groups-of-ruledefs, making them available for rule matching only when they are active.

active-charging service rulebase action priority ruledef

Assigns ruledefs to the rulebase. Or, associates a time definition with a ruledef.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description

```
action priority action_priority static-and-dynamic ruledef ruledef_name
charging-action charging_action_name ruledef ruledef_name [ description description
] [ monitoring-key monitoring_key ]
```

Syntax Description

```
action priority action_priority timedef ruledef ruledef_name charging-action
charging_action_name [ description description ] [ monitoring-key monitoring_key ]
```

charging-action *charging_action_name*

Assigns the specified charging action to the rulebase.

Must be a string of 1-63 characters.

description *description*

Adds specified text to the rule and action.

Must be a string of 1-63 characters.

monitoring-key *monitoring_key*

Associates the specified monitoring-key with ruledefs for usage monitoring.

Must be an integer in the range of 1-134217727.

ruledef *ruledef_name*

Specify name of the ruledef.

Must be a string of 1-63 characters.

Usage Guidelines

Use this command to assign ruledefs to the rulebase. Or, associate a time definition with a ruledef. Timedefs activate or deactivate ruledefs, making them available for rule matching only when they are active.

active-charging service rulebase action priority static-and-dynamic group-of-ruledefs

Assigns a group-of-ruledefs to the rulebase. Or, associates a time definition with a group-of-ruledefs.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description `action priority action_priority static-and-dynamic group-of-ruledefs group_of_ruledefs_name`

Syntax Description `action priority action_priority timedef group-of-ruledefs group_of_ruledefs_name charging-action charging_action_name [description description] [monitoring-key monitoring_key]`

charging-action *charging_action_name*

Assigns the specified charging action to the rulebase.

Must be a string of 1-63 characters.

description *description*

Adds specified text to the rule and action.

Must be a string of 1-63 characters.

group-of-ruledefs *group_of_ruledefs_name*

Specify name of the group-of-ruledefs.

Must be a string of 1-63 characters.

monitoring-key *monitoring_key*

Associates the specified monitoring-key with ruledefs for usage monitoring.

Must be an integer in the range of 1-134217727.

Usage Guidelines Use this command to assign a group-of-ruledefs to the rulebase. Or, associate a time definition with a group-of-ruledefs. Timedefs activate or deactivate groups-of-ruledefs, making them available for rule matching only when they are active.

active-charging service rulebase action priority static-and-dynamic ruledef

Assigns ruledefs to the rulebase. Or, associates a time definition with a ruledef.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-*acs_name*) > Rulebase Configuration (config-rulebase-*rulebase_name*)

Syntax Description `action priority action_priority static-and-dynamic ruledef ruledef_name charging-action charging_action_name ruledef ruledef_name [description description] [monitoring-key monitoring_key]`

Syntax Description `action priority action_priority timedef ruledef ruledef_name charging-action charging_action_name [description description] [monitoring-key monitoring_key]`

charging-action *charging_action_name*

Assigns the specified charging action to the rulebase.

Must be a string of 1-63 characters.

description *description*

Adds specified text to the rule and action.

Must be a string of 1-63 characters.

monitoring-key *monitoring_key*

Associates the specified monitoring-key with ruledefs for usage monitoring.

Must be an integer in the range of 1-134217727.

ruledef *ruledef_name*

Specify name of the ruledef.

Must be a string of 1-63 characters.

Usage Guidelines

Use this command to assign ruledefs to the rulebase. Or, associate a time definition with a ruledef. Timedefs activate or deactivate ruledefs, making them available for rule matching only when they are active.

active-charging service rulebase action priority timedef group-of-ruledefs

Assigns a group-of-ruledefs to the rulebase. Or, associates a time definition with a group-of-ruledefs.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description

action priority *action_priority* **static-and-dynamic** **group-of-ruledefs**
group_of_ruledefs_name

Syntax Description

action priority *action_priority* **timedef** **group-of-ruledefs** *group_of_ruledefs_name*
charging-action *charging_action_name* [**description** *description*] [**monitoring-key**
monitoring_key]

charging-action *charging_action_name*

Assigns the specified charging action to the rulebase.

Must be a string of 1-63 characters.

description *description*

Adds specified text to the rule and action.

Must be a string of 1-63 characters.

group-of-ruledefs *group_of_ruledefs_name*

Specify name of the group-of-ruledefs.

Must be a string of 1-63 characters.

monitoring-key *monitoring_key*

Associates the specified monitoring-key with ruledefs for usage monitoring.

Must be an integer in the range of 1-134217727.

Usage Guidelines

Use this command to assign a group-of-ruledefs to the rulebase. Or, associate a time definition with a group-of-ruledefs. Timedefs activate or deactivate groups-of-ruledefs, making them available for rule matching only when they are active.

active-charging service rulebase action priority timedef ruledef

Assigns ruledefs to the rulebase. Or, associates a time definition with a ruledef.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description

```
action priority action_priority static-and-dynamic ruledef ruledef_name
charging-action charging_action_name ruledef ruledef_name [ description description
] [ monitoring-key monitoring_key ]
```

Syntax Description

```
action priority action_priority timedef ruledef ruledef_name charging-action
charging_action_name [ description description ] [ monitoring-key monitoring_key ]
```

charging-action *charging_action_name*

Assigns the specified charging action to the rulebase.

Must be a string of 1-63 characters.

description *description*

Adds specified text to the rule and action.

Must be a string of 1-63 characters.

monitoring-key *monitoring_key*

Associates the specified monitoring-key with ruledefs for usage monitoring.

Must be an integer in the range of 1-134217727.

ruledef *ruledef_name*

Specify name of the ruledef.

Must be a string of 1-63 characters.

Usage Guidelines Use this command to assign ruledefs to the rulebase. Or, associate a time definition with a ruledef. Timedefs activate or deactivate ruledefs, making them available for rule matching only when they are active.

active-charging service rulebase bandwidth

Configures rulebase bandwidth policy parameters.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description **bandwidth default-policy** *default_firewall_policy_name*

default-policy *default_firewall_policy_name*

Specify the default firewall policy.

Must be a string of 1-63 characters.

Usage Guidelines Use this command to configure the rulebase bandwidth policy parameter for default firewall policy.

active-charging service rulebase billing-records

Configures the type of billing to be performed for subscriber sessions.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description **billing-records** { [**egcdr**] [**radius**] [**rf**] }

egcdr

Generates an enhanced G-CDR (eG-CDR) for GGSN / P-GW-CDR for P-GW, and/or UDR with specified format on the occurrence of an interim trigger condition at the end of a subscriber session, or an SGSN-to-SGSN handoff

radius

Generates postpaid RADIUS accounting records at the start and end of a subscriber session, and on the occurrence of an interim trigger condition. RADIUS accounting records are generated for each content ID.

rf

Specify to enable Rf accounting.

Usage Guidelines Use this command to generate enhanced G-CDRs (eG-CDRs), P-GW-CDR for P-GW, RADIUS CDRs and/or UDRs for billing records. The format of eG-CDRs for the default GTPP group is controlled by the inspector command in the Context Configuration Mode.

active-charging service rulebase billing-records udr

Generates Usage Data Record (UDR) with specified the format on the occurrence of an interim trigger condition, at the end of a subscriber session, or a handoff.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description **billing-records udr udr-format** *udr_format_name*

udr-format *udr_format_name*

Specify name of the UDR format.

Must be a string of 1-63 characters.

Usage Guidelines Use this command to enable Usage Data Record.

Example

The following command sets the billing record to UDR with UDR format named udr_format1:

```
billing-records udr udr-format udr_format1
```

active-charging service rulebase cca diameter requested-service-unit sub-avp time

Configures the ACS Diameter Credit Control Requesting Service Unit - time values.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description **cca diameter requested-service-unit sub-avp time cc-time** *cc_time*

cc-time *cc_time*

Specify requested service unit for charging time duration in seconds in included sub-AVP.

Must be an integer in the range of 1-4000000000.

Usage Guidelines Configures the Diameter sub-AVPs to be included in "Requested-Service-Unit", the Diameter group AVP sent with DCCA Credit Control Requests (CCRs). Use this command to configure the ACS Diameter Credit Control requesting service unit - time values.

active-charging service rulebase cca diameter requested-service-unit sub-avp units

Configures ACS Diameter Credit Control Requesting Service Unit - Service-specific values.

Command Modes	Exec > Global Configuration (config) > ACS Configuration (config-service- <i>acs_name</i>) > Rulebase Configuration (config-rulebase- <i>rulebase_name</i>)
Syntax Description	<pre>cca diameter requested-service-unit sub-avp units cc-service-specific-units charging_unit</pre> <p>cc-service-specific-units <i>charging_unit</i></p> <p>Specify the service-specific charging units.</p> <p>Must be an integer in the range of 1-4000000000.</p>
Usage Guidelines	Configures sub-AVP of the Requested-Service-Unit AVP. Use this command to configure the ACS Diameter Credit Control Requesting Service Unit - Service-specific values.

active-charging service rulebase cca diameter requested-service-unit sub-avp volume

Configures the ACS Diameter Credit Control Requesting Service Unit - Time values.

Command Modes	Exec > Global Configuration (config) > ACS Configuration (config-service- <i>acs_name</i>) > Rulebase Configuration (config-rulebase- <i>rulebase_name</i>)
Syntax Description	<pre>cca diameter requested-service-unit sub-avp volume { [cc-input-octets cc_input_octets] [cc-output-octets cc_output_octets [cc-total-octets cc_total_octets]] }</pre> <p>cc-input-octets <i>cc_input_octets</i></p> <p>Specify the volume in bytes.</p> <p>Must be an integer in the range of 1-4000000000.</p> <p>cc-output-octets <i>cc_output_octets</i></p> <p>Specify the output charging octets in bytes.</p> <p>Must be an integer in the range of 1-4000000000.</p> <p>cc-total-octets <i>cc_total_octets</i></p> <p>Specify the total charging octets in bytes.</p> <p>Must be an integer in the range of 1-4000000000.</p>

Usage Guidelines

Configures sub-AVP of the Requested-Service-Unit AVP. Use this command to configure the ACS Diameter Credit Control Requesting Service Unit - Time values.

active-charging service rulebase cca quota holding-time

Configures the Quota Holding Time (QHT). QHT is used with both time- and volume-based quotas.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description

cca quota holding-time *holding_time* **content-id** *content_id*

content-id *content_id*

Specify the content ID (Rating group AVP) to use for the Quota holding time for the current rulebase. Must be the content ID specified for Credit Control Service in the ACS.

Must be an integer in the range of 1-2147483647.

holding-time *holding_time*

Specify the holding time.

Must be an integer in the range of 1-4000000000.

Usage Guidelines

Configures various time and threshold-based quotas in the Prepaid Credit Control Service (Credit Control Application). Use this command to configure the value for the Quota Holding Time (QHT). QHT is used with both time- and volume-based quotas. After the configured number of seconds has passed without user traffic, the quota is reported back and the charging stops until new traffic starts.

active-charging service rulebase cca quota retry-time

Configures the retry time for the quota request.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description

cca quota retry-time *retry_time* [**max-retries** *max_retries*]

max-retries *max_retries*

Specify the maximum number of retries allowed for blacklisted categories.

Must be an integer in the range of 1-65535.

retry-time *retry_time*

Specify the retry interval in seconds.

Must be an integer in the range of 0-86400.

Usage Guidelines Use this command to configure credit control quota retry time.

active-charging service rulebase cca quota time-duration

Configures the algorithm to compute time duration for Prepaid Credit Control Application quotas in the current rulebase.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description `cca quota time-duration algorithm { consumed-time consumed_time [plus-idle] | continuous-time-periods continuous_time_periods | parking-meter parking_meter } [content-id content_id]`

algorithm

Specify the Credit Control Quota Time Duration algorithm.

consumed-time *consumed_time*

Specify the Credit Control consumed time.

Must be an integer in the range of 1-4294967295.

content-id *content_id*

Specify the Content ID.

Must be an integer in the range of 1-2147483647.

continuous-time-periods *continuous_time_periods*

Specify the continuous time periods.

Must be an integer in the range of 1-4294967295.

parking-meter *parking_meter*

Specify the Credit Control Parking Meter.

Must be an integer in the range of 1-4294967295.

plus-idle

Specify the Credit Control idle time.

Usage Guidelines Use this command to configure the various time charging algorithms/schemes for prepaid credit control charging. If operator chooses parking-meter style charging, then time is billed in seconds chunks.

Example

The following command configures the QCT to consumed-time duration of 400 seconds:

```
cca quota time-duration algorithm consumed-time 400
```

active-charging service rulebase content-filtering category

Configures the Content Filtering Category Policy Identifier for Policy-based Content Filtering support in the current rulebase.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description `content-filtering category policy-id cf_policy_id`

policy-id cf_policy_id

Specify the Content Filtering Policy ID.

Must be an integer in the range of 1-4294967295.

Usage Guidelines Use this command to configure the Content Filtering Category Policy ID for Policy-based Content Filtering support in the rulebase.

Example

The following command configures the Content Filtering Category Policy ID 101 in the rulebase:

```
content-filtering category policy-id 101
```

active-charging service rulebase content-filtering flow-any-error

Configures the action to take on Content Filtering packets in the case of ACS error scenarios.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description `content-filtering flow-any-error { deny | permit }`

deny

Specify the flow-any-error configuration as deny. All the denied packets will be accounted for by the discarded-flow-content-id configuration in the Content Filtering Policy Configuration Mode. This content ID will be used to generate UDRs for packets denied via content filtering.

permit

Specify the flow-any-error configuration as permit.

Usage Guidelines Use this command to allow/discard content filtering packets in case of ACS error scenarios.

Example

The following command allows content filtering packets in case of an ACS error:

```
content-filtering flow-any-error permit
```

active-charging service rulebase content-filtering mode

Enables or disables the specified Category-based Content Filtering mode in the current rulebase.

Command Modes

Exec > Global Configuration > ACS Configuration > Rulebase Configuration

Syntax Description

```
content-filtering mode { category { static-and-dynamic | static-only } |
server-group cf_server_group_name }
```

category { **static-and-dynamic** | **static-only** }

Using Category-based Content Filtering support requires Content Filtering Category configuration in the Global Configuration Mode.

Must be one of the following:

- **static-and-dynamic**: Configures Category-based Content Filtering in Static-and-Dynamic mode, wherein a static rating of the URL is first performed, and only if the static rating fails to find a match, dynamic rating of the content that the server returns is then performed.
- **static-only**: Configures Category-based Content Filtering in static only mode, wherein all URLs are compared against an internal database to categorize the requested content.

server-group *server_group_name*

Specify name of the Content Filtering Server Group.

Must be a string of 1-63 characters.

Usage Guidelines

Use this command to enable and apply the content filtering mode in the rulebase to manage a content filtering server with an ICAP client system.

Example

The following command enables the content filtering mode for external content filtering server group *cf_server1* in the rulebase:

```
content-filtering mode server-group cf_server1
```

active-charging service rulebase credit-control-group

Configures the credit control group to be used for subscribers who use this rulebase.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description **credit-control-group** *cc_group_name*

credit-control-group *cc_group_name*

Specify name of the credit control group.

Must be a string of 1-63 characters.

Usage Guidelines Use this command to specify the desired CC group whenever the rulebase is selected during the subscriber session setup. This is an optional CLI configuration, and used only when customized Assume Positive behavior is required for subscribers. This CLI configuration is applicable only during the session setup. Mid-session change in the CC group is not allowed.

Example

The following command configures the association of a credit-control group named test for the current rulebase:

```
credit-control-group test
```

active-charging service rulebase dynamic-rule

Configures whether dynamic rules are matched before statically configured rules.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description **dynamic-rule order** *dynamic_rule_order*

order *dynamic_rule_order*

Specify dynamic rule order.

Must be one of the following:

- **always-first**: Specify to match all the dynamic rules against the flow prior to any static rule. This is the default value.
- **first-if-tied**: Specify to match rules against the flow based on their priority with the condition that dynamic rules match before a static rule of the same priority. A rule is a combination of a ruledef, charging action, and precedence. Static rules are defined by the "action" CLI command in the ACS Rulebase Configuration Mode, and are applicable to all subscribers that are associated with the rulebase. Dynamic rules are obtained via a dynamic protocol, such as, the Gx-interface for a particular subscriber session.

Usage Guidelines Use this command to configure the order in which rules are selected for matching in between dynamic rules (per subscriber) and static rules (from rulebase).

Example

The following command matches all dynamic rules against the flow prior to any static rule:

```
dynamic-rule order always-first
```

active-charging service rulebase edr transaction-complete

Configures EDR-related parameters.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description

```
edr transaction-complete { dns | http } [ charging-edr charging_edr_format_name
| edr-format edr_format_name | reporting-edr reporting_edr_format_name ]
```

charging-edr charging_edr_format_name

Specify to generate charging EDR on transaction completion.

Must be a string of 1-63 characters.

dns

DNS protocol-related configuration.

edr-format edr_format_name

Specify to generate EDR on transaction completion for DNS or HTTP protocol.

Must be a string of 1-63 characters.

http

HTTP protocol-related configuration.

reporting-edr reporting_edr_format_name

Specify the reporting EDR format name to generate reporting EDR on transaction completion.

Must be a string of 1-63 characters.

Usage Guidelines

Configures the generation of an EDR on the completion of a transaction. Use this command to configure the generation of an EDR when certain application transactions (for example, request/response pairs) complete. EDR generation is supported for DNS or HTTP protocol. Note that these EDRs are in addition to those that might be generated due to other conditions, for example, EDR configurations in a charging action.

Example

The following command configures the generation of charging EDRs on the completion of transactions for HTTP protocol specifying the EDR format as test123:

```
edr transaction-complete http charging-edr test123
```

active-charging service rulebase egcdr threshold

Assigns volume or interval values to the interim G-CDRs.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-*acs_name*) > Rulebase Configuration (config-rulebase-*rulebase_name*)

Syntax Description `egcdr threshold interval duration`

interval *duration*

Specify the time interval, in seconds, for closing the G-CDR/PGW-CDR if the minimum time duration thresholds are satisfied.

Must be an integer in the range of 60-40000000.

Usage Guidelines Configures the thresholds for generating eG-CDRs for GGSN and PGW-CDRs for P-GW. Use this command to assign the interval values to the interim G-CDRs.

Example

The following command defines an eG-CDR threshold interval of 600 seconds:

```
egcdr threshold interval 600
```

active-charging service rulebase egcdr threshold volume

Configures the uplink/downlink volume octet counts for the generation of the interim G-CDRs/PGW-CDRs.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-*acs_name*) > Rulebase Configuration (config-rulebase-*rulebase_name*)

Syntax Description `egcdr threshold volume { downlink | total | uplink } bytes`

downlink *bytes*

Specify the limit for the number of downlink (from network to subscriber) octets after which the G-CDR/PGW-CDR is closed.

Must be an integer in the range of 100000-4000000000.

total *bytes*

Specify the limit for the total number of octets (uplink+downlink) after which the G-CDR/PGW-CDR is closed.

Must be an integer in the range of 100000-4000000000.

uplink bytes

Specify the limit for the number of uplink (from subscriber to network) octets after which the G-CDR/PGW-CDR is closed.

Must be an integer in the range of 100000-4000000000.

Usage Guidelines

Configures the thresholds for generating G-CDRs and PGW-CDRs. Use this command to configure the uplink/downlink volume octet counts for the generation of the interim G-CDRs.

active-charging service rulebase flow control-handshaking

Specify control protocol handshake packets.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description

flow control-handshaking charge-separate-from-application

charge-separate-from-application

Specify the charging action to separate the charging of the initial control packets or all subsequent control packets from regular charging.

Usage Guidelines

Configures the charge for the control traffic associated with an application. Use this command to specify control protocol handshake packets.

active-charging service rulebase flow control-handshaking charge-to-application

Configures the charging action to include the flow control packets either during initial handshaking only or specified control packets during session for charging.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description

flow control-handshaking charge-to-application { [all-packets] [initial-packets] [mid-session-packets] [tear-down-packets] }

all-packets

Specify that the initial setup packets will wait until the application has been determined before assigning the content-id, and all mid-session ACK packets as well as the final tear-down packets will use that content-id.

initial-packets

Specify that only the initial setup packets will wait for content-id assignment.

mid-session-packets

Specify that the ACK packets after the initial setup will use the application's or content-id assignment.

tear-down-packets

Specify that the final tear-down packets (TCP or WAP) will use the application's or content-id assignment.

Usage Guidelines Use this command to charge control packets to application ruledefs.

active-charging service rulebase flow end-condition

Configures the end condition of the session flows related to a user session and triggers EDR generation.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description **flow end-condition { normal-end-signaling | session-end | timeout } [charging-edr charging_edr_format_name]**

charging-edr charging_edr_format_name

Specify name of the charging EDR format.

Must be a string of 1-63 characters.

normal-end-signaling

Creates an EDR with the specified EDR format whenever flow end is signaled normally, for example like detecting FIN and ACK for a TCP flow, or a WSP-DISCONNECT terminating a connection-oriented WSP flow over UDP) and create an EDR for the flow using the specified EDR format.

session-end

Creates an EDR with the specified EDR format whenever a subscriber session ends. By this option ACS creates an EDR with the specified format name for every flow that has had any activity since last EDR was created for the flow on session end.

timeout

Creates an EDR with the specified EDR format whenever a flow ends due to a timeout condition.

Usage Guidelines Use this command to enable or disable the capturing of EDRs based on flow end condition.

active-charging service rulebase flow limit-across-applications

This command allows you to limit the total number of simultaneous flows per Subscriber/APN sent to a rulebase regardless of the flow type, or limit flows based on the protocol type under the Session Control feature.

Command Modes	Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)
Syntax Description	<pre>flow limit-across-applications { <i>limit</i> non-tcp <i>non_tcp_limit</i> tcp <i>tcp_limit</i> }</pre> <p>non-tcp non_tcp_limit Specify the maximum limit of non-TCP type flows. Must be an integer in the range of 1-4000000000.</p> <p>tcp tcp_limit Specify the maximum limit of TCP flows. Must be an integer in the range of 1-4000000000.</p> <p>limit Specify the maximum limit. Must be an integer in the range of 1-4000000000.</p>
Usage Guidelines	Use this command to limit the total number of flows allowed per subscriber for a rulebase regardless of flow type, or limit flows based on the protocol non-TCP (connection-less) or TCP (connection-oriented).

Example

The following command configures the maximum number of 200000 flows for the rulebase:

```
flow limit-across-applications 200000
```

active-charging service rulebase ip

Configures IP parameters related to user session.

Command Modes	Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)
Syntax Description	<pre>ip reassembly-timeout <i>reassembly_timeout</i></pre> <p>reassembly-timeout reassembly_timeout Specify the maximum duration for which ip packet fragments are retained, in milliseconds. Must be an integer in the range of 100-30000. Default Value: 5000.</p>
Usage Guidelines	Use this command to configure IP parameters related to user session.

active-charging service rulebase p2p

Enables or disables the P2P analyzer to detect peer-to-peer (P2P) applications.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description **p2p dynamic-flow-detection**

dynamic-flow-detection

Enables dynamic-flow detection, allowing the P2P analyzer to detect the P2P applications configured for the ACS.

Usage Guidelines Use this command to enable/disable the P2P analyzer to detect peer-to-peer (P2P) applications.

active-charging service rulebase post-processing priority

Configures the post-processing priority of a specific ruledef in the current rulebase.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description **post-processing priority** *post_processing_priority*

priority *post_processing_priority*

Specify the post-processing priority.

Must be an integer in the range of 1-65535.

Usage Guidelines Use this command to configure the post-processing priority of a specific ruledef in the current rulebase.

Example

The following command configures the ruledef named test_ruledef with a priority of 10:

```
post-processing priority 10
```

active-charging service rulebase post-processing priority group-of-ruledefs

Configures group-of-ruledefs parameters.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description `post-processing priority post_processing_priority group-of-ruledefs group_of_ruledefs_name charging-action charging_action [description description]`

charging-action *charging_action_name*

Specify name of the charging action.

Must be a string of 1-63 characters.

description *description*

Specify an optional description for this configuration.

Must be a string of 1-63 characters.

group-of-ruledefs *group_of_ruledefs_name*

Specify name of the group-of-ruledefs.

Must be a string of 1-63 characters.

Usage Guidelines Use this command to configure group-of-ruledefs parameters.

active-charging service rulebase post-processing priority ruledef

Assigns ruledefs to the current rulebase.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description `post-processing priority post_processing_priority ruledef ruledef_name charging-action charging_action_name [description description]`

charging-action *charging_action_name*

Specify name of the charging action.

Must be a string of 1-63 characters.

description *description*

Specify an optional description for this configuration.

Must be a string of 1-63 characters.

ruledef *ruledef_name*

Specify name of the ruledef.

Must be a string of 1-63 characters.

Usage Guidelines Use this command to assign ruledefs to the current rulebase.

active-charging service rulebase route priority

Configures the priority of the route in the rulebase.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description **priority** *route_priority*

priority *route_priority*

Specify the route priority.

Must be an integer in the range of 0-65535.

Usage Guidelines Configures the routing of packets to protocol analyzers. Use this command to configure the priority of the route in the rulebase.

active-charging service rulebase route priority ruledef

Configures the ruledef to evaluate packets to determine analyzer.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description **route priority** *route_priority* **ruledef** *ruledef_name* **analyzer** *analyzer*

analyzer *analyzer*

Specify the analyzer for the ruledef.

Must be one of the following:

- **dns**: Route to DNS protocol.
- **file-transfer**: Route to file analyzer.
- **ftp-control**: Route to FTP Control protocol.
- **ftp-data**: Route to FTP Data protocol.
- **h323**: Route to H323 protocol.
- **http**: Route to HTTP protocol.
- **imap**: Route to IMAP protocol analyzer.
- **mipv6**: Route to MIPv6 protocol analyzer.
- **mms**: Route to MMS protocol analyzer.
- **pop3**: Route to POP3 protocol analyzer.
- **pptp**: Route to PPTP protocol analyzer.

- **radius**: Route to light-weight RADIUS protocol analyzer.
- **rtcp**: Route to RTCP protocol analyzer.
- **rtp**: Route to RTP protocol analyzer.
- **rtsp**: Route to RTSP protocol analyzer.
- **sdp**: Route to SDP protocol analyzer.
- **secure-http**: Route to secure HTTP protocol analyzer.
- **sip**: Route to SIP protocol analyzer.
- **smtp**: Route to SMTP protocol analyzer.
- **tftp**: Route to TFTP protocol analyzer.
- **wsp-connection-less**: Route to WSP connection-less protocol analyzer.
- **wsp-connection-oriented**: Route to WSP connection-oriented protocol analyzer.

description *description*

Specify to add a description to the rule and action in the saved configuration file for later reference.

Must be a string of 1-31 characters.

ruledef *ruledef_name*

Specify name of the ruledef.

Must be a string of 1-63 characters.

Usage Guidelines Use this command to assign a ruledef to a rulebase,

active-charging service rulebase rtp

Configures the Real Time Streaming Protocol (RTSP) and Session Description Protocol (SDP) analyzers to detect the start/stop of RTP and RTCP flows.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-*acs_name*) > Rulebase Configuration (config-rulebase-*rulebase_name*)

Syntax Description **rtp dynamic-flow-detection**

dynamic-flow-detection

Specify to enable dynamic RTP/RTCP flow detection.

Usage Guidelines Use this command to enable the RTSP and SDP analyzers to detect the start/stop of RTP and RTCP flows. This command is used in conjunction with the route priority command.

active-charging service rulebase tcp

Configures TCP window size checking.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description `tcp check-window-size`

check-window-size

Specify to enable TCP window-size checking.

Usage Guidelines Use this command to enable/disable TCP window-size check for packets out of TCP window.

Example

The following command enables TCP window-size check:

```
tcp check-window-size
```

active-charging service rulebase tcp mss

Configures the TCP Maximum Segment Size (MSS) in TCP SYN packets.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description `tcp mss tcp_mss { [add-if-not-present] [limit-if-present] }`

add-if-not-present

Specify to add the TCP MSS if not present in the packet.

limit-if-present

Specify to limit the TCP MSS if present in the packet.

mss tcp_mss

Specify the TCP MSS.

Must be an integer in the range of 496-65535.

Usage Guidelines Using this command, TCP MSS can be limited if already present in the TCP SYN packets. If there are no errors detected in IP header/TCP mandatory header and there are no memory allocation failures, TCP optional header is parsed. If TCP MSS is present in the optional header and its value is greater than the configured MSS value, the value present in the TCP packet is replaced with the configured one.

Example

The following command limits the TCP maximum segment size to 3000, and if not present adds it to the packets:

```
tcp mss 3000 limit-if-present add-if-not-present
```

active-charging service rulebase tcp packets-out-of-order

Configures processing of TCP packets that are out of order, while waiting for the earlier packet(s) to arrive.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-*acs_name*) > Rulebase Configuration (config-rulebase-*rulebase_name*)

Syntax Description `tcp packets-out-of-order timeout timeout_duration`

timeout *timeout_duration*

Specify the timeout duration for re-assembly of TCP out-of-order packets in milliseconds.

Must be an integer in the range of 100-30000.

Default Value: 5000.

Usage Guidelines Use this command to configure how to process TCP packets that are out of order, while waiting for the earlier packet(s) to arrive.

Example

The following command sets the timeout timer to 10000 milliseconds:

```
tcp packets-out-of-order timeout 10000
```

active-charging service rulebase tcp packets-out-of-order transmit

Configures the TCP out-of-order segment behavior after buffering a copy.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-*acs_name*) > Rulebase Configuration (config-rulebase-*rulebase_name*)

Syntax Description `tcp packets-out-of-order transmit transmit_behavior`

transmit *transmit_behavior*

Specify the TCP out-of-order segment behavior after buffering a copy.

Must be one of the following:

- **after-reordering**: Specify to deliver the TCP out-of-order segments in-sequence to the ACS analyzer after all packets are received and successfully reordered. The "after-reordering" option is doing this by buffering out-of-order packets, and only releasing them after the missing out-of-order packets are received (or after OOO timeout). When the missing packet is received, complete deep packet inspection of all the packets and all relevant in-line services is done, and then the last packet is forwarded (as the latest). If reordering is not successful within the specified OOO timeout, all the subsequent received packets in that TCP flow are forwarded without being passed through the analysers (except the L3/L4 analyzer). As a consequence, only L3/L4 rule matching will take place. If memory allocation fails or the received packet is partial retransmitted data, the packet will also be forwarded immediately without being passed through the protocol analyzers, except for the L3/L4 analyzers.
- **immediately**: Specify to deliver the TCP out-of-order segments in-sequence to the ACS analyzer after all packets are received and successfully reordered. The "immediately" option is accomplishing this by making a copy of out-of-order packets, and buffering those, while transmitting the original data packets through the outgoing interface immediately. When the missing packet is received, complete deep packet inspection of all the packets and all relevant in-line services is done, and then the last packet is forwarded. If reordering of the buffered packets is not successful within the specified OOO timeout, all the subsequent received packets in that TCP flow are forwarded without being passed through the analysers (except the L3/L4 analyzer). As a consequence only L3/L4 rule matching will take place. If memory allocation fails or the received packet is partial retransmitted data, the packet will also be forwarded immediately without being passed through the protocol analyzers, except for the L3/L4 analyzers.

Usage Guidelines

Use this command to configure the TCP out-of-order segment behavior after buffering a copy.

active-charging service rulebase tethering-detection

Enables or disables the Tethering Detection feature for the current rulebase, and specifies the database to use.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description

```
tethering-detection { application | dns-based | ip-ttl-value ttl_value |
max-syn-packet-in-flow max_syn_packets | tethering_database }
```

application

Specify to perform tethering detection based on App-based method.

dns-based

Specify to perform tethering detection based on DNS-based method.

max-syn-packet-in-flow max_syn_packets

Specify the number of SYN packets applicable for tethering detection in a flow.

Must be an integer in the range of 1-3.

tethering_database

Specify to perform tethering detection using the specified database.

Must be one of the following:

- **os-db-only**: Specify to perform tethering detection using IPv4 and IPv6 OS signature databases.
- **os-ua-db**: Specify to perform tethering detection using IPv4 OS, IPv6 OS, and UA signature databases.
- **ua-db-only**: Specify to perform tethering detection using only the UA signature database.

Usage Guidelines

Use this command to enable/disable the Tethering Detection feature for a rulebase, and configures the database to use. Tethering Detection can be done for IPv4, IPv6, TCP and UDP flows.

Example

The following command enables the Tethering Detection feature in the rulebase, and specifies to use only the OS database:

```
tethering-detection os-db-only
```

active-charging service rulebase url-blacklisting action

Configures URL Blacklisting action.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-*acs_name*) > Rulebase Configuration (config-rulebase-*rulebase_name*)

Syntax Description

```
url-blacklisting action { discard | redirect-url redirect_url | terminate-flow | www-reply-code-and-terminate-flow reply_code } [ content-id content_id ]
```

content-id *content_id*

Specify the content ID, a number assigned to URL Blacklisting.

Must be an integer in the range of 1-65535.

discard

Specify the URL Blacklisting action as "discard".

redirect-url *redirect_url*

Specify the redirect URL/URI, which must be a fully qualified URL/URI.

Must be a string.

terminate-flow

Specify the URL Blacklisting action as "terminate-flow".

www-reply-code-and-terminate-flow *reply_code*

Specify the URL Blacklisting action as "terminate-flow action with reply code".

Must be an integer in the range of 400-599.

Usage Guidelines Enables or disables URL Blacklisting functionality for the current rulebase, and configures the action to be taken when there is a URL match. Use this command to configure the URL Blacklisting action.

active-charging service rulebase url-blacklisting match-method

Configures URL Blacklisting match-method.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Rulebase Configuration (config-rulebase-rulebase_name)

Syntax Description `url-blacklisting match-method match_method`

match-method match_method

Specify the match method.

Must be one of the following:

- **exact**: URL Blacklisting performs an exact match of URL.
- **generic**: URL Blacklisting performs generic match of URL.

Usage Guidelines Use this command to configure the URL Blacklisting match method.

active-charging service ruledef

Configures ACS rule definitions (ruledef).

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name)

Syntax Description `ruledef ruledef_name [rule-application ruledef_purpose]`

rule-application ruledef_purpose

Specify the purpose of the ruledef. When a ruledef is evaluated, if the multi-line-or all-lines command is configured, the logical OR.

Must be one of the following:

- **charging**: Specify that the current ruledef is for charging purposes.
- **post-processing**: Specify that the current ruledef is for post-processing purposes. This enables processing of packets even if the rule matching for them has been disabled.
- **routing**: Specify that the current ruledef is for routing purposes. Up to 256 ruledefs can be defined for routing in an ACS.

ruledef *ruledef_name*

Specify name of the ruledef. If the named ruledef does not exist, it is created, and the CLI mode changes to the ACS Ruledef Configuration Mode wherein the ruledef can be configured. If the named ruledef already exists, the CLI mode changes to the ACS Ruledef Configuration Mode for that ruledef.

Must be a string.

Usage Guidelines

Use this command to create/configure an ACS ruledef. A ruledef represents a set of matching conditions across multiple L3 L7 protocol based on protocol fields and state information. Each ruledef can be used across multiple rulebases within the ACS.

Example

The following command creates/configures an ACS ruledef named test1:

```
ruledef test1
```

active-charging service ruledef bearer service-3gpp rat-type

Specify RAT type associated with the bearer flow.

Command Modes

Exec> Global Configuration (config)> ACS Configuration (config-service-*acs_name*)> Ruledef Configuration (config-ruledef-*ruledef_name*)

Syntax Description

bearer service-3gpp rat-type *operator rat_type*

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **=**: Equals.

rat_type

Specify the RAT type.

Must be one of the following:

- **geran**: GSM EDGE Radio Access Network type.
- **utran**: UMTS Terrestrial Radio Access Network type.
- **wlan**: Wireless LAN type.

Usage Guidelines

Configures rule expression to match Radio Access Technology (RAT) in the bearer flow. Use this command to configure the RAT type associated with the bearer flow.

active-charging service ruledef dns answer-name

Configures ruledef to match DNS answer name.

Command Modes Exec> Global Configuration (config)> ACS Configuration (config-service-acs_name)> Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description **dns answer-name** *operator value*

operator

Specify how to match.

Must be one of the following:

- **!=:** Does not equal.
- **!contains:** Does not contains.
- **!ends-with:** Does not end with.
- **!starts-with:** Does not start with.
- **=:** Equals.
- **case-sensitive:** Strings will be matched in case-sensitive manner.
- **contains:** Contains.
- **ends-with:** Ends with.
- **starts-with:** Starts with.

value

Specify the value.

Must be a string of 1-127 characters.

Usage Guidelines Configures ruledef to match answer name in the answer section of DNS response messages.

active-charging service ruledef dns any-match

Configures rule expression to match all packets of the specified protocol.

Command Modes Exec> Global Configuration (config)> ACS Configuration (config-service-acs_name)> Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description **dns any-match** *operator condition*

Syntax Description **icmpv6 any-match** *operator condition*

Syntax Description `rtp any-match operator condition`

Syntax Description `rtsp any-match operator condition`

Syntax Description `secure-http any-match operator condition`

Syntax Description `tcp any-match operator condition`

Syntax Description `udp any-match operator condition`

Syntax Description `wsp any-match operator condition`

Syntax Description `wtp any-match operator condition`

condition

Specify the condition.

Must be one of the following:

- FALSE
- TRUE

operator

Specify how to match.

Must be one of the following:

- !=: Does not equal.
- =: Equals.

Usage Guidelines Use this command to configure rule expression to match all packets of a specified protocol.

Example

The following command defines a rule expression to match all RTP packets:

```
rtp any-match = TRUE
```

active-charging service ruledef dns previous-state

Configures rule expression to match previous state of the DNS FSM.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description `dns previous-state operator previous_state`

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **=**: Equals.

previous_state

Specify the previous state to match.

Must be one of the following:

- **dns-timeout**: DNS timeout.
- **init**: Init.
- **req-sent**: Request sent.
- **resp-error**: Response error.
- **resp-success**: Response success.

Usage Guidelines

Use this command to define rule expressions to match previous state of DNS FSM.

Example

The following command defines a rule expression to match the DNS FSM previous state "req-sent":

```
dns previous-state = req-sent
```

active-charging service ruledef dns query-name

Configures rule expression to match query name in DNS request messages.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description

```
dns query-name [ case-sensitive ] operator query_name
```

operator

Specify how to match.

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.
- **case-sensitive**: Strings will be matched in case-sensitive manner.
- **contains**: Contains.
- **ends-with**: Ends with.
- **starts-with**: Starts with.

query_name

Specify the query name to match.

Must be a string of 1-127 characters.

Usage Guidelines

Use this command to define rule expressions to match query name in DNS request messages.

Example

The following command defines a rule expression to match DNS query name "test":

```
dns query-name = test
```

active-charging service ruledef dns query-type

Configures rule expression to match the query type in the DNS request messages.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description

dns query-type *operator query_type*

operator

Specify how to match.

Must be one of the following:

- **!=**: Does not equal.
- **=**: Equals.

query_type

Specify the DNS query type to match.

Must be one of the following:

- **a**: Support query-type A.
- **aaaa**: Support query-type AAAA.
- **cname**: Support query-type CNAME.

- **ns**: Support query-type NS.
- **null**: Support query-type NULL.
- **ptr**: Support query-type PTR.
- **srv**: Support query-type SRV.
- **txt**: Support query-type TXT.

Usage Guidelines

Use this command to define rule expressions to match the query type in the DNS request messages.

Example

The following command defines a rule expression to match the DNS query type "txt":

```
dns query-type = txt
```

active-charging service ruledef dns return-code

Configures rule expression to match response code in DNS response messages.

Command Modes

Exec> Global Configuration (config)> ACS Configuration (config-service-*acs_name*)> Ruledef Configuration (config-ruledef-*ruledef_name*)

Syntax Description

dns return-code *operator return_code*

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **=**: Equals.

return_code

Specify the response code to match.

Must be one of the following:

- **format-error**: DNS response: Format Error.
- **name-error**: DNS response: Name Error.
- **no-error**: DNS response: No Error.
- **not-implemented**: DNS response: Name server does not support the requested query.
- **refused**: DNS response: Refused to perform specified operation.
- **server-failure**: DNS response: Server Failure.

Usage Guidelines Use this command to define rule expressions to match response code in DNS response messages.

Example

The following command defines a rule expression to match a DNS response code "refused":

```
dns return-code = refused
```

active-charging service ruledef dns state

Configures rule expressions to match current state of DNS FSM.

Command Modes Exec> Global Configuration (config)> ACS Configuration (config-service-acs_name)> Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description `dns state operator current_state`

current_state

Specify the state to match.

Must be one of the following:

- **dns-timeout**
- **init**
- **req-sent**
- **resp-error**
- **resp-success**

operator

Specify how to match.

Must be one of the following:

- **!:=**: Does not equal.
- **=**: Equals.

Usage Guidelines Use this command to define rule expressions to match DNS FSM current state.

Example

The following command defines a rule expression to match DNS FSM current state of "req-sent":

```
dns state = req-sent
```

active-charging service ruledef dns tid

Configures rule expressions to match Transaction Identifier (TID) field in DNS messages.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description `dns tid operator tid_value`

operator

Specify how to match.

Must be one of the following:

- `! =`: Does not equal.
- `> =`: Greater than or equals.
- `< =`: Lesser than or equals.
- `=`: Equals.

tid_value

Specify the DNS TID field value to match.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to define rule expressions to match a TID field of DNS messages.

Example

The following command defines a rule expression to match DNS TID field value of "test":

```
dns tid = test
```

active-charging service ruledef http content type

Configures rule expression to match value in HTTP Content-Type entity-header field.

Syntax Description `http content type [case-sensitive] operator content_type`

case-sensitive

Specify the rule expression must be case-sensitive. By default, rule expressions are not case-sensitive.

content_type

Specify the content type to match.

Must be a string of 1-127 characters.

operator

Specify how to match.

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.
- **ends-with**: Ends with.
- **starts-with**: Starts with.

Usage Guidelines

Use this command to configure rule expressions to match HTTP content type.

active-charging service ruledef http host

Configures rule expression to match value in HTTP Host Request header field.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description

http host [**case-sensitive**] *operator* *host_name*

case-sensitive

Specify the rule expression must be case-sensitive. By default, rule expressions are not case-sensitive.

host_name

Specify the host name to match.

Must be a string of 1-127 characters.

operator

Specify how to match.

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.
- **ends-with**: Ends with.
- **regex**: Regular expression.
- **starts-with**: Starts with.

Usage Guidelines

Use this command to define rule expressions to match value in HTTP Host request-header field.

Example

The following command defines a rule expression to match "host1" in HTTP Host request-header field:

```
http host = host1
```

active-charging service ruledef http referer

Configures rule expression to match the value in the HTTP Referer request-header field.

Command Modes

Exec> Global Configuration (config)> ACS Configuration (config-service-*acs_name*)> Ruledef Configuration (config-ruledef-*ruledef_name*)

Syntax Description

http referer [**case-sensitive**] *operator referer_name*

case-sensitive

Specify the rule expression must be case-sensitive. By default, rule expressions are not case-sensitive.

operator

Specify how to match.

Must be one of the following:

- **!=**: Does not equal.
- **!contains**: Does not contain.
- **!ends-with**: Does not end with.
- **!present**: Not present.
- **!starts-with**: Does not start with.
- **=**: Equals.
- **contains**: Contains.
- **ends-with**: Ends with.
- **regex**: Regular expression.

- **starts-with**: Starts with.

referer_name

Specify the HTTP referer name to match.

Must be a string of 1-127 characters.

Usage Guidelines

Use this command to define rule expressions to match value in HTTP Referer request-header field. This feature allows an operator to collect or track all URLs visited during a particular subscriber session. These URLs include the entire string of visited URLs, including all referral links. This information is output in an Event Data Record (EDR) format to support reporting or billing functions.

Example

The following command defines a rule expression to match the HTTP referer "cricket.espn.com":

```
http referer = cricket.espn.com
```

active-charging service ruledef http url

Configures rule expression to match HTTP URL.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-*acs_name*) > Ruledef Configuration (config-ruledef-*ruledef_name*)

Syntax Description

```
http url [ case-sensitive ] operator url
```

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **!contains**: Does not contain.
- **!ends-with**: Does not end with.
- **!present**: Does not present.
- **!starts-with**: Does not start with.
- **=**: Equals.
- **case-sensitive**: Is case sensitive.
- **contains**: Contains.
- **ends-with**: Ends with.
- **regex**: Regular expression.
- **starts-with**: Starts with.

url

Specify the HTTP URL to match.

Must be a string of 1-127 characters.

Usage Guidelines

Use this command to define rule expressions to match HTTP URL.

active-charging service ruledef http user-agent

Configures rule expressions to match the User-Agent.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description

http user-agent [**case-sensitive**] *operator user_agent_value*

case-sensitive

Specify the rule expression must be case-sensitive. By default, rule expressions are not case-sensitive.

operator

Specify how to match.

Must be one of the following:

- **!=:** Does not equal.
- **!contains:** Does not contain.
- **!ends-with:** Does not end with.
- **!present:** Not present.
- **!starts-with:** Does not start with.
- **=:** Equal.
- **contains:** Contains.
- **ends-with:** Ends with.
- **present:** Present.
- **regex:** Regular expression.
- **starts-with:** Starts with.

user_agent_value

Specify the HTTP user agent value to match.

Must be a string of 1-127 characters.

Usage Guidelines

Use this command to configure rule expressions to match user agent.

active-charging service ruledef icmpv6 any-match

Configures rule expression to match all packets of the specified protocol.

Command Modes Exec> Global Configuration (config)> ACS Configuration (config-service-acs_name)> Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description `dns any-match operator condition`

Syntax Description `icmpv6 any-match operator condition`

Syntax Description `rtp any-match operator condition`

Syntax Description `rtsp any-match operator condition`

Syntax Description `secure-http any-match operator condition`

Syntax Description `tcp any-match operator condition`

Syntax Description `udp any-match operator condition`

Syntax Description `wsp any-match operator condition`

Syntax Description `wtp any-match operator condition`

condition

Specify the condition.

Must be one of the following:

- FALSE
- TRUE

operator

Specify how to match.

Must be one of the following:

- !=: Does not equal.
- =: Equals.

Usage Guidelines Use this command to configure rule expression to match all packets of a specified protocol.

Example

The following command defines a rule expression to match all RTP packets:

```
ruledef rtp any-match = TRUE
```


active-charging service ruledef ip any-match

Configures rule expressions to match all IPv4/IPv6 packets.

Syntax Description `ip any-match operator condition`

condition

Specify the condition.

Must be one of the following:

- **FALSE**
- **TRUE**

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **=**: Equals.

Usage Guidelines Use this command to define rule expressions to match IPv4/IPv6 packets.

Example

The following command defines a rule expression to match IPv4/IPv6 packets:

```
ip any-match = TRUE
```

active-charging service ruledef ip dst-address

Configures rule expressions to match IP destination address field within IP headers.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description `ip dst-address operator { ip_address | ip_prefix_length | address-group ipv6_address | host-pool host_pool_name }`

address-group ipv6_address_group_name

Specify a group of IPv6 addresses configured with wildcard input and/or specialized range input. Input is accepted as a string and parsed. Multiple wildcard characters can be accepted as input and only one 2-byte range input will be accepted. Both wildcard character input and 2-byte range input can be configured together within an IPv6 address. For example, 2607:7700*:[2020-3040]::ce1d:b083/128. * is a wildcard input. [2020-3040] is a 2-byte specialized range input.

Must be a string of 1-56 characters.

host-pool *host_pool_name*

Specify name of the host pool.

Must be a string of 1-63 characters.

ip-address-prefix *prefix*

Specify the IP address prefix.

Must be a string in the ipv4-prefix pattern. For information on the ipv4-prefix pattern, see the Input Pattern Types section.

-Or-

Must be a string in the ipv6-prefix pattern. For information on the ipv6-prefix pattern, see the Input Pattern Types section.

-Or-

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

-Or-

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

ip_address

Specify the destination IP address.

Must be one of the following:

- **dst-address**: DST address.

operator

Specify how to match.

Must be one of the following:

- **!=**: Does not equal.
- **!range**: Not in the range.
- **>=**: Greater than or equal to.
- **<=**: Lesser than or equal to.
- **=**: Equals.
- **range**: In the range.

Usage Guidelines

Use this command to define rule expressions to match the IP destination address field within IP headers.

Example

The following command defines a rule expression to match user traffic based on the IPv4 destination address 10.1.1.1:

```
ip dst-address = 10.1.1.1
```

active-charging service ruledef ip protocol

Configures rule expression to match based on protocol being transported by IP packet.

Command Modes Exec> Global Configuration (config)> ACS Configuration (config-service-acs_name)> Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description `ip protocol operator protocol`

operator

Specify how to match.

Must be one of the following:

- `! =`: Does not equal.
- `> =`: Greater than or equal to.
- `< =`: Lesser than or equal to.
- `=`: Equals.

protocol

Specify the protocol.

Must be an integer in the range of 0-255.

-Or-

Must be one of the following:

- `ah`
- `esp`
- `gre`
- `icmp`
- `icmpv6`
- `tcp`
- `udp`

Usage Guidelines Use this command to define rule expressions to match based on protocol being transported by IP packet.

active-charging service ruledef ip server-ip-addr

Configure the server's IP address.

Command Modes

Exec> Global Configuration (config)> ACS Configuration (config-service-acs_name)> Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description

ip server-ip-address *operator* { { { *ipv4_address* | *ipv6_address* } **ip-address-prefix** *prefix* | **address-group** *ipv6_address_group_name* } | **host-pool** *host_pool_name* }

address-group *ipv6_address_group_name*

Specify a group of IPv6 addresses configured with wildcard input and/or specialized range input. Input is accepted as a string and parsed. Multiple wildcard characters can be accepted as input and only one 2-byte range input will be accepted. Both wildcard character input and 2-byte range input can be configured together within an IPv6 address. For example, 2607:7700:*:[2020-3040]::ce1d:b083/128. * is a wildcard input. [2020-3040] is a 2-byte specialized range input.

Must be a string of 1-56 characters.

host-pool *host_pool_name*

Specify name of the host pool.

Must be a string of 1-63 characters.

ip-address-prefix *prefix*

Specify the IP address prefix.

Must be a string in the ipv4-prefix pattern. For information on the ipv4-prefix pattern, see the Input Pattern Types section.

-Or-

Must be a string in the ipv6-prefix pattern. For information on the ipv6-prefix pattern, see the Input Pattern Types section.

-Or-

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

-Or-

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

{ *ipv4_address* | *ipv6_address* }

Specify IP address of the server.

Must be one of the following:

- **server-ip-address**: server-ip-address.

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **!range**: Not in the range.
- **>=**: Greater than or equal to.
- **<=**: Lesser than or equal to.
- **=**: Equals.
- **range**: In the range.

Usage Guidelines Use this command to configure the server's IP address.

active-charging service ruledef ip uplink

Configures rule expression to match IP uplink packets.

Command Modes Exec> Global Configuration (config)> ACS Configuration (config-service-*acs_name*)> Ruledef Configuration (config-ruledef-*ruledef_name*)

Syntax Description `ip uplink operator condition`

condition

Specify the condition to match.

Must be one of the following:

- **FALSE**: Not analyzed.
- **TRUE**: Analyzed.

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **=**: Equals.

Usage Guidelines Use this command to configure matching IP uplink packets based on condition.

active-charging service ruledef ip version

Configures rule expression to match based on IP version.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-*acs_name*) > Ruledef Configuration (config-ruledef-*ruledef_name*)

Syntax Description **ip version** *operator ip_version*

ip_version

Specify the condition to match.

Must be one of the following:

- **ipv4**
- **ipv6**

operator

Specify how to match.

Must be one of the following:

- =: Equals.

Usage Guidelines Use this command to configure rule expression to match based on the IP version.

active-charging service ruledef multi-line-or

This command applies the OR operator to all lines in the current ruledef.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-*acs_name*) > Ruledef Configuration (config-ruledef-*ruledef_name*)

Syntax Description **multi-line-or all-lines**

all-lines

Applies the OR operator to all lines in the current ruledef.

Usage Guidelines When a ruledef is evaluated, if the multi-line-or all-lines command is configured, the logical OR operator is applied to all the rule expressions in the ruledef to decide if the ruledef matches or not. If the multi-line-or all-lines command is not configured, the logical AND operator is applied to all the rule expressions.

active-charging service ruledef p2p

This command allows you to define rule expressions to match P2P protocol. This command must be used for charging purposes. It must not be used for detection purposes.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-*acs_name*) > Ruledef Configuration (config-ruledef-*ruledef_name*)

Syntax Description **p2p set-app-proto** *app_protocol_name*

p2p set-app-proto *app_protocol_name*

Specify name of the custom-defined protocol (CDP). CDP name specifies the name of the custom defined protocol (CDP) for TLS/SSL flows, QUIC flows or any app-identifier matching the ruledef. If the flow/packet matches the rule, the CDP name specified in the ruledef will be taken and the flow will be marked as CDP. If no CDP is configured in the rule, then the flow will be treated as TLS/SSL or QUIC flow.

Must be a string of 1-19 characters.

Usage Guidelines Use this command to define rule expressions to detect P2P protocols for charging purposes. For detection purposes use the "p2p-detection protocol" command in the ACS Configuration Mode.

active-charging service ruledef p2p app-identifier

Configures application identifiers populated from the plugin and mark the matching flows to a custom-defined protocol (CDP) name.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-*acs_name*) > Ruledef Configuration (config-ruledef-*ruledef_name*)

Syntax Description **p2p app-identifier** *app_type operator app_identifier*

app_identifier

Specify the app identifier.

Must be a string of 1-127 characters.

app_type

Specify the application type.

Must be one of the following:

- **quic-sni**: Specify the QUIC Server Name Indication (SNI) field value.
- **tls-cname**: Specify the common name in the Server Hello message of TLS. SSL renegotiation is supported for the flows that are marked using "tls-cname" rules.
- **tls-sni**: Specify the TLS/SSL Server Name Indication (SNI) field.

operator

Specify how to match.

Must be one of the following:

- **!=**: Not equals.
- **=**: Equals.
- **contains**: Contains.
- **ends-with**: Ends with.
- **starts-with**: Starts with.

Usage Guidelines

Use this command to configure application identifiers populated from the plugin and mark the matching flows to a custom-defined protocol (CDP) name. The SNI ruledef supports multi-line-or all-lines or default multi-line-and rule lines. The rule lines configured with "!=" operator will not be optimized.

Example

The following command configures the QUIC SNI app-identifier that is set to fb.com:

```
p2p app-identifier quic-sni = fb.com
```

active-charging service ruledef p2p protocol

Configures the protocol to match parameter.

Command Modes

Exec> Global Configuration (config)> ACS Configuration (config-service-acs_name)> Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description

p2p protocol *operator* *p2p_protocol*

operator

Specify how to match.

Must be one of the following:

- **=**: Equals.

p2p_protocol

Specify the P2P protocol.

Must be one of the following:

- **8tracks**: P2P detection protocol for "8tracks" application.
- **actionvoip**: P2P detection protocol for "actionvoip" application.
- **actsync**: P2P detection protocol for "actsync" application.

- **adobeconnect**: P2P detection protocol for "adobeconnect" application.
- **aimini**: P2P detection protocol for "aimini" application.
- **amazoncloud**: P2P detection protocol for "amazoncloud" application.
- **amazonmusic**: P2P detection protocol for "amazonmusic" application.
- **amazonvideo**: P2P detection protocol for "amazonvideo" application.
- **antsp2p**: P2P detection protocol for "antsp2p" application.
- **apple-push**: P2P detection protocol for "apple-push" application.
- **apple-store**: P2P detection protocol for "apple-store" application.
- **applejuice**: P2P detection protocol for "applejuice" application.
- **applemaps**: P2P detection protocol for "applemaps" application.
- **ares**: P2P detection protocol for "ares" application.
- **armagettron**: P2P detection protocol for "armagettron" application.
- **avi**: P2P detection protocol for "avi" application.
- **badoo**: P2P detection protocol for "badoo" application.
- **baidumovie**: P2P detection protocol for "baidumovie" application.
- **battlefld**: P2P detection protocol for "battlefld" application.
- **bbm**: P2P detection protocol for "bbm" application.
- **beatport**: P2P detection protocol for "beatport" application.
- **bitcasa**: P2P detection protocol for "bitcasa" application.
- **bittorrent-sync**: P2P detection protocol for "bittorrent-sync" application.
- **bittorrent**: P2P detection protocol for "bittorrent" application.
- **blackberry-store**: P2P detection protocol for "blackberry-store" application.
- **blackberry**: P2P detection protocol for "blackberry" application.
- **blackdialer**: P2P detection protocol for "blackdialer" application.
- **box**: P2P detection protocol for "box" application.
- **callofduty**: P2P detection protocol for "callofduty" application.
- **chikka**: P2P detection protocol for "chikka" application.
- **cisco-jabber**: P2P detection protocol for "cisco-jabber" application.
- **citrix**: P2P detection protocol for "citrix" application.
- **clubbox**: P2P detection protocol for "clubbox" application.
- **clubpenguin**: P2P detection protocol for "clubpenguin" application.
- **comodounite**: P2P detection protocol for "comodounite" application.

- **crackle**: P2P detection protocol for "crackle" application.
- **crossfire**: P2P detection protocol for "crossfire" application.
- **curiosity-stream**: P2P detection protocol for "curiosity-stream" application.
- **cyberghost**: P2P detection protocol for "cyberghost" application.
- **ddlink**: P2P detection protocol for "ddlink" application.
- **didi**: P2P detection protocol for "didi" application.
- **directconnect**: P2P detection protocol for "directconnect" application.
- **dish-anywhere**: P2P detection protocol for "dish-anywhere" application.
- **dns-tunneling**: P2P detection protocol for "dns-tunneling" application.
- **dofus**: P2P detection protocol for "dofus" application.
- **dropbox**: P2P detection protocol for "dropbox" application.
- **ebuddy**: P2P detection protocol for "ebuddy" application.
- **edonkey**: P2P detection protocol for "edonkey" application.
- **espn**: P2P detection protocol for "espn" application.
- **facebook**: P2P detection protocol for "facebook" application.
- **facetime**: P2P detection protocol for "facetime" application.
- **fandor**: P2P detection protocol for "fandor" application.
- **fasttrack**: P2P detection protocol for "fasttrack" application.
- **feidian**: P2P detection protocol for "feidian" application.
- **ficall**: P2P detection protocol for "ficall" application.
- **fiesta**: P2P detection protocol for "fiesta" application.
- **filetopia**: P2P detection protocol for "filetopia" application.
- **flash**: P2P detection protocol for "flash" application.
- **flickr**: P2P detection protocol for "flickr" application.
- **florensia**: P2P detection protocol for "florensia" application.
- **foursquare**: P2P detection protocol for "foursquare" application.
- **fox-sports**: P2P detection protocol for "fox-sports" application.
- **freenet**: P2P detection protocol for "freenet" application.
- **friendster**: P2P detection protocol for "friendster" application.
- **fring**: P2P detection protocol for "fring" application.
- **fubotv**: P2P detection protocol for "fubotv" application.
- **funshion**: P2P detection protocol for "funshion" application.

- **gadugadu**: P2P detection protocol for "gadugadu" application.
- **gamekit**: P2P detection protocol for "gamekit" application.
- **gmail**: P2P detection protocol for "gmail" application.
- **gnutella**: P2P detection protocol for "gnutella" application.
- **go90**: P2P detection protocol for "go90" application.
- **goober**: P2P detection protocol for "goober" application.
- **google-music**: P2P detection protocol for "google-music" application.
- **google-push**: P2P detection protocol for "google-push" application.
- **google**: P2P detection protocol for "google" application.
- **googleplay**: P2P detection protocol for "googleplay" application.
- **googleplus**: P2P detection protocol for "googleplus" application.
- **gotomeeting**: P2P detection protocol for "gotomeeting" application.
- **gtalk**: P2P detection protocol for "gtalk" application.
- **guildwars**: P2P detection protocol for "guildwars" application.
- **halflife2**: P2P detection protocol for "halflife2" application.
- **hamachivpn**: P2P detection protocol for "hamachivpn" application.
- **hbogo**: P2P detection protocol for "hbogo" application.
- **hbonow**: P2P detection protocol for "hbonow" application.
- **heyteLL**: P2P detection protocol for "heyteLL" application.
- **hgtv**: P2P detection protocol for "hgtv" application.
- **hike-messenger**: P2P detection protocol for "hike-messenger" application.
- **hls**: P2P detection protocol for "hls" application.
- **hotspotvpn**: P2P detection protocol for "hotspotvpn" application.
- **http**: P2P detection protocol for "http" application.
- **hulu**: P2P detection protocol for "hulu" application.
- **hyves**: P2P detection protocol for "hyves" application.
- **iax**: P2P detection protocol for "iax" application.
- **icall**: P2P detection protocol for "icall" application.
- **icecast**: P2P detection protocol for "icecast" application.
- **icloud**: P2P detection protocol for "icloud" application.
- **idrive**: P2P detection protocol for "idrive" application.
- **igo**: P2P detection protocol for "igo" application.

- **iheartradio**: P2P detection protocol for "iheartradio" application.
- **imesh**: P2P detection protocol for "imesh" application.
- **imessage**: P2P detection protocol for "imessage" application.
- **imgur**: P2P detection protocol for "imgur" application.
- **imo**: P2P detection protocol for "imo" application.
- **implus**: P2P detection protocol for "implus" application.
- **instagram**: P2P detection protocol for "instagram" application.
- **oplayer**: P2P detection protocol for "oplayer" application.
- **iptv**: P2P detection protocol for "iptv" application.
- **irc**: P2P detection protocol for "irc" application.
- **isakmp**: P2P detection protocol for "isakmp" application.
- **iskoot**: P2P detection protocol for "iskoot" application.
- **itunes**: P2P detection protocol for "itunes" application.
- **jabber**: P2P detection protocol for "jabber" application.
- **jap**: P2P detection protocol for "jap" application.
- **jumblo**: P2P detection protocol for "jumblo" application.
- **kakaotalk**: P2P detection protocol for "kakaotalk" application.
- **kidoodle**: P2P detection protocol for "kidoodle" application.
- **kik-messenger**: P2P detection protocol for "kik-messenger" application.
- **kontiki**: P2P detection protocol for "kontiki" application.
- **kugou**: P2P detection protocol for "kugou" application.
- **kuro**: P2P detection protocol for "kuro" application.
- **linkedin**: P2P detection protocol for "linkedin" application.
- **lync**: P2P detection protocol for "lync" application.
- **magicjack**: P2P detection protocol for "magicjack" application.
- **manolito**: P2P detection protocol for "manolito" application.
- **mapfactor**: P2P detection protocol for "mapfactor" application.
- **mapi**: P2P detection protocol for "mapi" application.
- **maplestory**: P2P detection protocol for "maplestory" application.
- **meebo**: P2P detection protocol for "meebo" application.
- **mega**: P2P detection protocol for "mega" application.
- **mgcp**: P2P detection protocol for "mgcp" application.

- **mig33**: P2P detection protocol for "mig33" application.
- **mlb**: P2P detection protocol for "mlb" application.
- **mojo**: P2P detection protocol for "mojo" application.
- **monkey3**: P2P detection protocol for "monkey3" application.
- **mozy**: P2P detection protocol for "mozy" application.
- **msn**: P2P detection protocol for "msn" application.
- **msrp**: P2P detection protocol for "msrp" application.
- **mute**: P2P detection protocol for "mute" application.
- **mypeople**: P2P detection protocol for "mypeople" application.
- **myspace**: P2P detection protocol for "myspace" application.
- **nateontalk**: P2P detection protocol for "nateontalk" application.
- **naverline**: P2P detection protocol for "naverline" application.
- **navigon**: P2P detection protocol for "navigon" application.
- **nbc-sports**: P2P detection protocol for "nbc-sports" application.
- **netflix**: P2P detection protocol for "netflix" application.
- **netmotion**: P2P detection protocol for "netmotion" application.
- **newsy**: P2P detection protocol for "newsy" application.
- **nimbuzz**: P2P detection protocol for "nimbuzz" application.
- **nokia-store**: P2P detection protocol for "nokia-store" application.
- **octoshape**: P2P detection protocol for "octoshape" application.
- **odnoklassniki**: P2P detection protocol for "odnoklassniki" application.
- **off**: P2P detection protocol for "off" application.
- **ogg**: P2P detection protocol for "ogg" application.
- **oist**: P2P detection protocol for "oist" application.
- **oovoo**: P2P detection protocol for "oovoo" application.
- **opendrive**: P2P detection protocol for "opendrive" application.
- **openft**: P2P detection protocol for "openft" application.
- **openvpn**: P2P detection protocol for "openvpn" application.
- **operamini**: P2P detection protocol for "operamini" application.
- **orb**: P2P detection protocol for "orb" application.
- **oscar**: P2P detection protocol for "oscar" application.
- **outlook**: P2P detection protocol for "outlook" application.

- **paltalk**: P2P detection protocol for "paltalk" application.
- **pando**: P2P detection protocol for "pando" application.
- **pandora**: P2P detection protocol for "pandora" application.
- **path**: P2P detection protocol for "path" application.
- **pcanywhere**: P2P detection protocol for "pcanywhere" application.
- **periscope**: P2P detection protocol for "periscope" application.
- **pinterest**: P2P detection protocol for "pinterest" application.
- **plingm**: P2P detection protocol for "plingm" application.
- **poco**: P2P detection protocol for "poco" application.
- **popo**: P2P detection protocol for "popo" application.
- **pplive**: P2P detection protocol for "pplive" application.
- **ppstream**: P2P detection protocol for "ppstream" application.
- **ps3**: P2P detection protocol for "ps3" application.
- **qq**: P2P detection protocol for "qq" application.
- **qqgame**: P2P detection protocol for "qqgame" application.
- **qqlive**: P2P detection protocol for "qqlive" application.
- **quake**: P2P detection protocol for "quake" application.
- **quic**: P2P detection protocol for "quic" application.
- **quicktime**: P2P detection protocol for "quicktime" application.
- **radio-paradise**: P2P detection protocol for "radio-paradise" application.
- **rdp**: P2P detection protocol for "rdp" application.
- **rdt**: P2P detection protocol for "rdt" application.
- **regram**: P2P detection protocol for "regram" application.
- **rfactor**: P2P detection protocol for "rfactor" application.
- **rhapsody**: P2P detection protocol for "rhapsody" application.
- **rmstream**: P2P detection protocol for "rmstream" application.
- **rodi**: P2P detection protocol for "rodi" application.
- **rynga**: P2P detection protocol for "rynga" application.
- **samsung-store**: P2P detection protocol for "samsung-store" application.
- **scydo**: P2P detection protocol for "scydo" application.
- **secondlife**: P2P detection protocol for "secondlife" application.
- **shoutcast**: P2P detection protocol for "shoutcast" application.

- **showtime**: P2P detection protocol for "showtime" application.
- **silverlight**: P2P detection protocol for "silverlight" application.
- **siri**: P2P detection protocol for "siri" application.
- **skinny**: P2P detection protocol for "skinny" application.
- **skydrive**: P2P detection protocol for "skydrive" application.
- **skype**: P2P detection protocol for "Skype" application.
- **slacker-radio**: P2P detection protocol for "slacker-radio" application.
- **slingbox**: P2P detection protocol for "slingbox" application.
- **slingtv**: P2P detection protocol for "slingtv" application.
- **smartvoip**: P2P detection protocol for "smartvoip" application.
- **snapchat**: P2P detection protocol for "snapchat" application.
- **softether**: P2P detection protocol for "softether" application.
- **sopcast**: P2P detection protocol for "sopcast" application.
- **soribada**: P2P detection protocol for "soribada" application.
- **soulseek**: P2P detection protocol for "soulseek" application.
- **soundcloud**: P2P detection protocol for "soundcloud" application.
- **spdy**: P2P detection protocol for "spdy" application.
- **speedtest**: P2P detection protocol for "speedtest" application.
- **splashfighter**: P2P detection protocol for "splashfighter" application.
- **spotify**: P2P detection protocol for "spotify" application.
- **ssdp**: P2P detection protocol for "ssdp" application.
- **ssl**: P2P detection protocol for "ssl" application.
- **starz**: P2P detection protocol for "starz" application.
- **stealthnet**: P2P detection protocol for "stealthnet" application.
- **steam**: P2P detection protocol for "steam" application.
- **stun**: P2P detection protocol for "stun" application.
- **sudaphone**: P2P detection protocol for "sudaphone" application.
- **svtplay**: P2P detection protocol for "svtplay" application.
- **tagged**: P2P detection protocol for "tagged" application.
- **talkatone**: P2P detection protocol for "talkatone" application.
- **tango**: P2P detection protocol for "tango" application.
- **teamspeak**: P2P detection protocol for "teamspeak" application.

- **teamviewer**: P2P detection protocol for "teamviewer" application.
- **telegram**: P2P detection protocol for "telegram" application.
- **thunder**: P2P detection protocol for "thunder" application.
- **thunderhs**: P2P detection protocol for "thunderhs" application.
- **tmo-tv**: P2P detection protocol for "tmo-tv" application.
- **tor**: P2P detection protocol for "tor" application.
- **truecaller**: P2P detection protocol for "truecaller" application.
- **truphone**: P2P detection protocol for "truphone" application.
- **tumblr**: P2P detection protocol for "tumblr" application.
- **tunein-radio**: P2P detection protocol for "tunein-radio" application.
- **tunnelvoice**: P2P detection protocol for "tunnelvoice" application.
- **tvants**: P2P detection protocol for "tvants" application.
- **tvuplayer**: P2P detection protocol for "tvuplayer" application.
- **twitch**: P2P detection protocol for "twitch" application.
- **twitter**: P2P detection protocol for "twitter" application.
- **ultrabac**: P2P detection protocol for "ultrabac" application.
- **ultrasurf**: P2P detection protocol for "ultrasurf" application.
- **univision**: P2P detection protocol for "univision" application.
- **upc-phone**: P2P detection protocol for "upc-phone" application.
- **usenet**: P2P detection protocol for "usenet" application.
- **ustream**: P2P detection protocol for "ustream" application.
- **uusee**: P2P detection protocol for "uusee" application.
- **vchat**: P2P detection protocol for "vchat" application.
- **veohtv**: P2P detection protocol for "veohtv" application.
- **vessel**: P2P detection protocol for "vessel" application.
- **vevo**: P2P detection protocol for "vevo" application.
- **viber**: P2P detection protocol for "viber" application.
- **vine**: P2P detection protocol for "vine" application.
- **voipdiscount**: P2P detection protocol for "voipdiscount" application.
- **vopium**: P2P detection protocol for "vopium" application.
- **voxer**: P2P detection protocol for "voxer" application.
- **vpn**: P2P detection protocol for "vpn" application.

- **vtok**: P2P detection protocol for "vtok" application.
- **vtun**: P2P detection protocol for "vtun" application.
- **vudu**: P2P detection protocol for "vudu" application.
- **warcft3**: P2P detection protocol for "warcft3" application.
- **waze**: P2P detection protocol for "waze" application.
- **webex**: P2P detection protocol for "webex" application.
- **wechat**: P2P detection protocol for "wechat" application.
- **weibo**: P2P detection protocol for "weibo" application.
- **whatsapp**: P2P detection protocol for "whatsapp" application.
- **wii**: P2P detection protocol for "wii" application.
- **windows-azure**: P2P detection protocol for "windows-azure" application.
- **windows-store**: P2P detection protocol for "windows-store" application.
- **winmx**: P2P detection protocol for "winmx" application.
- **winny**: P2P detection protocol for "winny" application.
- **wmstream**: P2P detection protocol for "wmstream" application.
- **wofkungfu**: P2P detection protocol for "wofkungfu" application.
- **wofwarcraft**: P2P detection protocol for "wofwarcraft" application.
- **wuala**: P2P detection protocol for "wuala" application.
- **wwe**: P2P detection protocol for "wwe" application.
- **xbox**: P2P detection protocol for "xbox" application.
- **xdcc**: P2P detection protocol for "xdcc" application.
- **xing**: P2P detection protocol for "xing" application.
- **yahoo**: P2P detection protocol for "yahoo" application.
- **yahoomail**: P2P detection protocol for "yahoomail" application.
- **youku**: P2P detection protocol for "youku" application.
- **yourfreetunnel**: P2P detection protocol for "yourfreetunnel" application.
- **youtube**: P2P detection protocol for "youtube" application.
- **zattoo**: P2P detection protocol for "zattoo" application.

Usage Guidelines

Use this command to specify the protocol to match.

active-charging service ruledef p2p traffic-type

Configures rule expression to match the traffic type.

Command Modes

Exec> Global Configuration (config)> ACS Configuration (config-service-*acs_name*)> Ruledef Configuration (config-ruledef-*ruledef_name*)

Syntax Description

p2p traffic-type *operator traffic_type*

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **=**: Equals.

traffic_type

Specify the traffic type to match.

Must be one of the following:

- **ads**
- **audio**
- **file-transfer**
- **im**
- **streaming-audio**
- **streaming-video**
- **tunnel**
- **unclassified**
- **video**
- **voipout**

Usage Guidelines

Use this command to configure the system to detect voice or non-voice P2P traffic. When the detection of a protocol is enabled then the detection of sub-type is enabled by default.

Example

The following command configures the system to detect video traffic:

```
p2p traffic-type = video
```

active-charging service ruledef rtp any-match

Configures rule expression to match all packets of the specified protocol.

Command Modes Exec> Global Configuration (config)> ACS Configuration (config-service-acs_name)> Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description `dns any-match operator condition`

Syntax Description `icmpv6 any-match operator condition`

Syntax Description `rtp any-match operator condition`

Syntax Description `rtsp any-match operator condition`

Syntax Description `secure-http any-match operator condition`

Syntax Description `tcp any-match operator condition`

Syntax Description `udp any-match operator condition`

Syntax Description `wsp any-match operator condition`

Syntax Description `wtp any-match operator condition`

condition

Specify the condition.

Must be one of the following:

- **FALSE**
- **TRUE**

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **=**: Equals.

Usage Guidelines Use this command to configure rule expression to match all packets of a specified protocol.

Example

The following command defines a rule expression to match all RTP packets:

```
rtp any-match = TRUE
```

active-charging service ruledef rtsp any-match

Configures rule expression to match all packets of the specified protocol.

Command Modes Exec> Global Configuration (config)> ACS Configuration (config-service-acs_name)> Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description `dns any-match operator condition`

Syntax Description `icmpv6 any-match operator condition`

Syntax Description `rtp any-match operator condition`

Syntax Description `rtsp any-match operator condition`

Syntax Description `secure-http any-match operator condition`

Syntax Description `tcp any-match operator condition`

Syntax Description `udp any-match operator condition`

Syntax Description `wsp any-match operator condition`

Syntax Description `wtp any-match operator condition`

condition

Specify the condition.

Must be one of the following:

- FALSE
- TRUE

operator

Specify how to match.

Must be one of the following:

- !=: Does not equal.
- =: Equals.

Usage Guidelines Use this command to configure rule expression to match all packets of a specified protocol.

Example

The following command defines a rule expression to match all RTP packets:

```
rtsp any-match = TRUE
```

active-charging service ruledef secure-http any-match

Configures rule expression to match all packets of the specified protocol.

Command Modes Exec> Global Configuration (config)> ACS Configuration (config-service-acs_name)> Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description `dns any-match operator condition`

Syntax Description `icmpv6 any-match operator condition`

Syntax Description `rtp any-match operator condition`

Syntax Description `rtsp any-match operator condition`

Syntax Description `secure-http any-match operator condition`

Syntax Description `tcp any-match operator condition`

Syntax Description `udp any-match operator condition`

Syntax Description `wsp any-match operator condition`

Syntax Description `wtp any-match operator condition`

condition

Specify the condition.

Must be one of the following:

- **FALSE**
- **TRUE**

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **=**: Equals.

Usage Guidelines Use this command to configure rule expression to match all packets of a specified protocol.

Example

The following command defines a rule expression to match all RTP packets:

```
rtp any-match = TRUE
```

active-charging service ruledef secure-http uplink

Configures rule expression to match HTTPS uplink (subscriber to network) packets.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description **secure-http uplink** *operator condition*

condition

Specify the condition to match.

Must be one of the following:

- FALSE
- TRUE

operator

Specify how to match.

Must be one of the following:

- !=: Does not equal.
- =: Equals.

Usage Guidelines Use this command to specify the HTTPS uplink packets.

active-charging service ruledef tcp any-match

Configures rule expression to match all packets of the specified protocol.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description **dns any-match** *operator condition*

Syntax Description **icmpv6 any-match** *operator condition*

Syntax Description **rtp any-match** *operator condition*

Syntax Description **rtsp any-match** *operator condition*

Syntax Description **secure-http any-match** *operator condition*

Syntax Description **tcp any-match** *operator condition*

Syntax Description `udp any-match operator condition`

Syntax Description `wsp any-match operator condition`

Syntax Description `wtp any-match operator condition`

condition

Specify the condition.

Must be one of the following:

- FALSE
- TRUE

operator

Specify how to match.

Must be one of the following:

- !=: Does not equal.
- =: Equals.

Usage Guidelines Use this command to configure rule expression to match all packets of a specified protocol.

Example

The following command defines a rule expression to match all RTP packets:

```
rtsp any-match = TRUE
```

active-charging service ruledef tcp either-port with-portMap-range

Configures port selection with port map range.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description `tcp either-port operator port-map port_map_name`

Syntax Description `udp either-port operator port-map port_map_name`

port-map port_map_name

Specify name of the port map.

Must be a string of 1-63 characters.

operator

Specify how to match.

Must be one of the following:

- **!range**: Not in the range of.
- **range**: In the range of.

Usage Guidelines

Use this command to configure with port map range.

active-charging service ruledef tcp either-port with-range

Configures port configuration with range.

Command Modes

Exec> Global Configuration (config)> ACS Configuration (config-service-acs_name)> Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description

tcp either-port *operator start_range to end_range*

Syntax Description

udp either-port *operator start_range to end_range*

to

Specify until node.

Must be one of the following:

- **to**

end_range

Specify the end range.

Must be an integer in the range of 1-65535.

operator

Specify how to match.

Must be one of the following:

- **!range**: Not in the range of.
- **range**: In the range of.

start_range

Specify the start range.

Must be an integer in the range of 1-65535.

Usage Guidelines

Use this command to configure port configuration with range.

active-charging service ruledef tcp either-port without-range

Configures port configuration without range.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description `tcp either-port operator port port_number`

Syntax Description `udp either-port operator port port_number`

port port_number

Specify the port number.

Must be an integer in the range of 1-65535.

operator

Specify how to match.

Must be one of the following:

- `! =`: Does not equal.
- `> =`: Greater than or equal to.
- `< =`: Lesser than or equal to.
- `=`: Equals.

Usage Guidelines Use this command to configure port configuration without range.

active-charging service ruledef tcp flag

Configures rule expression to match bit within the Flag field of TCP headers.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description `tcp flag operator flag`

flag

Specify the flag to match.

Must be one of the following:

- `ack`
- `fin`
- `push`

- **reset**
- **sync**

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **!contains**: Does not contain.
- **=**: Equals.
- **contains**: Contains.

Usage Guidelines Use this command to configure rule expression to match bit within the Flag field of TCP headers.

active-charging service ruledef tcp state

Configures rule expression to match current state of TCP connections.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-*acs_name*) > Ruledef Configuration (config-ruledef-*ruledef_name*)

Syntax Description `tcp state operator current_state`

current_state

Specify the state to match.

Must be one of the following:

- **close-wait**
- **close**
- **closing**
- **established**
- **fin-wait1**
- **fin-wait2**
- **last-ack**
- **listen**
- **syn-received**
- **syn-sent**
- **time-wait**

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **=**: Equals.

Usage Guidelines

Use this command to define rule expressions to match a current state of TCP connections.

Example

The following command defines a rule expression to match user traffic based on current state "close":

```
tcp state = close
```

active-charging service ruledef tethering-detection

Configures rule expression to match tethered or non-tethered flows.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description

tethering-detection *flow_option*

flow_option

Specify the flow option.

Must be one of the following:

- **flow-not-tethered**: If tethering is not detected on flow.
- **flow-tethered**: If tethering is detected on flow.

Usage Guidelines

Use this command to define rule expressions to match tethered/non-tethered flows. Note that in order for the rule containing the tethering-detection configuration to get matched, at least one valid rule line has to be present in it.

Example

The following command defines a rule expression to match tethered flows:

```
tethering-detection flow-tethered
```

active-charging service ruledef tethering-detection application

Configures application-based tethering detection.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description `tethering-detection application flow_option`

flow_option

Specify the flow option.

Must be one of the following:

- **flow-not-tethered**: If tethering is not detected on flow.
- **flow-tethered**: If tethering is detected on flow.

Usage Guidelines Use this command to select flows that were tethered or non-tethered based on application-based detection solution.

active-charging service ruledef tethering-detection dns-based

Configures DNS query pattern based tethering detection.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description `tethering-detection dns-based flow_option`

flow_option

Specify the flow option.

Must be one of the following:

- **flow-not-tethered**: If tethering is not detected on flow.
- **flow-tethered**: If tethering is detected on flow.

Usage Guidelines Use this command to select flows that were tethered or non-tethered based on DNS-based detection solution.

active-charging service ruledef tethering-detection ip-ttl

Configures IP-TTL based tethering detection.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description `tethering-detection ip-ttl flow_option`

flow_option

Specify the flow option.

Must be one of the following:

- **flow-not-tethered**: If tethering is not detected on flow.
- **flow-tethered**: If tethering is detected on flow.

Usage Guidelines

Use this command to select flows that were tethered or non-tethered as per IP-TTL values.

active-charging service ruledef tethering-detection os-ua

Configures OS-UA based tethering detection.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description

tethering-detection os-ua *flow_option*

flow_option

Specify the flow option.

Must be one of the following:

- **flow-not-tethered**: If tethering is not detected on flow.
- **flow-tethered**: If tethering is detected on flow.

Usage Guidelines

Use this command to select flows that were tethered or non-tethered as per OS-UA lookups.

active-charging service ruledef udp any-match

Configures rule expression to match all packets of the specified protocol.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description

dns any-match *operator condition*

Syntax Description

icmpv6 any-match *operator condition*

Syntax Description

rtp any-match *operator condition*

Syntax Description

rtsp any-match *operator condition*

Syntax Description

secure-http any-match *operator condition*

Syntax Description

tcp any-match *operator condition*

Syntax Description

udp any-match *operator condition*

Syntax Description `wsp any-match operator condition`

Syntax Description `wtp any-match operator condition`

condition

Specify the condition.

Must be one of the following:

- FALSE
- TRUE

operator

Specify how to match.

Must be one of the following:

- !=: Does not equal.
- =: Equals.

Usage Guidelines Use this command to configure rule expression to match all packets of a specified protocol.

Example

The following command defines a rule expression to match all RTP packets:

```
rtsp any-match = TRUE
```

active-charging service ruledef udp either-port with-portMap-range

Configures port selection with port map range.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description `tcp either-port operator port-map port_map_name`

Syntax Description `udp either-port operator port-map port_map_name`

port-map port_map_name

Specify name of the port map.

Must be a string of 1-63 characters.

operator

Specify how to match.

Must be one of the following:

- **!range**: Not in the range of.
- **range**: In the range of.

Usage Guidelines

Use this command to configure with port map range.

active-charging service ruledef udp either-port with-range

Configures port configuration with range.

Command Modes

Exec> Global Configuration (config)> ACS Configuration (config-service-acs_name)> Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description

tcp **either-port** *operator* *start_range* **to** *end_range*

Syntax Description

udp **either-port** *operator* *start_range* **to** *end_range*

to

Specify until node.

Must be one of the following:

- **to**

end_range

Specify the end range.

Must be an integer in the range of 1-65535.

operator

Specify how to match.

Must be one of the following:

- **!range**: Not in the range of.
- **range**: In the range of.

start_range

Specify the start range.

Must be an integer in the range of 1-65535.

Usage Guidelines

Use this command to configure port configuration with range.

active-charging service ruledef udp either-port without-range

Configures port configuration without range.

Command Modes Exec> Global Configuration (config)> ACS Configuration (config-service-*acs_name*)> Ruledef Configuration (config-ruledef-*ruledef_name*)

Syntax Description `tcp either-port operator port port_number`

Syntax Description `udp either-port operator port port_number`

port port_number

Specify the port number.

Must be an integer in the range of 1-65535.

operator

Specify how to match.

Must be one of the following:

- `!<=`: Does not equal.
- `>=`: Greater than or equal to.
- `<=`: Lesser than or equal to.
- `=`: Equals.

Usage Guidelines Use this command to configure port configuration without range.

active-charging service ruledef wsp any-match

Configures rule expression to match all packets of the specified protocol.

Command Modes Exec> Global Configuration (config)> ACS Configuration (config-service-*acs_name*)> Ruledef Configuration (config-ruledef-*ruledef_name*)

Syntax Description `dns any-match operator condition`

Syntax Description `icmpv6 any-match operator condition`

Syntax Description `rtp any-match operator condition`

Syntax Description `rtsp any-match operator condition`

Syntax Description `secure-http any-match operator condition`

Syntax Description `tcp any-match operator condition`

Syntax Description `udp any-match operator condition`

Syntax Description `wsp any-match operator condition`

Syntax Description `wtp any-match operator condition`

condition

Specify the condition.

Must be one of the following:

- **FALSE**
- **TRUE**

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **=**: Equals.

Usage Guidelines Use this command to configure rule expression to match all packets of a specified protocol.

Example

The following command defines a rule expression to match all RTP packets:

```
rtsp any-match = TRUE
```

active-charging service ruledef wtp any-match

Configures rule expression to match all packets of the specified protocol.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description `dns any-match operator condition`

Syntax Description `icmpv6 any-match operator condition`

Syntax Description `rtsp any-match operator condition`

Syntax Description `rtsp any-match operator condition`

Syntax Description `secure-http any-match operator condition`

Syntax Description `tcp any-match operator condition`

Syntax Description `udp any-match operator condition`

Syntax Description `wsp any-match operator condition`

Syntax Description `wtp any-match operator condition`

condition

Specify the condition.

Must be one of the following:

- FALSE
- TRUE

operator

Specify how to match.

Must be one of the following:

- !=: Does not equal.
- =: Equals.

Usage Guidelines Use this command to configure rule expression to match all packets of a specified protocol.

Example

The following command defines a rule expression to match all RTP packets:

```
rtsp any-match = TRUE
```

active-charging service ruledef www any-match

Configures rule expression to match all WWW packets. It is true for HTTP, WAP1.x, and WAP2.0 protocols.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description `www any-match operator condition`

condition

Specify the condition to match.

Must be one of the following:

- FALSE
- TRUE

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **=**: Equals.

Usage Guidelines

Use this command to define rule expressions to match all WWW packets. This expression is true for HTTP, WAP1.x, and WAP2.0 protocols

Example

The following command defines a rule expression to match all WWW packets:

```
www any-match = TRUE
```

active-charging service ruledef www host

Configures rule expression to match the "host name" header field present in HTTP/WSP headers.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > Ruledef Configuration (config-ruledef-ruledef_name)

Syntax Description

```
www host [ case-sensitive ] operator host_name
```

case-sensitive

Specify the rule expression must be case-sensitive. By default, rule expressions are not case-sensitive.

host_name

Specify the WWW host name to match.

Must be a string of 1-127 characters.

operator

Specify how to match.

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.

- **ends-with**: Ends with.
- **regex**: Regular expression.
- **starts-with**: Starts with.

Usage Guidelines

Use this command to define rule expressions to match the host name header field present in HTTP/WSP headers.

Example

The following command defines a rule expression to match user traffic based on WWW host name "host1":

```
www host = host1
```

active-charging service ruledef www url

Configures rule expressions to match URL.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-*acs_name*) > Ruledef Configuration (config-ruledef-*ruledef_name*)

Syntax Description

```
www url [ case-sensitive ] operator url
```

case-sensitive

Specify the rule expression must be case-sensitive. By default, rule expressions are not case-sensitive.

operator

Specify how to match.

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.
- **ends-with**: Ends with.
- **regex**: Regular expression.
- **starts-with**: Starts with.

url

Specify the URL to match.

Must be a string of 1-127 characters.

Usage Guidelines

Use this command to configure the rule expressions to match URLs for any Web protocol analyzer HTTP, WAP1.X, WAP2.0.

active-charging service url-blacklisting

Enable URL Blacklisting functionality.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name)

Syntax Description

url-blacklisting match-method *match_method*

match-method *match_method*

Specify the match method to look up for URLs in the URL Blacklisting database.

Must be one of the following:

- **exact**: URL Blacklisting is performed only on exact match with a URL present in the URL.
- **generic**: URL Blacklisting is performed on a generic match with URLs present in the URL Blacklisting database.

Default Value: exact.

Usage Guidelines

Use this command to enable URL Blacklisting functionality.

active-charging service urr-list

Configures ACS URR List configuration.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name)

Syntax Description

urr-list *urr_list_name*

urr_list_name

Specify name of the URR list.

Must be a string of 1-63 characters.

Usage Guidelines

Use this command to configure the ACS URR List configuration. Enters the URR List Configuration mode (config-urr-list-<urr_list_name>). This mode allows mapping of URR-ID with Rating Group and Service-ID.

You can configure a maximum of one element with this command.

active-charging service urr-list urr-list-data

Configures URR list data.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > URR List Configuration (config-urr-list-urr_list_name)

Syntax Description **rating-group** *rating_id* **urr-id** *urr_id*

rating group *rating_id*

Specify the rating ID used in prepaid charging.

Must be an integer in the range of 0-2147483647.

urr-id *urr_id*

Specify the URR identifier for rating/service group.

Must be an integer in the range of 1-8388607.

Usage Guidelines Use this command to configure the URR list data.

active-charging service urr-list urr-list-data service-identifier

Configures the URR ID service identifier parameter.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-acs_name) > URR List Configuration (config-urr-list-urr_list_name)

Syntax Description **rating-group** *rating_id* **urr-id** *urr_id* **service-identifier** *service_id* **urr-id** *urr_id*

service-identifier *service_id*

Specify the service ID, the number given to the service.

Must be an integer in the range of 0-2147483647.

urr-id *urr_id*

Specify the URR identifier for rating/service group.

Must be an integer in the range of 1-8388607.

Usage Guidelines Use this command to configure the URR ID service identifier parameter.

apn

Configures Access Point Name (APN) templates.

Command Modes	Exec > Global Configuration (config)
Syntax Description	apn <i>apn_name</i> apn <i>apn_name</i> Specify name of the APN. Must be a string in the pattern '[A-Za-z0-9]{1}[A-Za-z0-9.-]{1,61}'.
Usage Guidelines	Use this command to create and configure an APN.

Example

The following command creates an APN template named isp1:

```
apn isp1
```

apn active-charging

Enables a configured ACS rulebase.

Command Modes	Exec > Global Configuration (config) > APN Configuration (config-apn- <i>apn_name</i>)
Syntax Description	active-charging rulebase <i>rulebase_name</i> rulebase <i>rulebase_name</i> Specify name of the rulebase. Must be a string of 1-63 characters.
Usage Guidelines	Use this command to enable a configured ACS rulebase.

apn authorize-with-hss

Configures S6b authentication.

Command Modes	Exec > Global Configuration (config) > APN Configuration (config-apn- <i>apn_name</i>)
Syntax Description	authorize-with-hss [report-ipv6-addr] report-ipv6-addr Specify to enable IPv6 reporting through AAR towards S6b interface.
Usage Guidelines	Use this command to configure S6b authentication. Enables IPv6 reporting through AAR towards S6b interface.

apn authorize-with-hss egtp

Enables S6b authorization for all the interfaces of EGTP along with GN-GP Handover except 3G initial attach.

Command Modes Exec > Global Configuration (config) > APN Configuration (config-apn-*apn_name*)

Syntax Description `authorize-with-hss egtp [report-ipv6-addr]`

report-ipv6-addr

Specify to enable IPv6 reporting through AAR towards S6b interface.

Usage Guidelines Use this command to enable S6b authorization for all the interfaces of EGTP along with GN-GP Handover except 3G initial attach.

apn authorize-with-hss egtp gn-gp-enabled

Enables S6b authorization for 3G Initial Attach and GnGp Handover.

Command Modes Exec > Global Configuration (config) > APN Configuration (config-apn-*apn_name*)

Syntax Description `authorize-with-hss egtp gn-gp-enabled report-ipv6-addr`

report-ipv6-addr

Specify to enable IPv6 reporting through AAR towards S6b interface.

Usage Guidelines Use this command to enable S6b authorization for 3G Initial Attach and GnGp Handover.

apn authorize-with-hss egtp s2b

Enables S6b authorization for egtp-s2b.

Command Modes Exec > Global Configuration (config) > APN Configuration (config-apn-*apn_name*)

Syntax Description `authorize-with-hss egtp s2b report-ipv6-addr`

report-ipv6-addr

Specify to enable IPv6 reporting through AAR towards S6b interface.

Usage Guidelines Use this command to enable S6b authorization for egtp-s2b.

apn authorize-with-hss egtp s2b gn-gp-enabled

Enables S6b authorization for 3G Initial Attach and GnGp Handover.

Command Modes	Exec > Global Configuration (config) > APN Configuration (config-apn- <i>apn_name</i>)
Syntax Description	authorize-with-hss egtp s2b gn-gp-enabled report-ipv6-addr report-ipv6-addr Specify to enable IPv6 reporting through AAR towards S6b interface.
Usage Guidelines	Use this command to enable S6b authorization for 3G Initial Attach and GnGp Handover.

apn authorize-with-hss egtp s2b s5-s8

Enables S6b authorization for egtp-s5s8.

Command Modes	Exec > Global Configuration (config) > APN Configuration (config-apn- <i>apn_name</i>)
Syntax Description	authorize-with-hss egtp s2b s5-s8 [<i>gn_gp_option</i> report-ipv6-addr] report-ipv6-addr Specify to enable IPv6 reporting through AAR towards s6b interface. <i>gn_gp_option</i> Specify to enable or disable S6b authorization for 3G Initial Attach and GnGp Handover. Must be one of the following: <ul style="list-style-type: none">• gn-gp-disabled: Disables S6b authorization for 3G Initial Attach and GnGp Handover.• gn-gp-enabled: Enables S6b authorization for 3G Initial Attach and GnGp Handover.
Usage Guidelines	Use this command to enable S6b authorization for egtp-s5s8.

apn authorize-with-hss egtp s5-s8

Enables S6b authorization for egtp-s5s8.

Command Modes	Exec > Global Configuration (config) > APN Configuration (config-apn- <i>apn_name</i>)
Syntax Description	authorize-with-hss egtp s5-s8 [<i>gn_gp_option</i>] [report-ipv6-addr] report-ipv6-addr Specify to enable IPv6 reporting through AAR towards s6b interface. <i>gn_gp_option</i> Specify to enable or disable S6b authorization for 3G Initial Attach and GnGp Handover. Must be one of the following:

- **gn-gp-disabled**: Disables S6b authorization for 3G Initial Attach and GnGp Handover.
- **gn-gp-enabled**: Enables S6b authorization for 3G Initial Attach and GnGp Handover.

Usage Guidelines Use this command to enable S6b authorization for egtp-s5s8.

apn authorize-with-hss egtp s5-s8 s2b

Enables S6b authorization for egtp-s2b.

Command Modes Exec > Global Configuration (config) > APN Configuration (config-apn-*apn_name*)

Syntax Description `authorize-with-hss egtp s5-s8 s2b [gn_gp_option] [report-ipv6-addr]`

report-ipv6-addr

Specify to enable IPv6 reporting through AAR towards s6b interface.

gn_gp_option

Specify to enable or disable S6b authorization for 3G Initial Attach and GnGp Handover.

Must be one of the following:

- **gn-gp-disabled**: Disables S6b authorization for 3G Initial Attach and GnGp Handover.
- **gn-gp-enabled**: Enables S6b authorization for 3G Initial Attach and GnGp Handover.

Usage Guidelines Use this command to enable S6b authorization for egtp-s2b.

apn authorize-with-hss lma

Enables IPv6 reporting through AAR towards S6b.

Command Modes Exec > Global Configuration (config) > APN Configuration (config-apn-*apn_name*)

Syntax Description `authorize-with-hss lma [report-ipv6-addr | s6b-aaa-group group_name]`

report-ipv6-addr

Specify to enable IPv6 reporting through AAR towards S6b interface.

s6b-aaa-group *group_name*

Specify the AAA group name for S6b authorization.

Must be a string of 1-63 characters.

Usage Guidelines Use this command to enable IPv6 reporting through AAR towards S6b.

apn cc-profile

Configures the subscriber charging characteristics profile parameters.

Command Modes

Exec > Global Configuration (config) > APN Configuration (config-apn-*apn_name*)

Syntax Description

cc-profile *index* { **credit-control-group** *cc_group_name* | **prepaid-prohibited** }

cc-profile *index*

Specify the charging characteristics profile index.

Must be an integer.

-Or-

Must be one of the following:

- **any**

credit-control-group *cc_group_name*

Specify name of the credit control group.

Must be a string of 1-63 characters.

prepaid-prohibited

Specify to disable prepaid for the configured profile index.

Usage Guidelines

Use this command to configure the subscriber charging characteristics profile parameters.

apn content-filtering category

Configures Content Filtering category.

Command Modes

Exec > Global Configuration (config) > APN Configuration (config-apn-*apn_name*)

Syntax Description

content-filtering category **policy-id** *policy_id*

policy-id *policy_id*

Specify the Content Filtering Policy ID.

Must be an integer in the range of 1-4294967295.

Usage Guidelines

Use this command to configure Content Filtering category.

apn data-tunnel

Configures the data tunnel MTU parameter.

Command Modes Exec > Global Configuration (config) > APN Configuration (config-apn-*apn_name*)

Syntax Description **data-tunnel mtu** *max_transmission_unit*

mtu *max_transmission_unit*

Specify the data tunnel MTU value, in octets.

Must be an integer.

Usage Guidelines Use this command to configure the data tunnel MTU parameter.

apn gtpv group

Enables and configures the GTPV group to be used by this APN.

Command Modes Exec > Global Configuration (config) > APN Configuration (config-apn-*apn_name*)

Syntax Description **gtpv group** *gtpv_group_name*

group *gtpv_group_name*

Specify name of the GTPV group.

Must be a string of 1-63 characters.

Usage Guidelines Use this command to enable and configure the GTPV group to be used by this APN.

apn ip access-group

Configures an IPv4/IPv6 access group for the current APN profile.

Command Modes Exec > Global Configuration (config) > APN Configuration (config-apn-*apn_name*)

Syntax Description **ip access-group** *acl_group_name* [**in** | **out**]

access-group *acl_group_name*

Specify name of the IPv4/IPv6 access group.

Must be a string of 1-47 characters.

in

Specify the access group as inbound.

out

Specify the access group as outbound.

Usage Guidelines

Use this command to apply a single IPv4/IPv6 access control list to multiple subscribers via this APN for inbound or outbound IPv4/IPv6 traffic. If no traffic direction is specified, the selected access control list will be applied to both directions.

You can configure a maximum of eight elements with this command.

apn ip source-violation

Enables or disables packet source validation for the current APN.

Command Modes

Exec > Global Configuration (config) > APN Configuration (config-apn-*apn_name*)

Syntax Description

ip source-violation ignore

ignore

Disables source address checking for the APN.

Usage Guidelines

Use this command to enable packet 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.

Example

The following command enables source address validation for the APN and configures a drop-limit of 15:

```
ip source-violation check drop-limit 15
```

apn ppp

Configures PPP parameters for specified APN.

Command Modes

Exec > Global Configuration (config) > APN Configuration (config-apn-*apn_name*)

Syntax Description

ppp mtu *max_transmission_unit*

mtu *max_transmission_unit*

Specify the maximum transmission unit. Default Value: 1500.

Must be an integer.

Usage Guidelines

Use this command to configure the PPP parameters for specified APN.

apn timeout

Configures session timeout parameters for the current APN.

Command Modes Exec > Global Configuration (config) > APN Configuration (config-apn-*apn_name*)

Syntax Description `timeout idle idle_timeout`

idle *idle_timeout*

Specify the session idle timeout period for the current APN.

Must be an integer in the range of 0-4294967295.

Usage Guidelines Use this command to configure the session timeout parameters for the current APN.

cd

Configures the change directory command.

Command Modes Exec

Syntax Description `cd directory.ssh`

directory

Specify the directory path.

Must be an alphanumeric string.

Usage Guidelines Use this command to configure the change directory command.

cdl clear

Configures the Cisco Common Data Layer (CDL) parameters to delete the database sessions.

Command Modes Exec

Syntax Description `cdl clear sessions [db-name db_name | filter { condition { ends-with | match | starts-with } key key_value } | map-id map_id]`

db-name *db_name*

Specifies the database name to be queried for deleting the data.

Must be a string of 1 to 16 characters.

key *key_value*

Specifies the query value.

Must be a string of 0 to 512 characters.

map-id *map_id*

Specifies the map ID to delete the data for a map.

Must be an integer in the range of 0-1024.

filter condition { ends-with | match | starts-with }

Specify the query expression to filter the results of query.

Usage Guidelines

Use this command to delete the CDL database sessions.

cdl show sessions

Configures the CDL parameters to display the session details.

Command Modes

Exec

Syntax Description

```
cdl show sessions count { detailed { db-name db_name | filter { condition
{ ends-with | match | starts-with } | key key_value } | limit limit | map-id
map_id } | summary { db-name db_name | filter { condition { ends-with |
match | starts-with } | key key_value } | limit limit | map-id map_id }
```

count

Display the session count information.

detailed

Display the session details with data.

summary

Display the session details without data.

db-name *db_name*

Specifies the database name to be queried for displaying the session details.

Must be a string of 1 to 16 characters.

key *key_value*

Specifies the query value.

Must be a string of 0 to 512 characters.

map-id *map_id*

Specifies the map ID to display the data for a map.

Must be an integer in the range of 0-1024.

limit *limit*

Specifies the maximum number of records to display.

Must be an integer in the range of 1 to 500 characters.

filter condition { ends-with | match | starts-with }

Specify the query expression to filter the results of query.

Usage Guidelines Use this command to display the session details.

cdl show status

Configures the CDL parameters to display the status of the database.

Command Modes Exec

Syntax Description `cdl status db-name db_name`

db-name *db_name*

Specifies the database name for displaying the corresponding status.

Must be a string of 1 to 16 characters.

Usage Guidelines Use this command to display the status of the queried database.

clear ipam

Clears IPAM operational data.

Command Modes Exec

Syntax Description `clear ipam`

Usage Guidelines Use this command to clear IPAM operational data.

clear subscriber

Clears subscriber data.

Command Modes Exec

Syntax Description

```
clear subscriber { all | gr-instance gr_instance | imei imei_id | namespace namespace | nf-service nf_service | supi supi_id | config_specific_options }
```

all

Specify to remove all subscriber data.

gr-instance *gr_instance*

Specify the subscribers from the GR instance.

imei *imei_id*

Specify the International Mobile Equipment Identity.

Must be a string of 15-16 characters.

imsi *imsi*

Specify the International Mobile Subscriber Identifier (IMSI).

Must be a string.

msid *msid*

Specify the Mobile Station Identifier (MSID).

Must be a string.

namespace *namespace*

NOTE: This keyword is deprecated, use `nf-service` instead. Specifies the product namespace under which to search.

Default Value: `cisco-mobile-infra:none`.

nf-service *nf_service*

Specify the network function service under which to search.

Default Value: `cisco-mobile-infra:none`.

supi *supi_id*

Specify to remove subscriber data associated with the SUPI ID.

Must be a string of 1-63 characters.

Usage Guidelines

Use this command to clear subscriber data.

clear subscriber imsi-opt

Clears subscriber data based on IMSI.

Command Modes

Exec

Syntax Description `clear subscriber imsi-options` *imsi_option* [**ebi** *eps_bearer_id*]

ebi *eps_bearer_id*

Specify the EPS Bearer ID.

Must be a string.

Usage Guidelines Use this command to clear subscriber data based on IMSI.

clear subscriber supi-opt

Clears subscriber data based on SUPI.

Command Modes Exec

Syntax Description `clear subscriber supi` *supi_id* [**psid** *pdu_session_id* | **ebi** *eps_bearer_id* | **reactivation** { **false** | **true** } }]

ebi *eps_bearer_id*

Specify the EPS Bearer ID.

Must be a string.

psid *pdu_session_id*

Specify the PDU Session ID.

Must be an integer in the range of 1-255.

reactivation { **false** | **true** }

Specify if reactivation is requested.

Must be one of the following:

- **false**
- **true**

Usage Guidelines Use this command to clear subscriber data based on SUPI.

client http header

Configures HTTP header parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `client http header user-agent` *user_agent_header*

user-agent *user_agent_header*

Specify the user agent header.

Must be one of the following:

- **app-name**
- **cluster-name**
- **disable**

Default Value: app-name.

Usage Guidelines Use this command to configure HTTP header parameters.

client http ping

Configures HTTP ping parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `client http ping { [timeout ping_timeout] [interval ping_interval] }`

interval *ping_interval*

Specify, in milliseconds, the time interval between two HTTP pings.

Must be an integer in the range of 0-30000.

Default Value: 10000.

timeout *ping_timeout*

Specify, in milliseconds, the ping timeout duration to detect if remote host is down.

Must be an integer in the range of 0-15000.

Default Value: 5000.

Usage Guidelines Use this command to configure HTTP ping parameters.

client inbound interface

Configures inbound client interface parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `client inbound interface interface_name`

interface *interface_name*

Specify name of the interface.

Usage Guidelines Use this command to configure inbound client interface parameters. The CLI prompt changes to the Interface Configuration mode (config-interface-<interface_name>).

client inbound interface limit overload

Configures Overload configuration parameters.

Command Modes Exec > Global Configuration (config) > Interface Configuration (config-interface-*interface_name*)

Syntax Description **limit overload reject-code** *response_code*

reject-code *response_code*

Specify the response code to be used when pending limit exceeds.

Must be an integer.

Usage Guidelines Use this command to configure Overload configuration parameters.

client inbound interface limit pending

Configures pending limit configuration.

Command Modes Exec > Global Configuration (config) > Interface Configuration (config-interface-*interface_name*)

Syntax Description **limit pending request** *max_pending_request_limit*

request *max_pending_request_limit*

Specify the maximum pending request limit to allow.

Must be an integer.

Default Value: 10240.

Usage Guidelines Use this command to configure pending limit configuration.

client inbound limit overload

Configures Overload configuration parameters.

Command Modes Exec > Global Configuration (config) > Interface Configuration (config-interface-*interface_name*)

Syntax Description **limit overload reject-code** *response_code*

reject-code *response_code*

Specify the response code to be used when pending limit exceeds.

Must be an integer.

Usage Guidelines Use this command to configure Overload configuration parameters.

client inbound limit pending

Configures pending limit configuration.

Command Modes Exec > Global Configuration (config) > Interface Configuration (config-interface-*interface_name*)

Syntax Description **limit pending request** *max_pending_request_limit*

request *max_pending_request_limit*

Specify the maximum pending request limit to allow.

Must be an integer.

Default Value: 10240.

Usage Guidelines Use this command to configure pending limit configuration.

client outbound host ping

Configures outbound host ping parameter.

Command Modes Exec > Global Configuration (config)

Syntax Description **client outbound host ping** { [**timeout** *ping_timeout*] [**interval** *ping_interval*] [**backoff** *backoff_interval*] }

Command Modes Exec > Global Configuration (config) > Interface Configuration (config-interface-*interface_name*)

Syntax Description **host ping** { [**timeout** *ping_timeout*] [**interval** *ping_interval*] }

backoff *backoff_interval*

Specify, in milliseconds, the backoff time interval to wait when remote host was detected down before start pinging again.

Must be an integer in the range of 0-3600000.

Default Value: 0.

interval *ping_interval*

Specify, in milliseconds, the time interval between two pings.

Must be an integer in the range of 0-30000.

Default Value: 0.

timeout *ping_timeout*

Specify, in milliseconds, the ping timeout duration to detect remote host down.

Must be an integer in the range of 0-15000.

Default Value: 0.

Usage Guidelines

Use this command to configure outbound host ping parameter.

client outbound interface

Configures outbound client interface parameters.

Command Modes

Exec > Global Configuration (config)

Syntax Description

client outbound interface *interface_name*

interface *interface_name*

Specify the interface.

Usage Guidelines

Use this command to configure outbound client interface parameters. The CLI prompt changes to the Interface Configuration mode (config-interface-<interface_name>).

client outbound interface host ping

Configures outbound host ping parameter.

Command Modes

Exec > Global Configuration (config)

Syntax Description

client outbound host ping { [**timeout** *ping_timeout*] [**interval** *ping_interval*] [**backoff** *backoff_interval*] }

Command Modes

Exec > Global Configuration (config) > Interface Configuration (config-interface-*interface_name*)

Syntax Description

host ping { [**timeout** *ping_timeout*] [**interval** *ping_interval*] }

backoff *backoff_interval*

Specify, in milliseconds, the backoff time interval to wait when remote host was detected down before start pinging again.

Must be an integer in the range of 0-3600000.

Default Value: 0.

interval *ping_interval*

Specify, in milliseconds, the time interval between two pings.

Must be an integer in the range of 0-30000.

Default Value: 0.

timeout *ping_timeout*

Specify, in milliseconds, the ping timeout duration to detect remote host down.

Must be an integer in the range of 0-15000.

Default Value: 0.

Usage Guidelines Use this command to configure outbound host ping parameter.

client outbound interface limit consecutive failure

Configures consecutive failure configuration parameters.

Command Modes Exec > Global Configuration

Syntax Description **consecutive failure count** *failure_limit_count* **codes** *failure_codes*

codes *failure_codes*

Specify the list of failure codes to be considered, such as timeout, 503, etc.

Must be a string.

You can configure a maximum of 10 elements with this keyword.

count *failure_limit_count*

Specify the consecutive failure limit count to detect remote host as down.

Must be an integer.

Default Value: 0.

Usage Guidelines Use this command to configure consecutive failure configuration parameters.

client outbound interface limit pending

Configures pending limit configuration.

Command Modes Exec > Global Configuration (config)

Syntax Description **client outbound limit pending response** *response_message_limit*

Command Modes Exec > Global Configuration (config) > Interface Configuration (config-interface-*interface_name*)

Syntax Description **pending response** *response_message_limit*

response *response_message_limit*

Specify the pending response message limit to detect remote host as down.

Must be an integer.

Default Value: 1024.

Usage Guidelines Use this command to configure pending limit configuration.

client outbound limit consecutive failure

Configures consecutive failure configuration parameters.

Command Modes Exec > Global Configuration

Syntax Description **consecutive failure count** *failure_limit_count* **codes** *failure_codes*

codes *failure_codes*

Specify the list of failure codes to be considered, such as timeout, 503, etc.

Must be a string.

You can configure a maximum of 10 elements with this keyword.

count *failure_limit_count*

Specify the consecutive failure limit count to detect remote host as down.

Must be an integer.

Default Value: 0.

Usage Guidelines Use this command to configure consecutive failure configuration parameters.

client outbound limit pending

Configures pending limit configuration.

Command Modes Exec > Global Configuration (config)

Syntax Description **client outbound limit pending response** *response_message_limit*

Command Modes Exec > Global Configuration (config) > Interface Configuration (config-interface-*interface_name*)

Syntax Description **pending response** *response_message_limit*

response *response_message_limit*

Specify the pending response message limit to detect remote host as down.

Must be an integer.

Default Value: 1024.

Usage Guidelines

Use this command to configure pending limit configuration.

commit

Configures the commit parameters.

Command Modes

Exec

Syntax Description

```
commit [ abort { persist-id persist_id } | confirm { persist-id persist_id } | persist-id persist_id ]
```

abort *persist_id*

Specify to abort commit. Specify the persistence ID for the commit operation.

Must be an integer.

confirm *persist_id*

Specify to confirm commit. Specify the persistence ID for the commit operation.

Must be an integer.

persist-id *persist_id*

Specify the persistence ID for the commit operation.

Must be an integer.

Usage Guidelines

Use this command to configure the commit parameters.

compare

Compares the running configuration to another configuration or a file.

Command Modes

Exec

Syntax Description

```
compare file { filename[.kube | .ssh/] | configuration }
```

filename[.kube | .ssh/]

Specify the file name or the directory path of the file to be compared.

Must be a string.

configuration

Specify the desired configuration to be compared against.

Must be a string.

Usage Guidelines Use this command to compare the files.

config

Manipulates the software configuration information.

Command Modes Exec

Syntax Description `config [exclusive | no-confirm | shared | terminal]`

exclusive

Specify to enter the exclusive configuration mode.

no-confirm

Specify to apply the command without asking for confirmation.

shared

Specify to enter the shared configuration mode.

terminal

Specify to enter the terminal configuration mode.

Usage Guidelines Use this command to manipulate the software configuration information.

config-error info

Displays configuration error information.

Command Modes Exec

Syntax Description `show config-error [info]`

Usage Guidelines Use this command to view configuration error information.

datastore dbs

Configures DBS parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `datastore dbs dbs_name`

dbs `dbs_name`

Specify name of the DBS.

Must be a string.

Usage Guidelines Use this command to configure the DBS parameters.

datastore dbs endpoints

Configures endpoint parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **datastore session-db endpoints** *host_name* **port** *port_number*

Command Modes Exec > Global Configuration (config) > DBS Configuration (config-dbs-*dbs_name*)

Syntax Description **endpoints** *host_name* **port** *port_number*

endpoints `host_name`

Specify name of the host.

Must be a string.

port `port_number`

Specify the port number.

Must be an integer.

Usage Guidelines Use this command to configure endpoint parameters.

datastore notification-ep

Configures notification endpoint parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **datastore notification-ep** { [**host** *host_name*] [**port** *port_number*] }

host `host_name`

Specify name of the host.

Must be a string.

port `port_number`

Specify the port number.

Must be an integer.

Usage Guidelines Use this command to configure notification endpoint parameters.

datastore session-db

Configures Session DB parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `datastore session-db slice-name slice_name`

slice-name *slice_name*

Specify name of the slice.

Must be a string.

Usage Guidelines Use this command to configure Session DB parameters.

datastore session-db endpoints

Configures endpoint parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `datastore session-db endpoints host_name port port_number`

Command Modes Exec > Global Configuration (config) > DBS Configuration (config-dbs-*dbs_name*)

Syntax Description `endpoints host_name port port_number`

endpoints *host_name*

Specify name of the host.

Must be a string.

port *port_number*

Specify the port number.

Must be an integer.

Usage Guidelines Use this command to configure endpoint parameters.

deployment

Configures the deployment parameters.

Command Modes	Exec > Global Configuration (config)
Syntax Description	<p>deployment [app-name <i>application_name</i> cluster-name <i>cluster_name</i> dc-name <i>datacenter_name</i> logical-nf-instance-id <i>logical_nf_instance_id</i> model <i>deployment_model</i>]</p> <p>app-name <i>application_name</i> Specify name of the application. Must be a string.</p> <p>cluster-name <i>cluster_name</i> Specify name of the cluster. Must be a string.</p> <p>dc-name <i>datacenter_name</i> Specify name of the datacenter. Must be a string.</p> <p>logical-nf-instance-id <i>logical_nf_instance_id</i> Specify the logical NF instance ID. Must be an integer. Default Value: 0.</p> <p>model <i>deployment_model</i> Specify the deployment model. Must be one of the following:</p> <ul style="list-style-type: none"> • small
Usage Guidelines	Use this command to configure the deployment parameters.

deployment resource

Configures the deployment CPU resource parameter.

Command Modes	Exec > Global Configuration (config) > Deployment Configuration (config-deployment)
Syntax Description	<p>resource cpu <i>cpu_size</i></p> <p>cpu <i>cpu_size</i> Specify the CPU size in millicores. Must be an integer in the range of 2000-1000000.</p>

Default Value: 18000.

Usage Guidelines

Use this command to configure the deployment CPU resource parameter.

describe

Displays the command information.

Command Modes

Exec

Syntax Description

describe *command*

command

Specify the command name to display detailed information about the command.

The command must be one of the following:

- **aaa**
- **cd**
- **cdl**
- **commit**
- **compare**
- **config**
- **describe**
- **dump**
- **exit**
- **help**
- **history**
- **id**
- **idle-timeout**
- **ignore-leading-space**
- **job**
- **leaf-prompting**
- **license**
- **logout**
- **monitor**
- **no**
- **paginate**

- **quit**
- **rcm**
- **screen-length**
- **screen-width**
- **send**
- **show**
- **show-defaults**
- **smiuser**
- **system**
- **terminal**
- **timestamp**
- **who**

Usage Guidelines Use this command to display the command specific information.

diagnostics info

Displays diagnostics information.

Command Modes Exec

Syntax Description `show diagnostics [info]`

Usage Guidelines Use this command to view diagnostics information.

dump core

Enables and configures inconsistency checks on session data.

Command Modes Exec > Global Configuration (config)

Syntax Description `dump core [[count max_core_count_per_interval] [expires expiration_time] [file-detail file_name_line_number] [interval interval_duration] [pod-name pod_names]]`

count *max_core_count_per_interval*

Specify the maximum number of times core can be generated in an interval.

Must be an integer in the range of 0-50.

expires *expiration_time*

Specify the time after which the core agent will stop core dump generation. For example, 2020-03-24T23:15:00+05:30.

Must be a string in the date-and-time pattern. For information on the date-and-time pattern, see the Input Pattern Types section.

file-detail *file_name_line_number*

Specify the file name and line number to specific core dump. For example, procedures/pduim/procedure.go:1902.

Must be a string.

You can configure a maximum of 10 elements with this keyword.

interval *interval_duration*

Specify the duration of the interval in minutes.

Must be an integer in the range of 1-3600.

pod-name *pod_names*

Specify the names of the pods to enable core dump.

Must be a string.

Usage Guidelines Use this command to enable and configure inconsistency checks on session data.

dump transactionhistory

Creates dump of transaction history.

Command Modes Exec

Syntax Description `dump transactionhistory`

Usage Guidelines Use this command to create dump of transaction history.

edr

Configures EDR parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `edr { [reporting reporting_status] [subscribers subscribers_edr_reporting] }`

reporting *reporting_status*

Specify to enable or disable EDR reporting.

Must be one of the following:

- **disable**
- **enable**

Default Value: disable.

subscribers *subscribers_edr_reporting*

Specify the subscribers for whom EDR reporting must be enabled.

Must be a string.

You can configure a maximum of 10 elements with this keyword.

Usage Guidelines

Use this command to configure EDR parameters.

edr file files

Configures EDR file parameters.

Command Modes

Exec > Global Configuration (config)

Syntax Description

```
edr file { transaction | transaction-collision } [ reporting reporting_status ] [ verbose verbosity_status ]
```

reporting *reporting_status*

Specify to enable or disable reporting of this file.

Must be one of the following:

- **disable**
- **enable**

Default Value: disable.

verbose *verbosity_status*

Specify to enable or disable field description or long names in the file.

Must be one of the following:

- **disable**
- **enable**

Default Value: disable.

{ transaction | transaction-collision }

Specify name of the EDR file.

Usage Guidelines Use this command to configure EDR file parameters.

edr file files disable

Disables procedure IDs.

Command Modes Exec > Global Configuration (config) > EDR File Configuration (config-file-*transaction_transaction-collision*)

Syntax Description **disable procedure-id** *procedure_ids*

procedure-id *procedure_ids*

Specify the procedure ID value(s)/name(s).

Must be a string.

Usage Guidelines Use this command to disable specific procedure IDs.

edr file files flush

Configures EDR file flush parameters.

Command Modes Exec > Global Configuration (config) > EDR File Configuration (config-file-*transaction_transaction-collision*)

Syntax Description **flush interval** *file_flush_interval*

interval *file_flush_interval*

Specify, in milliseconds, the file flush interval.

Must be an integer.

Default Value: 1000.

Usage Guidelines Use this command to configure the EDR file flush parameters.

edr file files limit

Configures EDR file limit parameters.

Command Modes Exec > Global Configuration (config) > EDR File Configuration (config-file-*transaction_transaction-collision*)

Syntax Description **limit** { [**count** *max_files_to_preserve*] [**size** *max_single_file_size*] }

count *max_files_to_preserve*

Specify the maximum number of files to be preserved.

Must be an integer.

Default Value: 10.

size *max_single_file_size*

Specify the maximum single file size limit in MB.

Must be an integer.

Default Value: 100.

Usage Guidelines Use this command to configure the EDR file limit parameters.

edr file files procedure-id disable-event-id

Disables transaction-level procedure ID configuration.

Command Modes Exec > Global Configuration (config) > EDR File Configuration (config-file-transaction_transaction-collision)

Syntax Description **procedure-id** *procedure_id*

procedure *procedure_id*

Specify the procedure ID value/name.

Must be a string.

Usage Guidelines Use this command to disable transaction-level procedure ID configuration.

edr file files procedure-id disable-event-id disable-inner disable

Disables event IDs.

Command Modes Exec > Global Configuration (config) > EDR File Configuration (config-file-transaction_transaction-collision) > Procedure ID Configuration (config-procedure-id-procedure_id)

Syntax Description **disable event-id** *event_ids*

event-id *event_ids*

Specify the event ID value(s)/name(s).

Must be a string.

Usage Guidelines Use this command to disable event IDs.

edr file files procedure-id disable-event-id disable-inner event-id disable-field-id

Disables procedure-level event ID configuration.

Command Modes Exec > Global Configuration (config) > EDR File Configuration (config-file-*transaction_transaction-collision*) > Procedure ID Configuration (config-procedure-id-*procedure_id*)

Syntax Description **event-id** *event_id*

event *event_id*

Specify the event ID value/name.

Must be a string.

Usage Guidelines Use this command to disable procedure-level event ID configuration.

edr file files procedure-id disable-event-id disable-inner event-id disable-field-id disable

Disables field IDs.

Command Modes Exec > Global Configuration (config) > EDR File Configuration (config-file-*transaction_transaction-collision*) > Procedure ID Configuration (config-procedure-id-*procedure_id*)

Syntax Description **disable field-id** *field_ids*

field-id *field_ids*

Specify the field ID value(s)/name(s).

Must be a string.

Usage Guidelines Use this command to disable field IDs.

endpoint all

Displays endpoint status.

Command Modes Exec

Syntax Description **show endpoint** [**all**]

Usage Guidelines Use this command to view the status of endpoints.

endpoint info

Displays endpoint information.

Command Modes Exec

Syntax Description

```
show endpoint info [ endpoint_name | endpoint_address | Interface interface_name |  
grInstance gr_instance_id | internal type_of_endpoint | startTime start_time |  
status endpoint_status | stoppedTime stop_time | type endpoint_type ]
```

Interface *interface_name*

Specify the interface name of the endpoint.

Must be a string.

grInstance *gr_instance_id*

Specify the GR instance ID.

Must be a string.

internal *type_of_endpoint*

Specify whether the endpoint is of internal or external type.

Must be a string.

startTime *start_time*

Specify the time at which the endpoint started.

Must be a string.

status *endpoint_status*

Specify the current status of the endpoint.

Must be a string.

stoppedTime *stop_time*

Specify the time at which the endpoint stopped.

Must be a string.

type *endpoint_type*

Specify the endpoint type.

Must be a string.

endpoint_address

Specify the host address and port number.

Must be a string.

endpoint_name

Specify the name of the endpoint.

Must be a string.

Usage Guidelines Use this command to view endpoint information.

exit

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

Command Modes Exec

Syntax Description `exit`

Usage Guidelines Use this command to exit the current configuration mode and return to the previous configuration mode. When used in the Exec mode, exits the management session.

geo maintenance

Configures Geo Admin Controller to enable or disable maintenance mode.

Command Modes Exec

Syntax Description `maintenance enable { false | true }`

`enable { false | true }`

Specify whether to enable or disable maintenance mode. To enable, set to true.

Must be one of the following:

- `false`
- `true`

Default Value: false.

Usage Guidelines Use this command to configure Geo Admin Controller to enable or disable maintenance mode.

geo reset-role

Configures Geo Admin Controller for reset role.

Command Modes Exec

Syntax Description `geo reset-role instance-id instance_id role new_role`

`instance-id instance_id`

Specify the instance ID for geo command.

role *new_role*

Specify the new role for the specified site.

Usage Guidelines

Use this command to configure Geo Admin Controller for reset role.

geo switch-role

Configures Geo Admin Controller for reset role.

Command Modes

Exec

Syntax Description

switch-role **failback-interval** *failback_interval* **instance-id** *instance_id* **role** *new_role*

failback-interval *failback_interval*

Specify, in seconds, the interval between notify failover and actual failover.

Must be a string.

instance-id *instance_id*

Specify the instance ID for geo command.

role *new_role*

Specify the new role for the specified site.

Usage Guidelines

Use this command to configure Geo Admin Controller for reset role.

geomonitor podmonitor pods

Configures configuration of pods to be monitored.

Command Modes

Exec > Global Configuration

Syntax Description

geomonitor podmonitor pods *pod_name* **retryCount** *retry_count* **retryInterval** *retry_interval* **retryFailOverInterval** *retry_interval* **failedReplicaPercent** *failed_replica_precentage*

failedReplicaPercent *failed_replica_precentage*

Specify the percentage of failed replica after which GR failover will get triggered.

Must be an integer in the range of 10-100.

retryCount *retry_count*

Specify the counter value to retry if pod failed to ping after which pod is marked as down.

Must be an integer in the range of 1-10.

retryFailOverInterval *retry_interval*

Specify, in milliseconds, the retry interval if pod ping fails.

Must be an integer in the range of 200-10000.

retryInterval *retry_interval*

Specify, in milliseconds, the retry interval if pod ping is successful.

Must be an integer in the range of 200-10000.

pod_name

Specify the name of the pod to be monitored.

Must be a string.

Usage Guidelines Use this command to configure configuration of pods to be monitored.

geomonitor remotecclustermonitor

Configures remote cluster monitoring parameters.

Command Modes Exec > Global Configuration

Syntax Description **remotecclustermonitor** **retryCount** *retry_count* **retryInterval** *retry_interval*

retryCount *retry_count*

Specify the counter value to retry if remote cluster is not reachable. To disable, set to 0.

Must be an integer in the range of 0-10.

Default Value: 3.

retryInterval *retry_interval*

Specify, in milliseconds, the retry interval after which the remote site's status will be fetched.

Must be an integer in the range of 200-50000.

Default Value: 3000.

Usage Guidelines Use this command to configure remote cluster monitoring parameters.

geomonitor trafficMonitor

Configures traffic monitoring parameters.

Command Modes Exec > Global Configuration

Syntax Description **trafficMonitor** **thresholdCount** *threshold_count* **thresholdInterval** *threshold_interval*

thresholdCount *threshold_count*

Specify, in milliseconds, the maximum duration window to hit the threshold count value.

Must be an integer in the range of 0-10000.

Default Value: 0.

thresholdInterval *threshold_interval*

Specify, in milliseconds, the maximum duration window to hit the threshold count value.

Must be an integer in the range of 100-10000.

Default Value: 3000.

Usage Guidelines Use this command to configure traffic monitoring parameters.

geomonitor vipmonitor instance

Configures VIPs to be monitored.

Command Modes Exec > Global Configuration

Syntax Description **vipmonitor instance instance-id** *instance_id*

instance-id *instance_id*

Specify the instance ID.

Must be an integer in the range of 1-8.

Usage Guidelines Configuration of VIPs to be monitored. Use this command to configure the instance ID.

geomonitor vipmonitor instance vips

Configures VIP interface parameters.

Command Modes Exec > Global Configuration

Syntax Description **vips vipInterface** *vip_interface* **vipIp** *vip_ip* **vipPort** *vip_port* **retryCount** *retry_count*
retryInterval *retry_interval* **retryFailOverInterval** *retry_failover_interval*

retryCount *retry_count*

Specify the counter value to retry if VIP failed to ping after which VIP is marked as down.

Must be an integer in the range of 1-10.

retryFailOverInterval *retry_failover_interval*

Specify, in milliseconds, the retry interval if VIP ping fails.

Must be an integer in the range of 200-10000.

retryInterval *retry_interval*

Specify, in milliseconds, the retry interval if VIP ping is successful.

Must be an integer in the range of 200-10000.

vipInterface *vip_interface*

Specify the name of the interface to monitor.

Must be a string.

vipIp *vip_ip*

Specify the IPv4 address.

Must be a string.

vipPort *vip_port*

Specify the diagnostic port number.

Must be an integer.

Usage Guidelines Use this command to configure VIP interface parameters.

group nf-mgmt

Configures NF management group name.

Command Modes Exec > Global Configuration

Syntax Description `nf-mgmt mgmt_group_name { nrf-mgmt-group nrf_mgmt_group_name | failure-handling-profile fh_profile_name | nrf-auth-group nrf_auth_group_name | locality locality_name | re-register { false | true } }`

failure-handling-profile *fh_profile_name*

Specify name of the Failure Handling profile for the NRF Management functionality.

Must be a string.

locality *locality_name*

Specify the locality information.

Must be a string.

nf-mgmt *mgmt_group_name*

Specify name of the NRF management group.

Must be a string.

nrf-mgmt-group *nrf_mgmt_group_name*

Specify name of the NRF management group.

Must be a string.

Usage Guidelines Use this command to configure NF management group name.

group nf-mgmt heartbeat

Configures heartbeat interval.

Command Modes Exec > Global Configuration

Syntax Description **heartbeat interval** *heartbeat_interval*

interval *heartbeat_interval*

Specify the heartbeat interval in seconds.

Must be an integer.

Usage Guidelines Use this command to configure the heartbeat interval.

group nrf discovery

Configures NRF discovery group parameters.

Command Modes Exec > Global Configuration

Syntax Description **discovery** *group_name* [**nrf-type** *nrf_type*]

discovery *group_name*

Specify name of the NRF discovery group.

Must be a string.

nrf-type *nrf_type*

Specify the NRF type.

Must be one of the following:

- **PLMN**: PLMN.
- **SHARED**: SHARED.
- **SLICE-LOCAL**: SLICE-LOCAL.

Usage Guidelines Use this command to configure the NRF discovery group configuration.

group nrf discovery service type nrf

Configures the NRF discovery service name.

Command Modes

Exec > Global Configuration

Syntax Description

nrf *nrf_service_name* [**responsetimeout** *response_timeout*]

nrf *nrf_service_name*

Specify name of the NRF discovery service.

Must be one of the following:

- **nnrf-disc**

responsetimeout *response_timeout*

Specify the response timeout interval in milliseconds.

Must be an integer.

Default Value: 2000.

Usage Guidelines

Use this command to configure the NRF discovery service name.

group nrf discovery service type nrf endpoint-profile

Configures endpoint profile parameters.

Command Modes

Exec > Global Configuration

Syntax Description

endpoint-profile *endpoint_profile_name* { **api-uri-prefix** *api_uri_prefix* | **api-root** *api_root* | **uri-scheme** *uri_scheme* }

api-root *api_root*

Specify the API root.

Must be a string.

api-uri-prefix *api_uri_prefix*

Specify the API URI prefix.

Must be a string.

endpoint-profile *endpoint_profile_name*

Specify name of the endpoint profile.

Must be a string.

uri-scheme *uri_scheme*

Specify the URI scheme.

Must be one of the following:

- **http**
- **https**

Usage Guidelines Use this command to configure endpoint profile parameters.

group nrf discovery service type nrf endpoint-profile endpoint-name

Configures endpoint parameters.

Command Modes Exec > Global Configuration

Syntax Description **endpoint-name** *endpoint_name* [**priority** *priority* | **capacity** *endpoint_capacity*]

capacity *endpoint_capacity*

Specify the endpoint capacity.

Must be an integer in the range of 0-65535.

Default Value: 10.

priority *priority*

Specify the node priority for endpoint.

Must be an integer in the range of 0-65535.

endpoint_name

Specify name of the endpoint.

Must be a string.

Usage Guidelines Use this command to configure endpoint parameters.

group nrf discovery service type nrf endpoint-profile endpoint-name primary ip-address

Configures the endpoint IP address and port number.

Command Modes Exec > Global Configuration

Syntax Description `ip-address { { ipv4 ipv4_address | ipv6 ipv6_address } | port port_number }`

ipv4 ipv4_address

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 ipv6_address

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port port_number

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to configure the endpoint IP address and port number.

group nrf discovery service type nrf endpoint-profile endpoint-name secondary ip-address

Configures the endpoint IP address and port number.

Command Modes Exec > Global Configuration

Syntax Description `ip-address { { ipv4 ipv4_address | ipv6 ipv6_address } | port port_number }`

ipv4 ipv4_address

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 ipv6_address

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port port_number

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to configure the endpoint IP address and port number.

group nrf discovery service type nrf endpoint-profile endpoint-name tertiary ip-address

Configures the endpoint IP address and port number.

Command Modes Exec > Global Configuration

Syntax Description `ip-address { { ipv4 ipv4_address | ipv6 ipv6_address } | port port_number }`

ipv4 *ipv4_address*

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 *ipv6_address*

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port *port_number*

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to configure the endpoint IP address and port number.

group nrf discovery service type nrf endpoint-profile version uri-version

Configures URI version information.

Command Modes Exec > Global Configuration

Syntax Description `uri-version uri_version [full-version full_version]`

full-version *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*

Must be a string.

uri-version *uri_version*

Specify the URI version.

Must be a string in the pattern v\d.

Usage Guidelines Use this command to configure URI version information.

group nrf mgmt

Configures the NRF self-management group parameters.

Command Modes Exec > Global Configuration

Syntax Description `mgmt group_name [nrf-type nrf_type]`

mgmt *group_name*

Specify name of the NRF self-management group.

Must be a string.

nrf-type *nrf_type*

Specify the NRF type.

Must be one of the following:

- **PLMN**: PLMN.
- **SHARED**: SHARED.
- **SLICE-LOCAL**: SLICE-LOCAL.

Usage Guidelines Use this command to configure the NRF self-management group parameters.

group nrf mgmt service type nrf

Configures the NRF self-management service information.

Command Modes Exec > Global Configuration

Syntax Description `nrf nrf-service-name nrf_service_name [responsetimeout response_timeout]`

nrf-service-name *nrf_service_name*

Specify name of the NRF service.

Must be one of the following:

- **nnrf-nfm**

responsetimeout *response_timeout*

Specify the response timeout interval in milliseconds.

Must be an integer.

Default Value: 2000.

Usage Guidelines

Use this command to configure the NRF self-management service information.

group nrf mgmt service type nrf endpoint-profile

Configures endpoint profile parameters.

Command Modes

Exec > Global Configuration

Syntax Description

```
endpoint-profile endpoint_profile_name { api-uri-prefix api_uri_prefix | api-root api_root | uri-scheme uri_scheme }
```

api-root *api_root*

Specify the API root.

Must be a string.

api-uri-prefix *api_uri_prefix*

Specify the API URI prefix.

Must be a string.

endpoint-profile *endpoint_profile_name*

Specify name of the endpoint profile.

Must be a string.

uri-scheme *uri_scheme*

Specify the URI scheme.

Must be one of the following:

- **http**
- **https**

Usage Guidelines

Use this command to configure endpoint profile parameters.

group nrf mgmt service type nrf endpoint-profile endpoint-name

Configures name of the endpoint.

Command Modes Exec > Global Configuration

Syntax Description **endpoint-name** *endpoint_name* [**priority** *endpoint_priority*]

max-retry-count *max_retry_count*

Specify the maximum retry count.

Must be an integer in the range of 0-10.

Default Value: 3.

priority *endpoint_priority*

Specify the node priority for endpoint.

Must be an integer in the range of 0-65535.

endpoint_name

Specify name of the endpoint.

Must be a string.

Usage Guidelines Use this command to configure the name of the endpoint.

group nrf mgmt service type nrf endpoint-profile endpoint-name primary ip-address

Configures the endpoint IP address and port number.

Command Modes Exec > Global Configuration

Syntax Description **ip-address** { { **ipv4** *ipv4_address* | **ipv6** *ipv6_address* } | **port** *port_number* }

ipv4 *ipv4_address*

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 *ipv6_address*

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port *port_number*

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to configure the endpoint IP address and port number.

group nrf mgmt service type nrf endpoint-profile endpoint-name secondary ip-address

Configures the endpoint IP address and port number.

Command Modes Exec > Global Configuration

Syntax Description `ip-address { { ipv4 ipv4_address | ipv6 ipv6_address } | port port_number }`

ipv4 ipv4_address

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 ipv6_address

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port port_number

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to configure the endpoint IP address and port number.

group nrf mgmt service type nrf endpoint-profile endpoint-name tertiary ip-address

Configures the endpoint IP address and port number.

Command Modes Exec > Global Configuration

Syntax Description `ip-address { { ipv4 ipv4_address | ipv6 ipv6_address } | port port_number }`

ipv4 ipv4_address

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 *ipv6_address*

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port *port_number*

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to configure the endpoint IP address and port number.

group nrf mgmt service type nrf endpoint-profile version uri-version

Configures version information.

Command Modes Exec > Global Configuration

Syntax Description `uri-version uri_version [full-version full_version]`

full-version *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*

Must be a string.

uri-version *uri_version*

Specify the URI version.

Must be a string in the pattern v\d.

Usage Guidelines Use this command to configure the version information.

gtp group

Configures GTPP group related parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `gtp gtp_group_name`

gtp_group_name

Specify name of the GTPP group.

Must be a string of 1-63 characters.

Usage Guidelines Use this command to configure GTPP group related parameters.

gtpg group gtpg egcdr final-record closing-cause

Configures closing cause for final EGCDR.

Command Modes Exec > Global Configuration (config) > GTPP Group Configuration (config-group-gtpg_group_name)

Syntax Description `gtpg egcdr final-record closing-cause { same-in-all-partials | unique }`

same-in-all-partials

Specify same closing cause for multiple final EGCDR(s).

unique

Specify unique closing cause for final EGCDR.

Usage Guidelines Use this command to configure closing cause for final EGCDR.

gtpg group gtpg egcdr losdv-max-containers

Configures maximum number of LoSDV containers in one EGCDR.

Command Modes Exec > Global Configuration (config) > GTPP Group Configuration (config-group-gtpg_group_name)

Syntax Description `gtpg egcdr losdv-max-containers max_containers`

losdv-max-containers max_containers

Specify the number of LOSDV containers.

Must be an integer in the range of 1-255.

Usage Guidelines Use this command to configure the maximum number of LoSDV containers in one EGCDR.

gtpg group gtpg egcdr service-data-flow threshold

Configures service data flow related parameters.

Command Modes Exec > Global Configuration (config) > GTPP Group Configuration (config-group-gtpg_group_name)

Syntax Description `gtpg egcdr service-data-flow threshold interval duration`

interval duration

Specify the time interval, in seconds, to close the eG-CDR/P-CDR if the minimum time duration thresholds for service data flow containers satisfied in flow-based charging. By default, this option is disabled.

Must be an integer in the range of 60-40000000.

Usage Guidelines

Use this command to assign volume or interval values to the interim GCDRs.

gtpc group gtpc egcdr service-data-flow threshold volume

Configures the uplink/downlink volume octet counts for the generation of interim GCDRs.

Command Modes

Exec > Global Configuration (config) > GTPC Group Configuration (config-group-gtpc_group_name)

Syntax Description

```
gtpc egcdr service-data-flow threshold volume { [ downlink bytes ] [ total
bytes ] [ uplink bytes ] }
```

downlink bytes

Specify the limit for the number of downlink octets after which the eG-CDR/P-CDR is closed.

Must be an integer in the range of 100000-4000000000.

total bytes

Specify the limit for the total number of octets (uplink+downlink) after which the eG-CDR/P-CDR is closed.

Must be an integer in the range of 100000-4000000000.

uplink bytes

Specify the limit for the number of uplink octets after which the eG-CDR/P-CDR is closed.

Must be an integer in the range of 100000-4000000000.

Usage Guidelines

Use this command to configure the uplink/downlink volume octet counts for the generation of interim GCDRs.

gtpc group gtpc egcdr service-idle-timeout

Enables configuration for service idle out closure of LOSDV container.

Command Modes

Exec > Global Configuration (config) > GTPC Group Configuration (config-group-gtpc_group_name)

Syntax Description

```
gtpc egcdr service-idle-timeout { 0 | service_idle_timeout }
```

0

Specify no service-idle-timeout trigger.

Must be one of the following:

- 0

service_idle_timeout

Specify time limit in seconds for service-idle-timeout.

Must be an integer in the range of 10-86400.

Usage Guidelines Use this command to enable configuration for service idle out closure.

gtpg group gtpg trigger

Configures triggers for CDR.

Command Modes Exec > Global Configuration (config) > GTPG Group Configuration (config-group-gtpg_group_name)

Syntax Description `gtpg trigger { time-limit | volume-limit }`

time-limit

When this trigger is disabled, no partial record closure occurs when the configured time limit is reached. Default: Enabled.

volume-limit

When this trigger is disabled no partial record closure occurs when volume limit is reached. Default: Enabled.

Usage Guidelines Use this command to configure triggers for CDR.

gtpg group gtpg trigger egcdr

Enables or disables and configures eGCDR-related parameters.

Command Modes Exec > Global Configuration (config) > GTPG Group Configuration (config-group-gtpg_group_name)

Syntax Description `gtpg trigger egcdr max-losdv`

max-losdv

Enable trigger for eGCDR release at MAX LoSDV containers.

Usage Guidelines Use this command to enable or disable and configure eGCDR-related parameters.

help

Displays help information for a specified command.

Command Modes Exec

Syntax Description `help command`

command

Specify the command name to display the corresponding help information.

The command must be one of the following:

- **aaa**
- **cd**
- **cdl**
- **commit**
- **compare**
- **config**
- **describe**
- **dump**
- **exit**
- **help**
- **history**
- **id**
- **idle-timeout**
- **ignore-leading-space**
- **job**
- **leaf-prompting**
- **license**
- **logout**
- **monitor**
- **no**
- **paginate**
- **quit**
- **rcm**
- **screen-length**
- **screen-width**
- **send**
- **show**
- **show-defaults**
- **smiuser**
- **system**
- **terminal**

- **timestamp**
- **who**

Usage Guidelines Use this command to view help information for a specified command.

history

Configures the command history cache size.

Command Modes Exec

Syntax Description **history** *history_size*

history_size

Specify the command history cache size.

Must be an integer in the range of 0-1000.

Usage Guidelines Use this command to configure the command history cache size.

id

Displays user ID information.

Command Modes Exec

Syntax Description **id**

Usage Guidelines Use this command to view the user ID information.

idle-timeout

Configures the maximum duration a command can remain idle in seconds after which the system automatically terminates the connection.

Command Modes Exec

Syntax Description **idle-timeout** *duration*

duration

Specify the idle timeout duration in seconds.

Must be an integer in the range of 1-8192.

Usage Guidelines Use this command to configure the maximum duration a command can remain idle.

ignore-leading-space

Configures whether to ignore or consider the leading whitespace at the beginning of a command.

Command Modes Exec

Syntax Description `ignore-leading-space { false | true }`
`{ false | true }`

Specify false to ignore the leading whitespace, and true to consider it.

Must be either "false" or "true".

Usage Guidelines Use this command to configure whether to ignore or consider leading whitespace at the beginning of a command.

infra metrics experimental

Configures the experimental configuration parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `infra metrics experimental version experimental_metrics_version`
`version experimental_metrics_version`

Specify the experimental metrics version to be enabled.

Must be an integer in the range of 0-4.

Default Value: 0.

Usage Guidelines Use this command to configure the experimental configuration parameters.

infra metrics verbose verboseLevels

Configures verbose configuration parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `infra metrics verbose podType pod_type level verbose_level`
`level verbose_level`

Specify the verbosity level.

Must be one of the following:

- debug

- **production**
- **trace**

Default Value: trace.

podType *pod_type*

Specify the pod type.

Must be one of the following:

- **load-balancer**
- **protocol**
- **service**

Usage Guidelines Use this command to configure verbose configuration parameters.

infra transaction limit

Configures the maximum stage limit per transaction.

Command Modes Exec > Global Configuration (config)

Syntax Description **infra transaction limit stage** *max_stage_limit*

stage *max_stage_limit*

Specify the maximum stage limit per transaction.

Must be an integer.

Default Value: 100.

Usage Guidelines Use this command to configure the maximum stage limit per transaction.

infra transaction limit consecutive same

Configures the maximum consecutive stage limit per transaction.

Command Modes Exec > Global Configuration (config)

Syntax Description **infra transaction limit consecutive same stage** *max_consecutive_stage_limit*

stage *max_consecutive_stage_limit*

Specify the maximum consecutive stage limit per transaction.

Must be an integer.

Default Value: 10.

Usage Guidelines Use this command to configure the maximum consecutive stage limit per transaction.

infra transaction loop

Configures the transaction loop detection parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `infra transaction loop detection detection_status`

detection *detection_status*

Specify to enable or disable loop detection.

Must be one of the following:

- **disable**
- **enable**

Default Value: disable.

Usage Guidelines Use this command to configure the transaction loop detection parameter.

infra transaction loop category

Configures the loop category.

Command Modes Exec > Global Configuration (config)

Syntax Description `infra transaction loop category loop_category`

category *loop_category*

Specify the category.

Usage Guidelines Use this command to configure the loop category.

infra transaction loop category threshold

Configures the loop detection interval parameter.

Command Modes Exec > Global Configuration (config)

Syntax Description `infra transaction threshold interval loop_detect_interval`

interval *loop_detect_interval*

Specify, in seconds, the loop detection interval.

Must be an integer.

Default Value: 5.

Usage Guidelines

Use this command to configure the loop detection interval parameter.

infra transaction loop category threshold thresholds

Configures thresholds.

Command Modes

Exec > Global Configuration

Syntax Description

thresholds *threshold_level* **count** *max_transactions* **action** *threshold_action*

action *threshold_action*

Specify the action to take on threshold breach.

Must be one of the following:

- **kill-session**
- **log-event**
- **noop**

Default Value: noop.

count *max_transactions*

Specify the maximum number of transactions for the threshold interval.

Must be an integer.

Default Value: 100.

thresholds *threshold_level*

Specify the threshold level.

Must be one of the following:

- **high**
- **low**

Usage Guidelines

Use this command to configure thresholds.

instance instance-id

Configures instance ID.

Command Modes

Exec > Global Configuration (config)

Syntax Description `instance instance-id instance_id`

id *instance_id*

Specify the instance ID.

Usage Guidelines Use this command to configure the instance ID. The CLI prompt changes to the Instance ID Configuration mode (config-instance-id-<instance_id>).

instance instance-id endpoint ep

Configures endpoint parameters.

Command Modes Exec > Global Configuration (config) > Instance ID Configuration (config-instance-id-*instance_id*)

Syntax Description `endpoint endpoint_type [instancetype instance_type | loopbackEth interface_name_host_ip | loopbackPort port_number | nodes node_replicas_for_resiliency | replicas replicas_per_node]`

certificate-name *certificate_alias_name*

Specify the alias name for the certificate.

dscp *dscp_value*

Specify the DSCP value.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

enable-cpu-optimization { false | true }

Specify whether to enable CPU optimization in PFCP and GTP protocol message handling. By default, it is disabled.

Must be one of the following:

- false
- true

Default Value: false.

endpoint *endpoint_type*

Specify the endpoint type.

instancetype *instance_type*

Specify the endpoint local interface type.

Must be one of the following:

- Dual

- **IPv4**
- **IPv6**

Default Value: IPv4.

internal-vip *internal_vip*

Specify the internal VIP.

Must be a string.

loopbackEth *interface_name_host_ip*

Specify the endpoint local interface name or host IP address.

Must be a string.

loopbackPort *port_number*

Specify the endpoint local port number.

Must be an integer.

nodes *node_replicas_for_resiliency*

Specify the number of node replicas for resiliency.

Must be an integer.

Default Value: 1.

replicas *replicas_per_node*

Specify the number of replicas per node.

Must be an integer.

Default Value: 1.

storage *persistent_volume_storage_size*

Specify the storage size of the persistent volume in gibibyte (GiB).

Must be an integer in the range of 1-20.

Default Value: 1.

uri-scheme *uri_scheme*

Specify the URI scheme.

Must be one of the following:

- **http**
- **https**

Default Value: http.

Usage Guidelines Use this command to configure endpoint parameters.

instance instance-id endpoint ep cpu

Configures K8 pod CPU configuration.

Command Modes Exec > Global Configuration

Syntax Description **cpu request** *cpu_resource_request* **max-process** *max_processes*

max-process *max_processes*

Specify the maximum number of parallel OS threads to use.

Must be an integer in the range of 1-32.

request *cpu_resource_request*

Specify the CPU resource request in millicores.

Must be an integer in the range of 100-1000000.

Usage Guidelines Use this command to configure the K8 pod CPU configuration.

instance instance-id endpoint ep extended-service

Enables service pod to run on Session VM.

Command Modes Exec > Global Configuration

Syntax Description **extended-service replicas** *replicas_per_node* **nodes** *node_replicas*

nodes *node_replicas*

Specify the number of node replicas for resiliency.

Must be an integer.

Default Value: 2.

replicas *replicas_per_node*

Specify the number of replicas per node.

Must be an integer.

Default Value: 2.

Usage Guidelines Use this command to enable service pod to run on session VM. Service pods are spawned in Session VM.

instance instance-id endpoint ep heartbeat

Configures PFCP path management.

Command Modes Exec > Global Configuration

Syntax Description **heartbeat interval** *heartbeat_interval* **max-retransmissions** *max_retransmissions*
retransmission-timeout *retransmission_timeout*

interval *heartbeat_interval*

Specify the heartbeat interval in seconds.

Must be an integer from the following: 0, 60-360.

Default Value: 60.

max-retransmissions *max_retransmissions*

Specify the maximum number of retries for PFCP heartbeat request.

Must be an integer in the range of 0-10.

Default Value: 3.

retransmission-timeout *retransmission_timeout*

Specify the heartbeat retransmission timeout in seconds.

Must be an integer in the range of 1-20.

Default Value: 5.

Usage Guidelines Use this command to configure PFCP path management.

instance instance-id endpoint ep interface

Configures the endpoint interface.

Command Modes Exec > Global Configuration (config) > Instance ID Configuration (config-instance-id-*instance_id*) > Endpoint *endpoint_type* Configuration (config-endpoint-*endpoint_type*)

Syntax Description **interface** *interface_type*

certificate-name *certificate_alias_name*

Specify the alias name for certificate.

dscp *dscp_value*

Specify the DSCP value.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

instancetype *ep_local_interface_type*

Specify the endpoint local interface type.

Must be one of the following:

- **Dual**
- **IPv4**
- **IPv6**

Default Value: IPv4.

interface *interface_type*

Specify the interface type.

loopbackEth *pod_interface*

Specify the pod interface.

Must be a string.

loopbackPort *port_number*

Specify the port number.

Must be an integer.

uri-scheme *uri_scheme*

Specify the URI scheme.

Must be one of the following:

- **http**
- **https**

Default Value: http.

Usage Guidelines

Use this command to configure the interface.

instance instance-id endpoint ep interface dispatcher

Displays the dispatcher queue support details for the interface.

Command Modes

Exec > Global Configuration (config) > Instance ID Configuration (config-instance-id-*instance_id*) > Endpoint *endpoint_type* Configuration (config-endpoint-*endpoint_type*) > Interface *interface_type* Configuration (config-interface-*interface_type*)

Syntax Description

```
dispatcher { cache { false | true } | capacity queue_capacity | count
dispatcher_queues_count | expiry cache_entry_expiry_duration | nonresponsive
cache_entry_expiry_duration | outbound { false | true } | rate-limit queue_rate_limit
| threshold outstanding_requests_per_queue_cache }
```

cache { false | true }

Specify to enable or disable disable retransmission cache support.

Must be one of the following:

- **false**
- **true**

Default Value: false.

capacity *queue_capacity*

Specify the capacity of each queue.

Must be an integer.

Default Value: 5000.

count *dispatcher_queues_count*

Specify the count of dispatcher queues.

Must be an integer.

Default Value: 0.

expiry *cache_entry_expiry_duration*

Specify, in milliseconds, the responded cache entry expiry duration.

Must be an integer.

Default Value: 60000.

nonresponsive *cache_entry_expiry_duration*

Specify, in milliseconds, the non-responsive cache entry expiry duration.

Must be an integer.

Default Value: 30000.

outbound { false | true }

Specify to enable or disable queue support for outbound messages.

Must be one of the following:

- **false**
- **true**

Default Value: true.

rate-limit *queue_rate_limit*

Specify the rate limit for each queue.

Must be an integer.

Default Value: 0.

threshold *outstanding_requests_per_queue_cache*

Specify the outstanding requests per queue cache.

Must be an integer.

Default Value: 30000.

Usage Guidelines

Use this command to view dispatcher queue support details for the interface.

instance instance-id endpoint ep interface echo

Configures GTP-C path management.

Command Modes

Exec > Global Configuration

Syntax Description

echo interval *echo_interval* **retransmission-timeout** *retransmission_timeout*
max-retransmissions *max_retransmissions*

interval *echo_interval*

Specify the echo interval in seconds.

Must be an integer in the range of 60-3600.

Default Value: 60.

max-retransmissions *max_retransmissions*

Specify the maximum number of retries for GTP echo request.

Must be an integer in the range of 0-15.

Default Value: 3.

retransmission-timeout *retransmission_timeout*

Specify the echo retransmission timeout in seconds.

Must be an integer in the range of 1-20.

Default Value: 5.

Usage Guidelines

Use this command to configure GTP-C path management.

instance instance-id endpoint ep interface heartbeat

Enables PFCP path management.

Command Modes Exec > Global Configuration

Syntax Description **heartbeat interval** *heartbeat_interval* **retransmission-timeout** *retransmission_timeout*
max-retransmissions *max_retransmissions*

interval *heartbeat_interval*

Specify the heartbeat interval in seconds. To disable, configure to 0.

Must be an integer from the following: 0, 1-3600.

Default Value: 60.

max-retransmissions *max_retransmissions*

Specify the maximum number of retries for PFCP heartbeat request.

Must be an integer in the range of 0-15.

Default Value: 4.

retransmission-timeout *retransmission_timeout*

Specify the heartbeat retransmission timeout in seconds.

Must be an integer in the range of 1-20.

Default Value: 5.

Usage Guidelines Use this command to enable PFCP path management.

instance instance-id endpoint ep interface internal base-port

Configures the internal base-port to start endpoint parameter.

Command Modes Exec > Global Configuration (config) > Instance ID Configuration (config-instance-id-*instance_id*) > Endpoint *endpoint_type* Configuration (config-endpoint-*endpoint_type*)

Syntax Description **internal base-port start** *base_port_to_start_ep*

start *base_port_to_start_ep*

Specify the base port to start endpoint.

Must be an integer in the range of 1024-65535.

Usage Guidelines Use this command to configure the internal base-port to start endpoint parameter.

instance instance-id endpoint ep interface overload-control client threshold critical

Configures Overload Control Protection critical threshold parameter.

Command Modes

Exec > Global Configuration > Instance Configuration > Endpoint Configuration

Syntax Description

overload-control client threshold critical *critical_threshold action*
critical_threshold_action

action *critical_threshold_action*

Specify the action to be taken when critical threshold limit is hit.

critical *critical_threshold*

Specify the critical threshold limit for outstanding requests.

Must be an integer in the range of 10-100000.

drop

Specify to drop if threshold is hit.

exclude

Specify to not apply Overload Control Mechanism for priority messages.

message-priority *message_priority*

Specify message priorities higher or equal to the configured value.

Must be an integer in the range of 0-65535.

redirect-code *redirect_status_code*

Specify the redirect status code if threshold is hit.

Must be an integer in the range of 100-600.

redirect

Specify to redirect if threshold is hit.

reject-code *reject_status_code*

Specify reject status code if threshold is hit.

Must be an integer in the range of 100-600.

reject

Specify to reject if threshold is hit.

url redirection_url

Specify the redirection URL of new host.

Must be a string.

Usage Guidelines

Configures Overload Protection at client level for N7, N10, N11, N16, N40, NRF interface type. Use this command to configure Overload Control Protection client-level critical threshold parameter.

instance instance-id endpoint ep interface overload-control client threshold high

Configures Overload Control Protection high threshold parameter.

Command Modes

Exec > Global Configuration > Instance Configuration > Endpoint Configuration

Syntax Description

overload-control client threshold high *high_threshold* **action** *high_threshold_action*

action high_threshold_action

Specify the action to be taken when high threshold limit is hit.

drop

Specify to drop if threshold is hit.

exclude

Specify to not apply Overload Control Mechanism for priority messages.

high high_threshold

Specify the high threshold limit for outstanding requests.

Must be an integer in the range of 10-100000.

message-priority message_priority

Specify message priorities higher or equal to the configured value.

Must be an integer in the range of 0-65535.

redirect-code redirect_status_code

Specify the redirect status code if threshold is hit.

Must be an integer in the range of 100-600.

redirect

Specify to redirect if threshold is hit.

reject-code *reject_status_code*

Specify reject status code if threshold is hit.

Must be an integer in the range of 100-600.

reject

Specify to reject if threshold is hit.

url *redirection_url*

Specify the redirection URL of new host.

Must be a string.

Usage Guidelines

Configures Overload Protection at client level for N7, N10, N11, N16, N40, NRF interface type. Use this command to configure Overload Control Protection client-level high threshold parameter.

instance instance-id endpoint ep interface overload-control client threshold low

Configures Overload Control Protection low threshold parameter.

Command Modes

Exec > Global Configuration > Instance Configuration > Endpoint Configuration

Syntax Description

overload-control client threshold low *low_threshold* **action** *low_threshold_action*

action *low_threshold_action*

Specify the action to be taken when low threshold limit is hit.

drop

Specify to drop if threshold is hit.

exclude

Specify to not apply Overload Control Mechanism for priority messages.

low *low_threshold*

Specify the low threshold limit for outstanding requests.

Must be an integer in the range of 10-100000.

message-priority *message_priority*

Specify message priorities higher or equal to the configured value.

Must be an integer in the range of 0-65535.

redirect-code *redirect_status_code*

Specify the redirect status code if threshold is hit.

Must be an integer in the range of 100-600.

redirect

Specify to redirect if threshold is hit.

reject-code *reject_status_code*

Specify reject status code if threshold is hit.

Must be an integer in the range of 100-600.

reject

Specify to reject if threshold is hit.

url *redirection_url*

Specify the redirection URL of new host.

Must be a string.

Usage Guidelines

Configures Overload Protection at client level for N7, N10, N11, N16, N40, NRF interface type. Use this command to configure Overload Control Protection client-level low threshold parameter.

instance instance-id endpoint ep interface overload-control endpoint threshold critical

Configures Overload Control Protection critical threshold parameter.

Command Modes

Exec > Global Configuration > Instance Configuration > Endpoint Configuration

Syntax Description

overload-control threshold critical *critical_threshold action*
critical_threshold_action

action *critical_threshold_action*

Specify the action to be taken when critical threshold limit is hit.

critical *critical_threshold*

Specify the critical threshold limit for outstanding requests.

Must be an integer in the range of 10-100000.

drop

Specify to drop if threshold is hit.

exclude

Specify to not apply Overload Control Mechanism for priority messages.

message-priority *message_priority*

Specify message priorities higher or equal to the configured value.

Must be an integer in the range of 0-65535.

redirect-code *redirect_status_code*

Specify the redirect status code if threshold is hit.

Must be an integer in the range of 100-600.

redirect

Specify to redirect if threshold is hit.

reject-code *reject_status_code*

Specify reject status code if threshold is hit.

Must be an integer in the range of 100-600.

reject

Specify to reject if threshold is hit.

url *redirection_url*

Specify the redirection URL of new host.

Must be a string.

Usage Guidelines

Configures Overload Protection at endpoint level for N7, N10, N11, N16, N40, NRF interface type. Use this command to configure Overload Control Protection critical threshold parameter.

instance instance-id endpoint ep interface overload-control endpoint threshold high

Configures Overload Control Protection high threshold parameter.

Command Modes

Exec > Global Configuration > Instance Configuration > Endpoint Configuration

Syntax Description

overload-control threshold high *high_threshold* **action** *high_threshold_action*

action *high_threshold_action*

Specify the action to be taken when high threshold limit is hit.

drop

Specify to drop if threshold is hit.

exclude

Specify to not apply Overload Control Mechanism for priority messages.

high *high_threshold*

Specify the high threshold limit for outstanding requests.

Must be an integer in the range of 10-100000.

message-priority *message_priority*

Specify message priorities higher or equal to the configured value.

Must be an integer in the range of 0-65535.

redirect-code *redirect_status_code*

Specify the redirect status code if threshold is hit.

Must be an integer in the range of 100-600.

redirect

Specify to redirect if threshold is hit.

reject-code *reject_status_code*

Specify reject status code if threshold is hit.

Must be an integer in the range of 100-600.

reject

Specify to reject if threshold is hit.

url *redirection_url*

Specify the redirection URL of new host.

Must be a string.

Usage Guidelines

Configures Overload Protection at endpoint level for N7, N10, N11, N16, N40, NRF interface type. Use this command to configure Overload Control protection high threshold parameter.

instance instance-id endpoint ep interface overload-control endpoint threshold low

Configures Overload Control Protection low threshold parameter.

Command Modes

Exec > Global Configuration > Instance Configuration > Endpoint Configuration

Syntax Description

overload-control threshold low *low_threshold* **action** *low_threshold_action*

action *low_threshold_action*

Specify the action to be taken when low threshold limit is hit.

drop

Specify to drop if threshold is hit.

exclude

Specify to not apply Overload Control Mechanism for priority messages.

low *low_threshold*

Specify the low threshold limit for outstanding requests.

Must be an integer in the range of 10-100000.

message-priority *message_priority*

Specify message priorities higher or equal to the configured value.

Must be an integer in the range of 0-65535.

redirect-code *redirect_status_code*

Specify the redirect status code if threshold is hit.

Must be an integer in the range of 100-600.

redirect

Specify to redirect if threshold is hit.

reject-code *reject_status_code*

Specify reject status code if threshold is hit.

Must be an integer in the range of 100-600.

reject

Specify to reject if threshold is hit.

url *redirection_url*

Specify the redirection URL of new host.

Must be a string.

Usage Guidelines

Configures Overload Protection at endpoint level for N7, N10, N11, N16, N40, NRF interface type. Use this command to configure Overload Control Protection low threshold parameter.

instance instance-id endpoint ep interface overload-control msg-type messageConfigs

Configures the message configuration parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **messageConfigs** **msg-type** *message_type* **msg-priority** *message_priority*
pending-request *pending_requests* **priority** *message_priority* **queue-size** *queue_size*
rate-limit *rate_limit* **reject-threshold** *reject_threshold*

msg-priority *message_priority*

Specify the priority of the message.

Must be one of the following:

- **high**
- **low**

msg-type *message_type*

Specify the message type.

pending-request *pending_requests*

Specify the pending requests count in virtual queue.

Must be an integer.

priority *message_priority*

Specify the priority of messages to start rejecting if overload is reached.

Must be an integer.

queue-size *queue_size*

Specify the capacity of each virtual queue.

Must be an integer.

rate-limit *rate_limit*

Specify the rate limit for virtual queue.

Must be an integer.

reject-threshold *reject_threshold*

Specify the limit to reject incoming messages if this threshold percentage of pending requests are present.

Must be an integer.

Usage Guidelines Use this command to configure the message configuration parameters.

instance instance-id endpoint ep interface overload-control msg-type messageConfigs discard-behavior

Configures the discard behavior to apply when the interface is overloaded.

Command Modes Exec > Global Configuration (config)

Syntax Description `discard-behavior reject reject-code reject_status_code drop { false | true }`

`drop { false | true }`

Specify whether to drop if interface is overloaded.

Must be one of the following:

- **false**
- **true**

Default Value: false.

`reject-code reject_status_code`

Specify the reject status code if the interface is overloaded.

Must be an integer.

`reject`

Specify to reject the incoming message if the interface is overloaded.

Usage Guidelines Use this command to configure the discard behavior to apply when the interface is overloaded.

instance instance-id endpoint ep interface path-failure

Configures the GTP Path Failure Detection Policy profile.

Command Modes Exec > Global Configuration

Syntax Description `path-failure detection-policy detection_policy_name`

`detection-policy detection_policy_name`

Specify the failure detection policy name.

Must be a string.

Usage Guidelines Use this command to configure the GTP Path Failure Detection Policy profile.

instance instance-id endpoint ep interface retransmission

Configures retransmission parameters.

Command Modes Exec > Global Configuration

Syntax Description **retransmission timeout** *retransmission_interval* **max-retry** *max_retry*

max-retry *max_retry*

Specify the maximum number of times to request retry attempts. To disable retransmission, set to 0. Must be an integer in the range of 0-5.

timeout *retransmission_interval*

Specify the retransmission interval in seconds. To disable retransmission, set to 0. Must be an integer in the range of 0-10.

Usage Guidelines Use this command to configure retransmission parameters.

instance instance-id endpoint ep interface secondary-ip

Configures secondary IP address used in FTIED creation for new requests.

Command Modes Exec > Global Configuration

Syntax Description **secondary-ip list-entry** *secondary_ip_addresses*

list-entry *secondary_ip_addresses*

Specify the list of secondary IP addresses.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

-Or-

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

Usage Guidelines Use this command to configure secondary IP address used in FTIED creation for new requests.

instance instance-id endpoint ep interface sla

Configures the SLA parameters.

Command Modes Exec > Global Configuration

Syntax Description **sla response** *response_time* **procedure** *procedure_time*

procedure *procedure_time*

Specify, in milliseconds, the procedure time.

Must be an integer in the range of 1000-120000.

response *response_time*

Specify, in milliseconds, the response time.

Must be an integer in the range of 1000-180000.

Usage Guidelines Use this command to configure the SLA parameters.

instance instance-id endpoint ep interface supported-features

Enables supported features.

Command Modes Exec > Global Configuration

Syntax Description **supported-features** **load-control** **overload-control**

load-control

Specify to enable load control.

overload-control

Specify to enable overload control.

Usage Guidelines Use this command to enable supported features.

instance instance-id endpoint ep interface sx-path-failure

Configures the SX Path Failure Detection Policy profile.

Command Modes Exec > Global Configuration

Syntax Description **sx-path-failure** **sx-detection-policy** *policy_profile_name*

sx-detection-policy *policy_profile_name*

Specify name of the SX Path Failure Detection Policy profile.

Must be a string.

Usage Guidelines Use this command to configure the SX Path Failure Detection Policy profile.

instance instance-id endpoint ep interface vip

Configures the virtual IP address (VIP) parameters.

Command Modes Exec > Global Configuration

Syntax Description `vip { vip-ip host_address | vip-port port_number } offline`

offline

Specify when the virtual IP address (VIP) is offline.

vip-interface *interface_name*

Specify the interface name to advertise BGP router.

Must be a string.

vip-ip *host_address*

Specify the host address.

Must be a string.

vip-port *port_number*

Specify the port number.

Must be an integer.

Usage Guidelines Use this command to configure the VIP address parameters.

instance instance-id endpoint ep interface vip6

Configures VIP IP6 parameters.

Command Modes Exec > Global Configuration

Syntax Description `vip6 vip-ip6 vip_ip6 vip-ipv6-port port_number offline`

offline

Specify the VIP IP as offline.

vip-ip6 *vip_ip6*

Specify the host detail.

Must be a string.

instance instance-id endpoint ep internal base-port

vip-ipv6-port *port_number*

Specify the port number.

Must be an integer.

Usage Guidelines Use this command to configure VIP IP6 parameters.

instance instance-id endpoint ep internal base-port

Configures the internal base-port to start endpoint parameter.

Command Modes Exec > Global Configuration (config) > Instance ID Configuration (config-instance-id-*instance_id*) > Endpoint *endpoint_type* Configuration (config-endpoint-*endpoint_type*)

Syntax Description **internal base-port start** *base_port_to_start_ep*

start *base_port_to_start_ep*

Specify the base port to start endpoint.

Must be an integer in the range of 1024-65535.

Usage Guidelines Use this command to configure the internal base-port to start endpoint parameter.

instance instance-id endpoint ep labels pod-config

Configures K8 node affinity label configuration.

Command Modes Exec > Global Configuration

Syntax Description **pod-config key** *label_key* **value** *label_value*

key *label_key*

Specify the key for the label.

Must be a string.

value *label_value*

Specify the value of the label.

Must be a string.

Usage Guidelines Use this command to configure the K8 node affinity label configuration.

instance instance-id endpoint ep memory

Configures K8 pod memory configuration.

Command Modes	Exec > Global Configuration
Syntax Description	<p>memory request <i>memory_request</i> limit <i>memory_limit</i></p> <p>limit <i>memory_limit</i></p> <p>Specify the maximum memory resource in use, in megabytes. Must be an integer in the range of 100-200000.</p> <p>request <i>memory_request</i></p> <p>Specify the memory resource request, in megabytes. Must be an integer in the range of 100-200000.</p>
Usage Guidelines	Use this command to configure the K8 pod memory configuration.

instance instance-id endpoint ep overload-control client threshold critical

Configures Overload Control Protection critical threshold parameter.

Command Modes	Exec > Global Configuration > Instance Configuration > Endpoint Configuration
Syntax Description	<p>overload-control client threshold critical <i>critical_threshold</i> action <i>critical_threshold_action</i></p> <p>action <i>critical_threshold_action</i></p> <p>Specify the action to be taken when critical threshold limit is hit.</p> <p>critical <i>critical_threshold</i></p> <p>Specify the critical threshold limit for outstanding requests. Must be an integer in the range of 10-100000.</p> <p>drop</p> <p>Specify to drop if threshold is hit.</p> <p>exclude</p> <p>Specify to not apply Overload Control Mechanism for priority messages.</p> <p>message-priority <i>message_priority</i></p> <p>Specify message priorities higher or equal to the configured value. Must be an integer in the range of 0-65535.</p>

redirect-code *redirect_status_code*

Specify the redirect status code if threshold is hit.

Must be an integer in the range of 100-600.

redirect

Specify to redirect if threshold is hit.

reject-code *reject_status_code*

Specify reject status code if threshold is hit.

Must be an integer in the range of 100-600.

reject

Specify to reject if threshold is hit.

url *redirection_url*

Specify the redirection URL of new host.

Must be a string.

Usage Guidelines

Configures Overload Protection at client level for endpoint type SBI. Use this command to configure Overload Control Protection at client-level critical threshold parameter.

instance instance-id endpoint ep overload-control client threshold high

Configures Overload Control Protection high threshold parameter.

Command Modes

Exec > Global Configuration > Instance Configuration > Endpoint Configuration

Syntax Description

overload-control client threshold high *high_threshold* **action** *high_threshold_action*

action *high_threshold_action*

Specify the action to be taken when high threshold limit is hit.

drop

Specify to drop if threshold is hit.

exclude

Specify to not apply Overload Control Mechanism for priority messages.

high *high_threshold*

Specify the high threshold limit for outstanding requests.

Must be an integer in the range of 10-100000.

message-priority *message_priority*

Specify message priorities higher or equal to the configured value.

Must be an integer in the range of 0-65535.

redirect-code *redirect_status_code*

Specify the redirect status code if threshold is hit.

Must be an integer in the range of 100-600.

redirect

Specify to redirect if threshold is hit.

reject-code *reject_status_code*

Specify reject status code if threshold is hit.

Must be an integer in the range of 100-600.

reject

Specify to reject if threshold is hit.

url *redirection_url*

Specify the redirection URL of new host.

Must be a string.

Usage Guidelines

Configures Overload Protection at client level for endpoint type SBI. Use this command to configure Overload Control Protection at client-level high threshold parameter.

instance instance-id endpoint ep overload-control client threshold low

Configures Overload Control Protection low threshold parameter.

Command Modes

Exec > Global Configuration > Instance Configuration > Endpoint Configuration

Syntax Description

overload-control client threshold low *low_threshold action low_threshold_action*

action *low_threshold_action*

Specify the action to be taken when low threshold limit is hit.

drop

Specify to drop if threshold is hit.

exclude

Specify to not apply Overload Control Mechanism for priority messages.

low *low_threshold*

Specify the low threshold limit for outstanding requests.

Must be an integer in the range of 10-100000.

message-priority *message_priority*

Specify message priorities higher or equal to the configured value.

Must be an integer in the range of 0-65535.

redirect-code *redirect_status_code*

Specify the redirect status code if threshold is hit.

Must be an integer in the range of 100-600.

redirect

Specify to redirect if threshold is hit.

reject-code *reject_status_code*

Specify reject status code if threshold is hit.

Must be an integer in the range of 100-600.

reject

Specify to reject if threshold is hit.

url *redirection_url*

Specify the redirection URL of new host.

Must be a string.

Usage Guidelines

Configures Overload Protection at client level for endpoint type SBI. Use this command to configure Overload Control Protection at client-level low threshold parameter.

instance instance-id endpoint ep overload-control endpoint threshold critical

Configures Overload Control Protection critical threshold parameter.

Command Modes

Exec > Global Configuration > Instance Configuration > Endpoint Configuration

Syntax Description

```
overload-control threshold critical critical_threshold action
critical_threshold action
```

action *critical_threshold_action*

Specify the action to be taken when critical threshold limit is hit.

critical *critical_threshold*

Specify the critical threshold limit for outstanding requests.

Must be an integer in the range of 10-100000.

drop

Specify to drop if threshold is hit.

exclude

Specify to not apply Overload Control Mechanism for priority messages.

message-priority *message_priority*

Specify message priorities higher or equal to the configured value.

Must be an integer in the range of 0-65535.

redirect-code *redirect_status_code*

Specify the redirect status code if threshold is hit.

Must be an integer in the range of 100-600.

redirect

Specify to redirect if threshold is hit.

reject-code *reject_status_code*

Specify reject status code if threshold is hit.

Must be an integer in the range of 100-600.

reject

Specify to reject if threshold is hit.

url *redirection_url*

Specify the redirection URL of new host.

Must be a string.

Usage Guidelines

Configures Overload Protection at endpoint level for endpoint type SBI. Use this command to configure Overload Control Protection critical threshold parameter.

instance instance-id endpoint ep overload-control endpoint threshold high

Configures Overload Control Protection high threshold parameter.

Command Modes Exec > Global Configuration > Instance Configuration > Endpoint Configuration

Syntax Description **overload-control threshold high** *high_threshold* **action** *high_threshold_action*

action *high_threshold_action*

Specify the action to be taken when high threshold limit is hit.

drop

Specify to drop if threshold is hit.

exclude

Specify to not apply Overload Control Mechanism for priority messages.

high *high_threshold*

Specify the high threshold limit for outstanding requests.

Must be an integer in the range of 10-100000.

message-priority *message_priority*

Specify message priorities higher or equal to the configured value.

Must be an integer in the range of 0-65535.

redirect-code *redirect_status_code*

Specify the redirect status code if threshold is hit.

Must be an integer in the range of 100-600.

redirect

Specify to redirect if threshold is hit.

reject-code *reject_status_code*

Specify reject status code if threshold is hit.

Must be an integer in the range of 100-600.

reject

Specify to reject if threshold is hit.

url redirection_url

Specify the redirection URL of new host.

Must be a string.

Usage Guidelines

Configures Overload Protection at endpoint level for endpoint type SBI. Use this command to configure Overload Control Protection high threshold parameter.

instance instance-id endpoint ep overload-control endpoint threshold low

Configures Overload Control Protection low threshold parameter.

Command Modes

Exec > Global Configuration > Instance Configuration > Endpoint Configuration

Syntax Description

overload-control threshold low *low_threshold* **action** *low_threshold_action*

action low_threshold_action

Specify the action to be taken when low threshold limit is hit.

drop

Specify to drop if threshold is hit.

exclude

Specify to not apply Overload Control Mechanism for priority messages.

low low_threshold

Specify the low threshold limit for outstanding requests.

Must be an integer in the range of 10-100000.

message-priority message_priority

Specify message priorities higher or equal to the configured value.

Must be an integer in the range of 0-65535.

redirect-code redirect_status_code

Specify the redirect status code if threshold is hit.

Must be an integer in the range of 100-600.

redirect

Specify to redirect if threshold is hit.

reject-code *reject_status_code*

Specify reject status code if threshold is hit.

Must be an integer in the range of 100-600.

reject

Specify to reject if threshold is hit.

url *redirection_url*

Specify the redirection URL of new host.

Must be a string.

Usage Guidelines

Configures Overload Protection at endpoint level for endpoint type SBI. Use this command to configure Overload Control Protection low threshold parameter.

instance instance-id endpoint ep overload-control msg-type messageConfigs

Configures the message configuration parameters.

Command Modes

Exec > Global Configuration (config)

Syntax Description

```
messageConfigs msg-type message_type msg-priority message_priority
pending-request pending_requests priority message_priority queue-size queue_size
rate-limit rate_limit reject-threshold reject_threshold
```

msg-priority *message_priority*

Specify the priority of the message.

Must be one of the following:

- **high**
- **low**

msg-type *message_type*

Specify the message type.

pending-request *pending_requests*

Specify the pending requests count in virtual queue.

Must be an integer.

priority *message_priority*

Specify the priority of messages to start rejecting if overload is reached.

Must be an integer.

queue-size *queue_size*

Specify the capacity of each virtual queue.

Must be an integer.

rate-limit *rate_limit*

Specify the rate limit for virtual queue.

Must be an integer.

reject-threshold *reject_threshold*

Specify the limit to reject incoming messages if this threshold percentage of pending requests are present.

Must be an integer.

Usage Guidelines

Use this command to configure the message configuration parameters.

instance instance-id endpoint ep overload-control msg-type messageConfigs discard-behavior

Configures the discard behavior to apply when the interface is overloaded.

Command Modes

Exec > Global Configuration (config)

Syntax Description

discard-behavior **reject** **reject-code** *reject_status_code* **drop** { **false** | **true** }

drop { **false** | **true** }

Specify whether to drop if interface is overloaded.

Must be one of the following:

- **false**
- **true**

Default Value: false.

reject-code *reject_status_code*

Specify the reject status code if the interface is overloaded.

Must be an integer.

reject

Specify to reject the incoming message if the interface is overloaded.

Usage Guidelines Use this command to configure the discard behavior to apply when the interface is overloaded.

instance instance-id endpoint ep path-failure

Configures GTP path failure detection policy profile.

Command Modes Exec > Global Configuration

Syntax Description **path-failure detection-policy** *detection_policy*

detection-policy *detection_policy*

Specify the detection policy profile.

Must be a string.

Usage Guidelines Use this command to configure the GTP path failure detection policy profile.

instance instance-id endpoint ep retransmission

Configures retransmission parameters.

Command Modes Exec > Global Configuration

Syntax Description **retransmission max-retry** *max_retry* **timeout** *retransmission_interval*

max-retry *max_retry*

Specify the maximum number of times to request retry attempts. To disable retransmission, set to 0.

Must be an integer in the range of 0-5.

Default Value: 3.

timeout *retransmission_interval*

Specify the retransmission interval in seconds. To disable retransmission, set to 0.

Must be an integer in the range of 0-10.

Default Value: 2.

Usage Guidelines Use this command to configure retransmission parameters.

instance instance-id endpoint ep secondary-ip

Configures secondary IP address used in FTIED creation for new requests.

Command Modes Exec > Global Configuration

Syntax Description **secondary-ip list-entry** *secondary_ip_addresses*

list-entry *secondary_ip_addresses*

Specify the list of secondary IP addresses.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

-Or-

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

Usage Guidelines Use this command to configure secondary IP address used in FTIED creation for new requests.

instance instance-id endpoint ep sla

Configures the response and procedure duration parameters.

Command Modes Exec > Global Configuration

Syntax Description **sla response** *response_duration* **procedure** *procedure_duration*

procedure *procedure_duration*

Specify the procedure duration in milliseconds.

Must be an integer in the range of 1000-120000.

response *response_duration*

Specify the response duration in milliseconds.

Must be an integer in the range of 1000-120000.

Usage Guidelines Use this command to configure the response and procedure duration parameters.

instance instance-id endpoint ep sx-path-failure

Configures Sx Path Failure Detection Policy Profile parameter.

Command Modes Exec > Global Configuration

Syntax Description **sx-path-failure sx-detection-policy** *sx_detection_policy_name*

sx-detection-policy *sx_detection_policy_name*

Specify name of the Sx Path Failure Detection policy.

Must be a string.

Usage Guidelines Use this command to configure the Sx Path Failure Detection Policy Profile parameter.

instance instance-id endpoint ep system-health-level crash

Configures system health crash parameters.

Command Modes Exec > Global Configuration

Syntax Description **crash** **cpu-percent** *cpu_percentage* **memory-in-mbs** *memory* **num-of-goroutine** *goroutine_per_core*

cpu-percent *cpu_percentage*

Specify the CPU percentage.

Must be an integer.

Default Value: 80.

memory-in-mbs *memory*

Specify the memory in MBs.

Must be an integer.

Default Value: 2048.

num-of-goroutine *goroutine_per_core*

Specify the number of goroutine per core.

Must be an integer.

Default Value: 45000.

Usage Guidelines Use this command to configure system health crash parameters.

instance instance-id endpoint ep system-health-level critical

Configures system health critical parameters.

Command Modes Exec > Global Configuration

Syntax Description **critical** **cpu-percent** *cpu_percentage* **memory-in-mbs** *memory* **num-of-goroutine** *goroutine_per_core*

cpu-percent *cpu_percentage*

Specify the CPU percentage.

Must be an integer.

Default Value: 60.

memory-in-mbs *memory*

Specify the memory in MBs.

Must be an integer.

Default Value: 1024.

num-of-goroutine *goroutine_per_core*

Specify the number of goroutine per core.

Must be an integer.

Default Value: 35000.

Usage Guidelines

Use this command to configure system health critical parameters.

instance instance-id endpoint ep system-health-level warn

Configures system health warning parameters.

Command Modes

Exec > Global Configuration

Syntax Description

warn **cpu-percent** *cpu_percentage* **memory-in-mbs** *memory* **num-of-goroutine**
goroutine_per_core

cpu-percent *cpu_percentage*

Specify the CPU percentage.

Must be an integer.

Default Value: 50.

memory-in-mbs *memory*

Specify the memory in MBs.

Must be an integer.

Default Value: 512.

num-of-goroutine *goroutine_per_core*

Specify the number of goroutine per core.

Must be an integer.

Default Value: 25000.

Usage Guidelines

Use this command to configure system health warning parameters.

instance instance-id endpoint ep vip

Configures virtual IP (VIP) parameters.

Command Modes Exec> Global Configuration (config)> Instance ID Configuration (config-instance-id-*instance_id*)> Endpoint *endpoint_type* Configuration (config-endpoint-*endpoint_type*)

Syntax Description **vip-ip** *vip_ipv4_detail* [**vip-port** *vip_port_number* | **vip-interface** *vip_interface_name* | **offline**]

offline

Specify the VIP-IP as offline.

vip-interface *vip_interface_name*

Specify the interface name to advertise BGP router.

Must be a string.

vip-ip *vip_ipv4_detail*

Specify the IPv4 detail.

Must be a string.

vip-port *vip_port_number*

Specify the VIP port number.

Must be an integer.

Usage Guidelines Use this command to configure VIP parameters.

instance instance-id endpoint ep vip6

Configures VIP IPv6 parameters.

Command Modes Exec> Global Configuration (config)> Instance ID Configuration (config-instance-id-*instance_id*)> Endpoint *endpoint_type* Configuration (config-endpoint-*endpoint_type*)

Syntax Description **vip-ipv6** *vip_ipv6_detail* [**vip-ipv6-port** *vip_ipv6_port_number* | **offline**]

offline

Specify the VIP-IP as offline.

vip-ipv6-port *vip_ipv6_port_number*

Specify the port number.

Must be an integer.

vip-ipv6 vip_ipv6_detail

Specify the IPv6 detail.

Must be a string.

Usage Guidelines Use this command to configure VIP IPv6 parameters.

instances instance

Configures instance configuration parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **instances instance** *instance_id* **system-id** *system_id* **cluster-id** *cluster_id*
slice-name *slice_name*

cluster-id cluster_id

Specify the instance cluster ID.

Must be a string.

instance-id instance_id

Specify the instance ID.

Must be an integer in the range of 1-8.

slice-name slice_name

Specify the CDL slice name associated with instance ID.

Must be a string.

system-id system_id

Specify the instance system ID.

Must be a string.

Usage Guidelines Use this command to configure instance configuration parameters.

ipam

Configures IP Address Management (IPAM) configuration parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **ipam**

Usage Guidelines Use this command to configure IPAM configuration parameters.

ipam dp

Displays IPAM data-plane allocations.

Command Modes Exec

Syntax Description `show ipam dp dp_name [options]`

Usage Guidelines Use this command to view IPAM data-plane allocations.

ipam instance

Configures the instance configuration parameters.

Command Modes Exec > Global Configuration (config) > IPAM Configuration (config-ipam)

Syntax Description `instance instance_id`

instance instance_id

Specify the instance ID.

Must be an integer in the range of 1-8.

Usage Guidelines Use this command to configure the instance configuration parameters.

ipam instance address-pool

Configures IPAM address pools.

Command Modes Exec > Global Configuration > IPAM Configuration

Syntax Description `address-pool address_pool_name [static | offline | vrf-name vrf_name]`

address-pool address_pool_name

Specify name of the address pool.

Must be a string of 1-128 characters in the ipam-str pattern. For information on the ipam-str pattern, see the Input Pattern Types section.

address-quarantine-qsize max_ips_in_quarantine_queue

Specify the maximum number of IPs to be held in quarantine queue per-dp, per-af, per-instance.

Must be an integer.

address-quarantine-timer *address_quarantine_timer_interval*

Specify the address quarantine timer interval in seconds.

Must be an integer in the range of 4-3600.

Default Value: 4.

offline

Specify the pool as an offline pool.

static

Specify the pool as a static pool.

vrf-name *vrf_name*

Specify name of the VRF.

Must be a string of 1-128 characters in the ipam-str pattern. For information on the ipam-str pattern, see the Input Pattern Types section.

Usage Guidelines Use this command to configure IPAM address pools.

ipam instance address-pool ipv4

Configures IPv4 parameters.

Command Modes Exec > Global Configuration (config) > IPAM Configuration (config-ipam) > Instance Configuration (config-instance-*instance_id*) > Address Pool Configuration (config-address-pool-*address_pool_name*)

Syntax Description **ipv4**

Usage Guidelines Use this command to configure IPv4 parameters.

ipam instance address-pool ipv4 address-range

Configures IPv4 address ranges.

Command Modes Exec > Global Configuration (config) > IPAM Configuration (config-ipam) > Instance Configuration (config-instance-*instance_id*) > Address Pool Configuration (config-address-pool-*address_pool_name*) > IPv4 Configuration (config-ipv4)

Syntax Description **address-range** *start_ipv4_address* *end_ipv4_address* [**offline**]

address-range *start_ipv4_address*

Specify the start address of the IPv4 address range.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

nexthop-forwarding-address *nexthop_forwarding_address*

Specify the nexthop forwarding address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

offline

Specify the IPv4 address range as offline.

end_ipv4_address

Specify the end address of the IPv4 address range.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

Usage Guidelines

Use this command to configure IPv4 address ranges.

ipam instance address-pool ipv4 prefix-range

Configures prefix range parameters.

Command Modes

Exec > Global Configuration (config) > IPAM Configuration (config-ipam) > Instance Configuration (config-instance-*instance_id*) > Address Pool Configuration (config-address-pool-*address_pool_name*) > IPv4 Configuration (config-ipv4)

Syntax Description

prefix-range *prefix_value* **length** *prefix_length* [**offline**]

length *prefix_length*

Specify the prefix length.

Must be an integer in the range of 1-31.

nexthop-forwarding-address *nexthop_forwarding_address*

Specify the nexthop forwarding address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

offline

Specify to set the IPv4 prefix to offline mode.

prefix *prefix_value*

Specify the prefix value.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

Usage Guidelines Use this command to configure prefix range parameters.

ipam instance address-pool ipv4 split-size

Configures chunk split size.

Command Modes Exec > Global Configuration (config) > IPAM Configuration (config-ipam) > Instance Configuration (config-instance-*instance_id*) > Address Pool Configuration (config-address-pool-*address_pool_name*) > IPv4 Configuration (config-ipv4)

Command Modes Exec > Global Configuration (config) > IPAM Configuration (config-ipam) > Instance Configuration (config-instance-*instance_id*) > Address Pool Configuration (config-address-pool-*address_pool_name*) > IPv6 Configuration (config-ipv6) > Address Range Configuration (config-address-ranges)

Syntax Description **split-size** [[**no-split**] [**per-cache** *number_of_addresses*] [**per-dp** *number_of_addresses*]]

no-split

Specify not to split the address range into smaller chunks.

per-cache *number_of_addresses*

Specify the number of addresses per chunk for IPAM cache allocation. Specify in power of 2.

Must be an integer in the range of 2-262144.

per-dp *number_of_addresses*

Specify the number of addresses per chunk for data-plane allocation. Specify in power of 2.

Must be an integer in the range of 2-262144.

Usage Guidelines Use this command to configure chunk split sizes.

ipam instance address-pool ipv4 threshold

Configures pool thresholds.

Command Modes Exec > Global Configuration (config) > IPAM Configuration (config-ipam) > Instance Configuration (config-instance-*instance_id*) > Address Pool Configuration (config-address-pool-*address_pool_name*) > IPv4 Configuration (config-ipv4) > Address Range Configuration (config-address-ranges)

Command Modes Exec > Global Configuration (config) > IPAM Configuration (config-ipam) > Instance Configuration (config-instance-*instance_id*) > Address Pool Configuration (config-address-pool-*address_pool_name*) > IPv6 Configuration (config-ipv6) > Address Range Configuration (config-address-ranges)

Syntax Description **threshold** **upper-threshold** *upper_threshold*

upper-threshold *upper_threshold*

Specify the upper threshold in percentage.

Must be an integer in the range of 1-100.

Usage Guidelines Use this command to configure pool thresholds.

ipam instance address-pool ipv6

Configures IPv6 parameters.

Command Modes Exec > Global Configuration (config) > IPAM Configuration (config-ipam) > Instance Configuration (config-instance-*instance_id*) > Address Pool Configuration (config-address-pool-*address_pool_name*) >

Syntax Description **address-range**

Usage Guidelines Use this command to configure IPv6 parameters.

ipam instance address-pool ipv6 address-ranges address-range

Configures IPv6 address ranges.

Command Modes Exec > Global Configuration (config) > IPAM Configuration (config-ipam) > Instance Configuration (config-instance-*instance_id*) > Address Pool Configuration (config-address-pool-*address_pool_name*) > IPv6 Configuration (config-ipv6)

Syntax Description **address-ranges** **address-range** *start_ipv6_address end_ipv6_address* [**offline**]

offline

Specify the IPv6 address range as offline.

end_ipv6_address

Specify the end address of the IPv6 address range.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

start_ipv6_address

Specify the start address of the IPv6 address range.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

Usage Guidelines Use this command to configure IPv6 address ranges.

ipam instance address-pool ipv6 address-ranges prefix-range

Configures prefix range parameters.

Command Modes	Exec > Global Configuration (config) > IPAM Configuration (config-ipam) > Instance Configuration (config-instance- <i>instance_id</i>) > Address Pool Configuration (config-address-pool- <i>address_pool_name</i>) > IPv6 Configuration (config-ipv6)
Syntax Description	<p>prefix-ranges prefix-range [prefix <i>prefix_value</i>] [length <i>prefix_length</i>] [offline]</p> <p>length <i>prefix_length</i></p> <p>Specify the prefix length.</p> <p>Must be an integer in the range of 96-127.</p> <p>offline</p> <p>Specify to set the IPv6 prefix to offline mode.</p> <p>prefix <i>prefix_value</i></p> <p>Specify the prefix value.</p> <p>Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.</p>

Usage Guidelines Use this command to configure prefix range parameters.

ipam instance address-pool ipv6 address-ranges split-size

Configures chunk split size.

Command Modes	Exec > Global Configuration (config) > IPAM Configuration (config-ipam) > Instance Configuration (config-instance- <i>instance_id</i>) > Address Pool Configuration (config-address-pool- <i>address_pool_name</i>) > IPv4 Configuration (config-ipv4)
Command Modes	Exec > Global Configuration (config) > IPAM Configuration (config-ipam) > Instance Configuration (config-instance- <i>instance_id</i>) > Address Pool Configuration (config-address-pool- <i>address_pool_name</i>) > IPv6 Configuration (config-ipv6) > Address Range Configuration (config-address-ranges)
Syntax Description	<p>split-size [[no-split]] [per-cache <i>number_of_addresses</i>] [per-dp <i>number_of_addresses</i>]]</p> <p>no-split</p> <p>Specify not to split the address range into smaller chunks.</p>

per-cache *number_of_addresses*

Specify the number of addresses per chunk for IPAM cache allocation. Specify in power of 2.

Must be an integer in the range of 2-262144.

per-dp *number_of_addresses*

Specify the number of addresses per chunk for data-plane allocation. Specify in power of 2.

Must be an integer in the range of 2-262144.

Usage Guidelines Use this command to configure chunk split sizes.

ipam instance address-pool ipv6 address-ranges threshold

Configures pool thresholds.

Command Modes Exec > Global Configuration (config) > IPAM Configuration (config-ipam) > Instance Configuration (config-instance-*instance_id*) > Address Pool Configuration (config-address-pool-*address_pool_name*) > IPv4 Configuration (config-ipv4) > Address Range Configuration (config-address-ranges)

Command Modes Exec > Global Configuration (config) > IPAM Configuration (config-ipam) > Instance Configuration (config-instance-*instance_id*) > Address Pool Configuration (config-address-pool-*address_pool_name*) > IPv6 Configuration (config-ipv6) > Address Range Configuration (config-address-ranges)

Syntax Description **threshold** **upper-threshold** *upper_threshold*

upper-threshold *upper_threshold*

Specify the upper threshold in percentage.

Must be an integer in the range of 1-100.

Usage Guidelines Use this command to configure pool thresholds.

ipam instance address-pool ipv6 prefix-ranges prefix-range

Configures IPv6 prefix ranges.

Command Modes Exec > Global Configuration > IPAM Configuration > Address Pool Configuration > Prefix Ranges Configuration

Syntax Description **prefix-range** *prefix_value* **length** *prefix_length* [**offline**]

length *prefix_length*

Specify the prefix length.

Must be an integer in the range of 1-63.

offline

Specify the IPv6 prefix range as offline.

prefix-range *prefix_value*

Specify the IPv6 prefix range.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

Usage Guidelines Use this command to configure IPv6 prefix ranges.

ipam instance address-pool ipv6 prefix-ranges split-size

Configures chunk split size.

Command Modes Exec > Global Configuration (config) > IPAM Configuration (config-ipam) > Instance Configuration (config-instance-*instance_id*) > Address Pool Configuration (config-address-pool-*address_pool_name*) > IPv4 Configuration (config-ipv4)

Command Modes Exec > Global Configuration (config) > IPAM Configuration (config-ipam) > Instance Configuration (config-instance-*instance_id*) > Address Pool Configuration (config-address-pool-*address_pool_name*) > IPv6 Configuration (config-ipv6) > Address Range Configuration (config-address-ranges)

Syntax Description **split-size** [[**no-split**] [**per-cache** *number_of_addresses*] [**per-dp** *number_of_addresses*]]

no-split

Specify not to split the address range into smaller chunks.

per-cache *number_of_addresses*

Specify the number of addresses per chunk for IPAM cache allocation. Specify in power of 2.

Must be an integer in the range of 2-262144.

per-dp *number_of_addresses*

Specify the number of addresses per chunk for data-plane allocation. Specify in power of 2.

Must be an integer in the range of 2-262144.

Usage Guidelines Use this command to configure chunk split sizes.

ipam instance address-pool ipv6 prefix-ranges threshold

Configures pool thresholds.

Command Modes Exec > Global Configuration (config) > IPAM Configuration (config-ipam) > Instance Configuration (config-instance-*instance_id*) > Address Pool Configuration (config-address-pool-*address_pool_name*) > IPv4 Configuration (config-ipv4) > Address Range Configuration (config-address-ranges)

Command Modes Exec > Global Configuration (config) > IPAM Configuration (config-ipam) > Instance Configuration (config-instance-*instance_id*) > Address Pool Configuration (config-address-pool-*address_pool_name*) > IPv6 Configuration (config-ipv6) > Address Range Configuration (config-address-ranges)

Syntax Description **threshold upper-threshold** *upper_threshold*

upper-threshold *upper_threshold*

Specify the upper threshold in percentage.

Must be an integer in the range of 1-100.

Usage Guidelines Use this command to configure pool thresholds.

ipam instance address-pool tags

Configures address pool tags.

Command Modes Exec > Global Configuration (config) > IPAM Configuration (config-ipam) > Instance Configuration (config-instance-*instance_id*) > Address Pool Configuration (config-address-pool-*address_pool_name*)

Syntax Description **tags** [[**dnn** *dnn*] [**nssai** *nssai*] [**serving-area** *serving_area*]]

dnn *dnn*

Specify the DNN.

Must be a string.

nssai *nssai*

Specify the NSSAI.

Must be a string.

serving-area *serving_area*

Specify the serving area.

Must be a string.

Usage Guidelines Use this command to configure address pool tags.

ipam instance min-dp-addr-size

Configures the minimum number of addresses to reserve per upf, per nm, per pool/tag.

Command Modes	Exec > Global Configuration (config) > IPAM Configuration (config-ipam) > Instance Configuration (config-instance- <i>instance_id</i>)
Syntax Description	<pre>min-dp-addr-size [[ipv4-addr <i>min_to_reserve</i>] [ipv6-addr <i>min_to_reserve</i>] [ipv6-prefix <i>min_to_reserve</i>]]</pre> <p>ipv4-addr <i>min_to_reserve</i> Specify the minimum number of IPv4 address to reserve. Must be an integer in the range of 16-262144.</p> <p>ipv6-addr <i>min_to_reserve</i> Specify the minimum number of IPv6 address to reserve. Must be an integer in the range of 32-262144.</p> <p>ipv6-prefix <i>min_to_reserve</i> Specify the minimum number of IPv6 prefix to reserve. Must be an integer in the range of 32-262144.</p>
Usage Guidelines	Use this command to configure the minimum number of addresses to reserve per upf, per nm, per pool/tag.

ipam instance source

Configures pool-datastore source selection.

Command Modes	Exec > Global Configuration (config) > IPAM Configuration (config-ipam) > Instance Configuration (config-instance- <i>instance_id</i>)
Syntax Description	<pre>source local</pre> <p>local Specify to use local address pool datastore.</p>
Usage Guidelines	Use this command to configure pool-datastore source selection.

ipam instance source external ipam

Configures external IPAM server for pool information.

Command Modes	Exec > Global Configuration (config) > IPAM Configuration (config-ipam) > Instance Configuration (config-instance- <i>instance_id</i>)
Syntax Description	<pre>source external ipam [[host <i>ip_address</i>] [port <i>port_number</i>] [vendor <i>vendor_id</i>]]</pre>

host *ip_address*

Specify IP address of the IPAM server.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

-Or-

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port *port_number*

Specify port number of the IPAM server.

Must be an integer in the range of 1-65535.

vendor *vendor_id*

Specify the IPAM server's vendor ID. Default: cisco.

Must be one of the following:

- cisco

Usage Guidelines

Use this command to configure external IPAM server for pool information.

ipam instance threshold

Configures global upper thresholds.

Command Modes

Exec > Global Configuration (config) > IPAM Configuration (config-ipam) > Instance Configuration (config-instance-*instance_id*)

Syntax Description

```
threshold [ [ ipv4-addr ipv4_address_threshold ] | [ ipv6-addr ipv6_address_threshold ] | [ ipv6-prefix ipv6_prefix_threshold ] ]
```

ipv4-addr *ipv4_address_threshold*

Specify the IPv4 address threshold in percentage.

Must be an integer in the range of 1-100.

ipv6-addr *ipv6_address_threshold*

Specify the IPv6 address threshold in percentage.

Must be an integer in the range of 1-100.

ipv6-prefix *ipv6_prefix_threshold*

Specify the IPv6 prefix threshold in percentage.

Must be an integer in the range of 1-100.

Usage Guidelines Use this command to configure global upper thresholds.

ipam pool

Displays IPAM pool allocation information.

Command Modes Exec

Syntax Description `show ipam pool pool_name`

Usage Guidelines Use this command to view IPAM pool allocation information.

ipam pool ipv4-addr

Displays IPAM pool IPv4 address information.

Command Modes Exec

Syntax Description `show ipam pool pool_name ipv4-addr`

Usage Guidelines Use this command to view IPAM pool IPv4 address information.

ipam pool ipv6-addr

Displays IPAM pool IPv6 address information.

Command Modes Exec

Syntax Description `show ipam pool pool_name ipv6-addr`

Usage Guidelines Use this command to view IPAM pool IPv6 address information.

ipam pool ipv6-prefix

Displays IPAM pool IPv6 prefix information.

Command Modes Exec

Syntax Description `show ipam pool pool_name ipv6-prefix`

Usage Guidelines Use this command to view IPAM pool IPv6 prefix information.

job

Suspends the jobs that are running in the background.

Command Modes Exec

Syntax Description `job stop job_id`

job_id

Specify the job ID for suspending the corresponding job.

Must be an integer.

Usage Guidelines Use this command to suspend the jobs that are running in the background.

k8 ccg

Configures coverage build parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `k8 ccg coverage-build { false | true }`

coverage-build { false | true }

Specify whether to enable or disable coverage build.

Must be one of the following:

- false
- true

Default Value: false.

Usage Guidelines Use this command to configure the coverage build parameters.

k8 ccg coverage

Configures Code Coverage Utils parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `k8 ccg coverage container-stop container_stop`

container-stop *container_stop*

Specify container stop.

Must be a string.

Default Value: false.

Usage Guidelines

Use this command to configure the Code Coverage Utils parameters.

k8 label pod-group-config

Configures the K8 node affinity label parameters.

Command Modes

Exec > Global Configuration (config)

Syntax Description

k8 label *vm_group* **key** *label_key* **value** *label_value*

key *label_key*

Specify the label key.

Must be a string.

value *label_value*

Specify the label value.

Must be a string.

vm_group

Specify the VM group.

Must be one of the following:

- **cdl-layer**
- **oam-layer**
- **protocol-layer**
- **service-layer**

Usage Guidelines

Use this command to configure the K8 node affinity label parameters.

leaf-prompting

Enables or disables automatic querying for leaf values.

Command Modes

Exec

Syntax Description

leaf-prompting { **false** | **true** }

{ false | true }

Specify false to disable leaf prompting, and true to enable.

Must be either "false" or "true".

Usage Guidelines Use this command to automatically query for leaf values.

license smart deregister

Configures the license parameters for the VNF deregistration.

Command Modes Exec

Syntax Description `license smart deregister`

deregister

Specify to deregister the VNF for smart licensing.

Usage Guidelines Use this command to configure the license parameters for the VNF deregistration.

license smart register

Configures the license parameters for the VNF registration.

Command Modes Exec

Syntax Description `license smart register force idtoken token_id`

register

Specify to register the VNF for Smart Licensing.

force

Specify to enable the force registration of the agent.

idtoken *token_id*

Specify the ID token to register the agent with.

Must be an integer.

Usage Guidelines Use this command to configure the license parameters for the VNF registration.

license smart renew

Configures the license parameters for the VNF renewal.

Command Modes	Exec
Syntax Description	<pre>license smart renew { ID auth }</pre> <p>renew Renew the smart agent IDs and authentication.</p> <p>ID Specify to renew the smart agent license registration information.</p> <p>auth Initiate the manual update of the license usage information with Cisco.</p>
Usage Guidelines	Use this command to configure the license parameters for the VNF renewal.

local-instance

Configures local instance parameters.

Command Modes	Exec > Global Configuration
Syntax Description	<pre>local-instance instance <i>instance_id</i></pre> <p>instance <i>instance_id</i> Specify the local instance ID.</p>
Usage Guidelines	Use this command to configure local instance parameters.

logging async application enable

Enables async logging.

Command Modes	Exec > Global Configuration
Syntax Description	<pre>enable buffer-size <i>buffer_size</i></pre> <p>buffer-size <i>buffer_size</i> Specify the buffer size for async logging. Must be an integer.</p>
Usage Guidelines	Use this command to enable async logging.

logging async monitor-subscriber enable

Enables async logging.

Command Modes Exec > Global Configuration

Syntax Description **enable** **buffer-size** *buffer_size*

buffer-size *buffer_size*

Specify the buffer size for async logging.

Must be an integer.

Usage Guidelines Use this command to enable async logging.

logging async tracing enable

Enables async logging.

Command Modes Exec > Global Configuration

Syntax Description **enable** **buffer-size** *buffer_size*

buffer-size *buffer_size*

Specify the buffer size for async logging.

Must be an integer.

Usage Guidelines Use this command to enable async logging.

logging async transaction enable

Enables async logging.

Command Modes Exec > Global Configuration

Syntax Description **enable** **buffer-size** *buffer_size*

buffer-size *buffer_size*

Specify the buffer size for async logging.

Must be an integer.

Usage Guidelines Use this command to enable async logging.

logging error

Configures error logging parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `logging error stack status`

stack *status*

Specify to enable or disable error stack.

Must be one of the following:

- **disable**
- **enable**

Default Value: enable.

Usage Guidelines Use this command to configure error logging parameters.

logging level

Configures the logging level.

Command Modes Exec > Global Configuration (config)

Syntax Description `logging level { application application_log_level | monitor-subscriber monitor_subscriber_log_level | tracing tracing_log_level | transaction transaction_log_level }`

application *application_log_level*

Specify the log level for application log type.

Must be one of the following:

- **debug**
- **error**
- **info**
- **off**
- **trace**
- **warn**

monitor-subscriber *monitor_subscriber_log_level*

Specify the log level for subscriber monitoring.

Must be one of the following:

- **debug**
- **error**
- **info**
- **off**
- **trace**
- **warn**

tracing *tracing_log_level*

Specify the log level for tracing log type.

Must be one of the following:

- **debug**
- **error**
- **info**
- **off**
- **trace**
- **warn**

transaction *transaction_log_level*

Specify the log level for transaction log type.

Must be one of the following:

- **debug**
- **error**
- **info**
- **off**
- **trace**
- **warn**

Usage Guidelines Configures logging parameters. Use this command to configure the logging level.

logging logger

Configures logger parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `logging name logger_name`

logger_name

Specify the logger name in the format "module.component.interface".

Must be a string.

Usage Guidelines Use this command to configure logger parameters.

logging logger level

Configures the logging level.

Command Modes Exec > Global Configuration

Syntax Description `logging name logger_name level { application application_log_level | tracing tracing_log_level | transaction transaction_log_level }`

application application_log_level

Specify the log level for application log type.

Must be one of the following:

- **debug**
- **error**
- **info**
- **off**
- **trace**
- **warn**

monitor-subscriber monitor_subscriber_log_level

Specify the log level for subscriber monitoring.

Must be one of the following:

- **debug**
- **error**
- **info**
- **off**
- **trace**
- **warn**

tracing *tracing_log_level*

Specify the log level for tracing log type.

Must be one of the following:

- **debug**
- **error**
- **info**
- **off**
- **trace**
- **warn**

transaction *transaction_log_level*

Specify the log level for transaction log type.

Must be one of the following:

- **debug**
- **error**
- **info**
- **off**
- **trace**
- **warn**

Usage Guidelines Use this command to configure the logging level type.

logging transaction

Configures the transaction logging parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `logging transaction { duplicate { enable | disable } | max-file-size max_file_size | max-rotation max_rotations | message { enable | disable } | persist { enable | disable } }`

duplicate { enable | disable }

Specify whether to enable or disable duplicate logs in transaction logging.

Must be one of the following:

- **disable**
- **enable**

Default Value: disable.

max-file-size *max_file_size*

Specify the maximum transaction file size in MB.

Must be an integer in the range of 1-10000.

Default Value: 50.

max-rotation *max_max_rotations*

Specify the maximum number of file rotations.

Must be an integer in the range of 2-1000.

Default Value: 10.

message { enable | disable }

Specify whether to enable or disable messages in transaction logging.

Must be one of the following:

- **disable**
- **enable**

Default Value: disable.

persist { enable | disable }

Specify whether to enable or disable file-based transaction logging.

Must be one of the following:

- **disable**
- **enable**

Default Value: disable.

Usage Guidelines

Use this command to configure the transaction logging parameters.

logout

Logout a specific session or a specific user from all sessions.

Command Modes

Exec

Syntax Description

logout [**session** *session_id* | **user** *user_name*]

session *session_id*

Specify the session ID from the possible completion options.

Must be a string.

user *user_name*

Specify the user name or the user process from the possible completion options.

Must be a string.

Usage Guidelines Use this command to log out a specific session or a specific user from all sessions.

monitor protocol

Configures the SMF to monitor the protocol.

Command Modes Exec

Syntax Description `monitor protocol interface interface_name [capture-duration duration]`

interface *interface_name*

Specify the name of interface on which PCAP is captured.

Must be a string.

capture-duration *duration*

Specify the duration, in seconds, during which PCAP is captured. The default value is 300 seconds.

Must be an integer.

Usage Guidelines Use this command to monitor the protocol.

monitor subscriber

Configures the SMF to monitor the subscribers.

Command Modes Exec

Syntax Description `monitor subscriber supi supi [capture-duration duration] | subscriber-dump filename file_name | subscriber-list`

supi *supi*

Specify the subscriber identifier.

Must be a string.

capture-duration *duration*

Specify the duration, in seconds, during which PCAP is captured. The default value is 300 seconds.

Must be an integer.

filename *file_name*

Specify the path of the file name to be dumped.

Must be a string.

Usage Guidelines

Use this command to monitor the subscribers.

msid-opt

Clears subscriber data based on MSID.

Command Modes

Exec

Syntax Description

```
clear subscriber msid msid [ ebi eps_bearer_id | reactivation { false | true } ]
```

ebi *eps_bearer_id*

Specify the EPS Bearer ID.

Must be a string.

reactivation { false | true }

Specify if reactivation is requested.

Must be one of the following:

- **false**
- **true**

Usage Guidelines

Use this command to subscriber data based on MSID.

nf-tls ca-certificates

Configures NF TLS certificate name and data configuration parameters.

Command Modes

Exec > Global Configuration (config)

Syntax Description

```
nf-tls ca-certificates certificate_alias_name [ cert-data certificate_data ]
```

ca-certificates *certificate_alias_name*

Specify the alias name for the certificate.

Must be a string.

cert-data *certificate_data*

Specify the certificate data in PEM format.

Must be a string.

Usage Guidelines Use this command to configure certificate name and data configuration parameters.

nf-tls certificate-status

Displays NF TLS certificate status.

Command Modes Exec

Syntax Description `show nf-tls certificate-status [[certificate_name] [days days_to_expire] [podInstance pod_instance]]`

days days_to_expire

Specify the number of days for the certificate to expire.

Must be a string.

podInstance pod_instance

Specify the Pod instance.

Must be a string.

certificate_name

Specify name of the certificate.

Must be a string.

Usage Guidelines Use this command to view certificate status.

nf-tls certificates

Configures NF TLS certificate parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `nf-tls certificates certificate_alias_name [[cert-data certificate_data] [private-key private_key]]`

cert-data certificate_data

Specify the certificate data in PEM format.

Must be a string.

certificates certificate_alias_name

Specify the alias name for the certificate.

Must be a string.

private-key *private_key*

Specify the certificate private key in PEM format.

Must be a string.

Usage Guidelines Use this command to configure NF TLS certificate parameters.

no

Restores the command history cache size to its default setting. See the [history](#) command.

Command Modes Exec

Syntax Description **no history**

Usage Guidelines Use this command to configure the command history cache size to its default setting. For more details, see the [history](#) command.

nrf discovery-info discovery-filter

Displays NF discovery filter information.

Command Modes Exec > Global Configuration

Syntax Description **show discovery-filter**

Usage Guidelines Use this command to view NF discovery filter information.

nrf discovery-info discovery-filter nf-discovery-profile

Displays discovery profile information.

Command Modes Exec > Global Configuration

Syntax Description **show nf-discovery-profile**

Usage Guidelines Use this command to view NF discovery profile information.

nrf discovery-info discovery-filter nf-discovery-profile nf-service

Displays NF service information.

Command Modes Exec > Global Configuration

Syntax Description `show nf-service`

Usage Guidelines Use this command to view NF service information.

nrf registration-info

Displays NRF registration information.

Command Modes Exec

Syntax Description `show nrf [registration-info [gr-instance gr_instance]]`

gr-instance *gr_instance*

Specify the GR instance ID.

Must be a string.

Usage Guidelines Use this command to view registration information.

nrf subscription-info

Displays NF subscription information.

Command Modes Exec > Global Configuration

Syntax Description `show nrf subscription-info`

Usage Guidelines Use this command to view NF subscription information.

nssai

Configures the list of DNN profile names.

Command Modes Exec > Global Configuration (config)

Syntax Description `nssai name slice_name [[dnn profile_names_list] [sdt slice_differentiator_type] [sst slice_service_type] [tai-group-list tai_group_list]]`

dnn *profile_names_list*

Specify the list of actual DNN profile names configured.

Must be a string.

name *slice_name*

Specify name of the slice.

Must be a string.

sdt slice_differentiator_type

Specify the Slice Differentiator Type (SDT).

Must be a string in the octet-string24 pattern. For information on the octet-string24 pattern, see the Input Pattern Types section.

sst slice_service_type

Specify the Slice/Service Type (SST).

Must be a string in the sst-string255 pattern. For information on the sst-string255 pattern, see the Input Pattern Types section.

tai-group-list tai_group_list

Specify the list of TAI groups for this NSSAI.

Must be a string.

Usage Guidelines

Use this command to configure the list of actual DNN profile names.

paginate

Configures whether or not to paginate CLI command output.

Command Modes

Exec

Syntax Description

paginate { false | true }

{ false | true }

Specify false to disable paginating CLI command output, and true to enable.

Must be either "false" or "true".

Usage Guidelines

Use this command to paginate the command output.

peers all

Displays the peer configuration information.

Command Modes

Exec

Syntax Description

show peers [all]

Usage Guidelines

Use this command to view peer configuration information.

policy call-control-profile

Configures SGW call control profile for operator policy.

Syntax Description

call-control-profile *sgw_cc_profile_name* **charging-mode** *sgw_charging_mode*
sgw-charging-profile *sgw_charging_profile_name*

call-control-profile *sgw_cc_profile_name*

Specify name of the SGW Call Control Profile for operator policy.

Must be a string.

charging-mode *sgw_charging_mode*

Specify the SGW charging mode.

Must be one of the following:

- **gtp**
- **none**

sgw-charging-profile *sgw_charging_profile_name*

Specify name of the associated SGW charging profile.

Usage Guidelines

Use this command to configure SGW call control profile for operator policy.

policy call-control-profile cc

Configures charging characteristics selection preference parameter.

Syntax Description

cc prefer *cc_selection_preference*

prefer *cc_selection_preference*

Specify the preference for selecting charging characteristics.

Must be one of the following:

- **hlr-hss-value**: Specify hlr-hss-value - value received from serving node.
- **local-value**: Specify local-value - value defined locally.

Default Value: hlr-hss-value.

Usage Guidelines

Use this command to configure charging characteristics selection preference parameter.

policy call-control-profile cc local-value

Configures local value for charging characteristics.

Syntax Description `local-value profile profile_index`

profile *profile_index*

Specify the local profile index.

Must be an integer in the range of 1-15.

Default Value: 8.

Usage Guidelines Use this command to configure local value for charging characteristics.

policy dnn

Configures the virtual DNN to operator DNN mapping.

Command Modes Exec > Global Configuration (config)

Syntax Description `dnn dnn_policy_name [profile dnn_profile_name]`

dnn *dnn_policy_name*

Specify name of the DNN policy.

Must be a string.

profile *dnn_profile_name*

Specify name of the DNN profile.

Must be a string.

Usage Guidelines Use this command to configure the virtual DNN to operator DNN mapping.

policy dnn dnn dnn

Configures the virtual DNN to a network DNN.

Syntax Description `dnn dnn_name [profile dnn_profile_name] dnn-list dnn_list`

dnn-list *dnn_list*

Specify the additional list of DNNs to be associated for the DNN profile.

Must be a string.

dnn *dnn_name*

Specify name of the DNN.

Must be a string.

profile *dnn_profile_name*

Specify name of the DNN profile.

Must be a string.

Usage Guidelines

Use this command to configure the virtual DNN to a network DNN.

policy dnn dnn network-identifier

Configures the network identifier.

Command Modes

Exec > Global Configuration (config) > DNN Configuration (config-dnn-policy_name)

Syntax Description

dnn network-identifier *network_identifier* [**profile** *profile_name*] [**dnn-list** *dnn_list*]

network-identifier *network_identifier*

Specify the network identifier.

Must be a string.

profile *profile_name*

Specify name of the profile.

Must be a string.

Usage Guidelines

Use this command to configure the network identifier.

policy dnn dnn network-identifier operator-identifier

Configures the operator identifier.

Command Modes

Exec > Global Configuration (config) > DNN Configuration (config-dnn-policy_name)

Syntax Description

dnn network-identifier *network_identifier* **operator-identifier** *operator_identifier* [**profile** *profile_name*]

operator-identifier *operator_identifier*

Specify the operator identifier.

Must be a string.

profile *profile_name*

Specify name of the profile.

Must be a string.

Usage Guidelines Use this command to configure the operator identifier.

policy dnn dnn operator-identifier

Configures the operator identifier.

Command Modes Exec > Global Configuration (config) > DNN Configuration (config-dnn-*policy_name*)

Syntax Description **dnn operator-identifier** *operator_identifier* [**profile** *profile_name*] [**dnn-list** *dnn_list*]

operator-identifier *operator_identifier*

Specify the operator identifier.

Must be a string.

profile *profile_name*

Specify name of the profile.

Must be a string.

Usage Guidelines Use this command to configure the operator identifier.

policy network-capability

Configures Network Capability Policy configuration.

Command Modes Exec > Global Configuration (config)

Syntax Description **policy network-capability** *policy_name* [**link-mtu** *link_mtu* | **max-supported-pkt-filter** *max_supported_pkt_filter* | **nw-support-local-address-tft** { **false** | **true** }]

link-mtu *link_mtu*

Specify name of the Network Capability Policy.

Must be an integer in the range of 1280-2000.

Default Value: 1500.

max-supported-pkt-filter *max_supported_pkt_filter*

Specify the maximum supported packet filters.

Must be an integer in the range of 16-256.

Default Value: 16.

network-capability *policy_name*

Specify name of the Network Capability Policy.

Must be a string.

nw-support-local-address-tft { false | true }

Enable or disable network support for local address in TFT.

Must be one of the following:

- false
- true

Default Value: false.

Usage Guidelines Use this command to configure Network Capability Policy configuration.

policy operator

Configures the operator policy configuration.

Command Modes Exec > Global Configuration (config)

Syntax Description **policy operator** *policy_name* **call-control-profile** *sgw_cc_profile_name*
roaming-status *roaming_status*

call-control-profile *sgw_cc_profile_name*

Specify name of the associated SGW Call Control profile.

operator *policy_name*

Specify name of the operator policy.

Must be a string.

roaming-status *roaming_status*

Specify the roaming status.

Must be one of the following:

- roamer
- visitor-hrt
- visitor-lbo

Usage Guidelines Use this command to configure the operator policy specific configuration.

policy operator policy

Configures DNN policy parameters.

Command Modes Exec > Global Configuration (config) > Operator Policy Configuration (config-operator-policy_name)

Syntax Description **policy dnn** *dnn_policy_name* [**network-capability** *network_capability*]

dnn *dnn_policy_name*

Specify name of the DNN policy.

Must be a string.

network-capability *network_capability*

Specify the network capability.

Must be a string.

secondary *secondary*

Specify the secondary.

Must be a string.

Usage Guidelines Use this command to configure DNN policy parameters.

policy path-failure-detection

Configures path failure detection policy-specific configuration.

Command Modes Exec > Global Configuration (config)

Syntax Description **policy path-failure-detection** *policy_name* **max-remote-rc-change** *max_remote_rc_change*

max-remote-rc-change *max_remote_rc_change*

Specify the maximum remote restart counter change.

Must be an integer in the range of 1-255.

path-failure-detection *policy_name*

Specify name of the Path Failure Detection policy.

Must be a string.

Usage Guidelines Use this command to configure path failure detection policy-specific configuration.

policy path-failure-detection ignore

Configures to ignore counter values, echo timeouts, or echo failures.

Command Modes Exec > Global Configuration (config) > Path Failure Detection Policy Configuration (config-path-failure-detection-*policy_name*)

Syntax Description **ignore type** *ignore_type*

type *ignore_type*

Specify to ignore restart counter values, echo timeouts, or echo failures.

Must be one of the following:

- **control-rc-change**
- **echo-failure**
- **echo-rc-change**

Usage Guidelines Use this command to configure ignoring counter values, echo timeouts, or echo failures.

policy subscriber

Configures SMF policy parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **policy subscriber** *policy_name*

policy subscriber *policy_name*

Specify name of the subscriber policy.

Must be a string.

Usage Guidelines Use this command to configure SMF policy parameters.

policy subscriber list-entry

Configures operator policy selection match criteria definition.

Command Modes Exec > Global Configuration (config) > Subscriber Policy Configuration (config-subscriber-*policy_name*)

Syntax Description **precedence** *precedence_number* [**sst** *slice_service_type* | **sdt** *slice_differentiator_type* | **supi-start-range** *supi_start_range* | **supi-stop-range** *supi_stop_range* | **gpsi-start-range** *gpsi_start_range* | **gpsi-stop-range** *gpsi_stop_range* |

```
pei-start-range pei_start_range | pei-stop-range pei_stop_range | operator-policy  
operator_policy_name ]
```

gpsi-start-range *gpsi_start_range*

Specify the GPSI start range.

Must be an integer in the range of 1000000000-9999999999999999.

gpsi-stop-range *gpsi_stop_range*

Specify the GPSI stop range.

Must be an integer in the range of 1000000000-9999999999999999.

imsi-start-range *imsi_start_range*

Specify the IMSI start range.

Must be an integer in the range of 1000000000000000-9999999999999999.

imsi-stop-range *imsi_stop_range*

Specify the IMSI stop range.

Must be an integer in the range of 1000000000000000-9999999999999999.

operator-policy *operator_policy_name*

Specify name of the operator policy.

Must be a string.

pei-start-range *pei_start_range*

Specify the PEI start range.

Must be an integer in the range of 1000000000000-9999999999999999.

pei-stop-range *pei_stop_range*

Specify the PEI stop range.

Must be an integer in the range of 1000000000000-9999999999999999.

precedence *precedence_number*

Specify the precedence for entry.

Must be an integer in the range of 1-2048.

sdt *slice_differentiator_type*

Specify the Slice Differentiator Type (SDT).

Must be a string in the octet-string24 pattern. For information on the octet-string24 pattern, see the Input Pattern Types section.

sst slice_service_type

Specify the Slice/Service Type (SST).

Must be a string in the octet-string8 pattern. For information on the octet-string8 pattern, see the Input Pattern Types section.

supi-start-range supi_start_range

Specify the SUPI start range.

Must be an integer in the range of 100000000000000-999999999999999.

supi-stop-range supi_stop_range

Specify the SUPI stop range.

Must be an integer in the range of 100000000000000-999999999999999.

Usage Guidelines

Use this command to configure operator policy selection match criteria definition.

policy subscriber list-entry imsi

Configures subscriber International Mobile Station Identification (IMSI).

Command Modes

Exec > Global Configuration (config) > Subscriber Policy Configuration (config-subscriber-policy_name) > Subscriber Policy Precedence Configuration (config-subscriber-precedence)

Syntax Description

imsi **mcc** *mobile_country_code* **mnc** *mobile_network_code*

mcc mobile_country_code

Specify the Mobile Country Code (MCC).

Must be a string in the three-digit pattern. For information on the three-digit pattern, see the Input Pattern Types section.

mnc mobile_network_code

Specify the Mobile Network Code (MNC).

Must be a string in the two-or-three-digit pattern. For information on the two-or-three-digit pattern, see the Input Pattern Types section.

Usage Guidelines

Use this command to configure subscriber IMSI.

policy subscriber list-entry imsi msin

Configures MSIN range for mobile subscriber identification number.

Command Modes

Exec > Global Configuration (config) > Subscriber Policy Configuration (config-subscriber-policy_name) > Subscriber Policy Precedence Configuration (config-subscriber-precedence)

Syntax Description `imsi msin first start_msin_range last end_msin_range`

first start_msin_range

Specify starting value of the MSIN range.

Must be an integer in the range of 1-9999999999.

last end_msin_range

Specify the ending value of the MSIN range.

Must be an integer in the range of 1-9999999999.

Usage Guidelines Use this command to configure MSIN range for mobile subscriber identification number.

policy subscriber list-entry serving-plmn

Configures serving PLMN parameters.

Command Modes Exec > Global Configuration (config) > Subscriber Policy Configuration (config-subscriber-policy_name) > Subscriber Policy Precedence Configuration (config-subscriber-precedence)

Syntax Description `serving-plmn [mcc mobile_country_code | mnc mobile_network_code | mnc-list mnc_list]`

mcc mobile_country_code

Specify the Mobile Country Code (MCC) portion of the PLMN ID.

Must be a string in the three-digit pattern. For information on the three-digit pattern, see the Input Pattern Types section.

mnc-list mnc_list

Specify the MNC list.

Must be a string in the two-or-three-digit pattern. For information on the two-or-three-digit pattern, see the Input Pattern Types section.

mnc mobile_network_code

Specify the Mobile Network Code (MNC) portion of the PLMN ID.

Must be a string in the two-or-three-digit pattern. For information on the two-or-three-digit pattern, see the Input Pattern Types section.

Usage Guidelines Use this command to configure serving PLMN parameters.

policy sx-path-failure-detection

Configures Sx Path Failure Detection Policy-specific configuration.

Command Modes	Exec > Global Configuration (config)
Syntax Description	<p>policy sx-path-failure-detection <i>policy_name</i></p> <p>sx-path-failure-detection <i>policy_name</i></p> <p>Specify name of the Sx Path Failure Detection policy.</p> <p>Must be a string.</p>
Usage Guidelines	Use this command to configure Sx Path Failure Detection Policy-specific configuration.

policy sx-path-failure-detection ignore

Configures to ignore heartbeat-retry-failure or the heartbeat-recovery-timestamp-change configuration.

Command Modes	Exec > Global Configuration (config) > Sx Path Failure Detection Policy Configuration (config-sx-path-failure-detection- <i>policy_name</i>)
Syntax Description	<p>ignore <i>ignore_type</i></p> <p>ignore <i>ignore_type</i></p> <p>Specify to ignore heartbeat-retry-failure or the heartbeat-recovery-timestamp-change configuration.</p> <p>Must be one of the following:</p> <ul style="list-style-type: none"> • heartbeat-recovery-timestamp-change • heartbeat-retry-failure
Usage Guidelines	Use this command to configure ignoring the heartbeat-retry-failure or the heartbeat-recovery-timestamp-change configuration.

policy upf-selection

Configures UPF selection policy parameters.

Command Modes	Exec > Global Configuration (config)
Syntax Description	<p>policy upf-selection <i>policy_name</i></p> <p>upf-selection <i>policy_name</i></p> <p>Specify name of the UPF selection policy.</p> <p>Must be a string.</p>
Usage Guidelines	Use this command to configure UPF selection policy parameters.

policy upf-selection list-entry

Configures UPF selection match criteria definition.

Command Modes Exec > Global Configuration (config) > UPF Selection Policy Configuration (config-upf-selection-policy_name)

Syntax Description **precedence** *entry_precedence*

precedence *entry_precedence*

Specify the precedence for entry.

Must be an integer in the range of 1-4.

Usage Guidelines Use this command to configure UPF selection match criteria definition.

policy upf-selection list-entry query-params

Configures the query parameter for UPF selection.

Command Modes Exec > Global Configuration (config) > UPF Selection Policy Configuration (config-upf-selection-policy_name)
> UPF Selection Policy Precedence Configuration (config-upf-selection-precedence)

Syntax Description **query-params** *query_params*

query-params *query_params*

Specify the query parameters. If both pdn-type-subscription and pdn-type-session are configured, pdn-type-subscription will be considered.

Must be one of the following:

- **dcnr**
- **dnn**
- **location**
- **pdn-type-session**
- **pdn-type-subscription**
- **slice**

Usage Guidelines Use this command to configure the query parameter for UPF selection.

profile access

Configures the access profile.

Command Modes	Exec > Global Configuration (config)
Syntax Description	<p>profile access <i>access_profile_name</i></p> <p>access <i>access_profile_name</i></p> <p>Specify name of the access profile.</p> <p>Must be a string.</p>
Usage Guidelines	Use this command to configure the access profile.

profile access eps-fallback cbr

Configures Create Dedicated Bearer parameters.

Command Modes	Exec > Global Configuration (config) > Access Profile Configuration (config-access-profile_name)
Syntax Description	<p>eps-fallback cbr delay <i>delay_duration</i> max-retry <i>max_retry</i> timeout <i>timeout_interval</i></p> <p>delay <i>delay_duration</i></p> <p>Specify the Create Dedicated Bearer delay duration in milliseconds.</p> <p>Must be an integer in the range of 0-10000.</p> <p>Default Value: 0.</p> <p>max-retry <i>max_retry</i></p> <p>Specify the Create Dedicated Bearer maximum retry count.</p> <p>Must be an integer in the range of 0-10.</p> <p>Default Value: 0.</p> <p>timeout <i>timeout_interval</i></p> <p>Specify the Create Dedicated Bearer Retry interval in seconds.</p> <p>Must be an integer in the range of 1-3.</p> <p>Default Value: 1.</p>
Usage Guidelines	Use this command to configure Create Dedicated Bearer parameters.

profile access eps-fallback guard

Configures handling EPS fallback expiry.

Command Modes	Exec > Global Configuration (config) > Access Profile Configuration (config-access-profile_name)
Syntax Description	eps-fallback guard timeout <i>eps_fallback_timer</i>

timeout *eps_fallback_timer*

Specify the EPS fallback guard timer in milliseconds.

Must be an integer in the range of 500-15000.

Default Value: 10000.

Usage Guidelines Use this command to configure handling EPS fallback expiry.

profile access erir

Configures the ERIR parameters.

Command Modes Exec > Global Configuration (config) > Access Profile Configuration (config-access-profile_name)

Syntax Description **erir delay** *erir_delay*

delay *erir_delay*

Specify the ERIR delay duration for 4G/WIFI sessions in milliseconds.

Must be an integer in the range of 0-3000.

Default Value: 0.

Usage Guidelines Use this command to configure the ERIR parameters.

profile access gtpc

Configures the GTPC Failure Handling profile.

Command Modes Exec > Global Configuration (config) > Access Profile Configuration (config-access-profile_name)

Syntax Description **gtpc { class-map-cause-profile *profile_name* | gtpc-failure-profile *profile_name* }**

class-map-cause-profile *profile_name*

Specify name of the Class Map Cause profile.

Must be a string.

gtpc-failure-profile *profile_name*

Specify name of the GTPC Failure Handling profile.

Usage Guidelines Use this command to configure the GTPC Failure Handling profile.

profile access gtpc message-handling create-session-request ho-ind

Configures handling of Create Session Request received with HO Indicator.

Command Modes Exec > Global Configuration (config) > Access Profile Configuration (config-access-profile_name)

Syntax Description `gtpc message-handling create-session-request ho-ind [new-call-reject]`

create-session-request ho-ind new-call-reject

Specify to reject Create Session Request received with HO Indicator, if session is not present.

Usage Guidelines Use this command to configure handling of Create Session Request received with HO Indicator.

profile access gtpc message-handling create-session-response action

Configures action for GTPC message.

Command Modes Exec > Global Configuration (config) > Access Profile Configuration (config-access-profile_name)

Syntax Description `gtpc message-handling create-session-response action [apn-ambr]`

apn-ambr

Specify APN Aggregate Maximum Bit Rate (APN-AMBR).

Usage Guidelines Use this command to configure action for GTPC message.

profile access gtpc message-handling create-session-response condition

Configures IP Exhaust condition.

Command Modes Exec > Global Configuration (config) > Access Profile Configuration (config-access-profile_name)

Syntax Description `n1 message-handling pdu-establishment condition [ip-exhaust [action action [cause cause_in_response]]]`

action action

Specify the action.

Must be one of the following:

- **backoff**

cause *cause_in_response*

Specify the cause in response. Check the specification for the integer value.

Must be an integer in the range of 0-255.

Default Value: 0.

ip-exhaust

Specify the IP exhaust condition.

Usage Guidelines Use this command to configure IP Exhaust condition.

profile access n1 message-handling pdu-establishment condition

Configures IP Exhaust condition.

Command Modes Exec > Global Configuration (config) > Access Profile Configuration (config-access-profile_name)

Syntax Description `gtpc message-handling create-session-response condition [ip-exhaust [action action [cause cause_in_response]]]`

action *action*

Specify the action.

Must be one of the following:

- **backoff**

cause *cause_in_response*

Specify the cause in response. Check the specification for the integer value.

Must be an integer in the range of 0-40.

Default Value: 0.

ip-exhaust

Specify the IP exhaust condition.

Usage Guidelines Use this command to configure IP Exhaust condition.

profile access n1 message-handling pdu-release condition

Configures N4 Path Fail condition.

Command Modes	Exec > Global Configuration (config) > Access Profile Configuration (config-access- <i>profile_name</i>)
Syntax Description	<pre>n1 message-handling pdu-release condition [n4-pathfail [action <i>action</i> [cause <i>cause_in_response</i>]]]</pre> <p>action <i>action</i> Specify the action. Must be one of the following:</p> <ul style="list-style-type: none"> • backoff <p>cause <i>cause_in_response</i> Specify the cause in response. Check the specification for the integer value. Must be an integer in the range of 0-40.</p> <p>n4-pathfail Specify the N4 Path Fail condition.</p>
Usage Guidelines	Use this command to configure N4 Path Fail condition.

profile access n1 t3591-pdu-mod-cmd

Configures the N1 timer t3591 - PDU Session Modify Command Retransmission Timer.

Command Modes	Exec > Global Configuration (config) > Access Profile Configuration (config-access- <i>profile_name</i>)
Syntax Description	<pre>n1 t3591-pdu-mod-cmd timeout <i>timeout_period</i> max-retry <i>max_retries</i></pre> <p>max-retry <i>max_retries</i> Specify the PDU Modify Command maximum retry count. Must be an integer in the range of 0-10. Default Value: 2.</p> <p>timeout <i>timeout_period</i> Specify the PDU Modify Command timer in seconds. Must be an integer in the range of 1-16. Default Value: 2.</p>

Usage Guidelines	Use this command to configure the n1 timer t3591 - PDU Session Modify Command Retransmission Timer.
-------------------------	---

profile access n1 t3592-pdu-rel-cmd

Configures the N1 timer t3592 - PDU Sess Rel Command retransmission timer for cause 39 - retransmission required.

Command Modes Exec > Global Configuration (config) > Access Profile Configuration (config-access-profile_name)

Syntax Description **n1 t3592-pdu-rel-cmd timeout** *timeout* **max-retry** *max_retry*

max-retry *max_retry*

Specify the PDU Release Command Max Retry Count.

Must be an integer in the range of 0-10.

Default Value: 4.

timeout *timeout*

Specify the PDU Release Command timer in seconds for cause 39.

Must be an integer in the range of 1-16.

Default Value: 4.

Usage Guidelines Use this command to configure the n1 timer t3592 - PDU Sess Rel Command retransmission timer for cause 39 - retransmission required.

profile access n11

Configures the N11 interface.

Command Modes Exec > Global Configuration (config) > Access Profile Configuration (config-access-profile_name)

Syntax Description **n11 n11-failure-profile** *n11_failure_profile* [**class-map-cause-profile** *class_map_cause_profile*]

class-map-cause-profile *class_map_cause_profile*

Specify the class map cause profile.

Must be a string.

n11-failure-profile *n11_failure_profile*

Specify the N11 failure profile.

Usage Guidelines Use this command to configure the N11 interface.

profile access n2 idft

Configures N2 or N26 Indirect Data Forwarding Tunnel (IDFT) support.

Command Modes Exec > Global Configuration (config) > Access Profile Configuration (config-access-*profile_name*)

Syntax Description `n2 idft enable timeout idft_timeout`

Syntax Description `n26 idft enable timeout idft_timeout`

enable

Specify to enable IDFT support.

timeout idft_timeout

Specify the IDFT timeout period in seconds.

Must be an integer in the range of 15-60.

Usage Guidelines Use this command to configure N2 or N26 IDFT support.

profile access n26 idft

Configures N2 or N26 Indirect Data Forwarding Tunnel (IDFT) support.

Command Modes Exec > Global Configuration (config) > Access Profile Configuration (config-access-*profile_name*)

Syntax Description `n2 idft enable timeout idft_timeout`

Syntax Description `n26 idft enable timeout idft_timeout`

enable

Specify to enable IDFT support.

timeout idft_timeout

Specify the IDFT timeout period in seconds.

Must be an integer in the range of 15-60.

Usage Guidelines Use this command to configure N2 or N26 IDFT support.

profile charging

Configures the charging profile.

Command Modes Exec > Global Configuration (config)

Syntax Description

```

profile charging profile_name [ max-charging-condition max_changes |
max-deferred-urr max_deferred_urr | max-secondary-rat-reports
max_secondary_rat_reports | metering-method metering_method | method charging_method
| offline-interim-timer timer_duration | ooo-retry-interval
ooo_report_retry_interval | query-all-urr { false | true } |
tight-interworking-mode { false | true } ]

```

charging *profile_name*

Specify the charging profile configuration.

Must be a string.

max-charging-condition *max_changes*

Specify the maximum number of charging condition changes.

Must be an integer in the range of 0-500.

Default Value: 20.

max-deferred-urr *max_deferred_urr*

Specify the maximum number of deferred USU containers.

Must be an integer in the range of 1-200.

Default Value: 50.

max-secondary-rat-reports *max_secondary_rat_reports*

Specify the maximum number of secondaryRatDataUsageReports to trigger CHF update.

Must be an integer in the range of 0-50.

Default Value: 0.

metering-method *metering_method*

Specify the parameters to be metered.

Must be one of the following:

- **duration-volume**
- **duration**
- **volume**

Default Value: duration-volume.

method *charging_method*

Specify the charging method. Default Value: offline.

Must be one of the following:

- **none**

- **offline**
- **online**

offline-interim-timer *timer_duration*

Specify the offline interim timer duration in seconds.

Must be an integer.

Default Value: 60.

ooo-retry-interval *ooo_report_retry_interval*

Specify the interval, in milliseconds, at which OOO report will be retried.

Must be an integer in the range of 5-5000.

You can configure a maximum of five elements with this keyword.

query-all-urr { false | true }

Specify to enable or disable query all URRs.

Must be one of the following:

- **false**
- **true**

Default Value: true.

tight-interworking-mode { false | true }

Specify to enable or disable tight interworking mode for online/offline charging methods.

Must be one of the following:

- **false**
- **true**

Default Value: false.

Usage Guidelines Use this command to configure the charging profile.

profile charging accounting limit

Configures the duration threshold for accounting.

Command Modes Exec > Global Configuration (config) > Charging Profile Configuration (config-charging-*profile_name*)

Syntax Description **accounting limit duration** *threshold*

duration *threshold*

Specify the duration threshold for accounting.

Must be an integer in the range of 0-2147483647.

Usage Guidelines

Use this command to configure the duration threshold for accounting.

profile charging accounting limit volume

Configures the volume threshold for accounting.

Command Modes

Exec > Global Configuration (config) > Charging Profile Configuration (config-charging-*profile_name*)

Syntax Description

```
accounting limit volume { downlink downlink_volume_limit | total total_volume_limit
| uplink uplink_volume_limit }
```

downlink *downlink_volume_limit*

Specify the downlink volume limit in bytes for interim generation.

Must be an integer in the range of 100000-4000000000.

total *total_volume_limit*

Specify the total volume limit in bytes for interim generation.

Must be an integer in the range of 100000-4000000000.

uplink *uplink_volume_limit*

Specify the uplink volume limit in bytes for interim generation.

Must be an integer in the range of 100000-4000000000.

Usage Guidelines

Use this command to configure the volume threshold for accounting.

profile charging limit

Configures the duration and volume thresholds.

Command Modes

Exec > Global Configuration (config) > Charging Profile Configuration (config-charging-*profile_name*)

Syntax Description

```
limit { duration duration_threshold | volume volume_threshold }
```

duration *duration_threshold*

Specify the duration threshold for charging.

Must be an integer in the range of 60-40000000.

volume *volume_threshold*

Specify the volume threshold for charging.

Must be an integer in the range of 10000-4000000000.

Usage Guidelines

Use this command to configure the duration and volume thresholds.

profile charging limit rating-group

Configures the rating group volume and duration thresholds.

Command Modes

Exec > Global Configuration (config) > Charging Profile Configuration (config-charging-profile_name)

Syntax Description

limit rating-group { **duration** *duration_threshold* | **volume** *volume_threshold* }

duration *duration_threshold*

Specify the duration threshold for charging.

Must be an integer in the range of 60-40000000.

volume *volume_threshold*

Specify the volume threshold for charging.

Must be an integer in the range of 10000-4000000000.

Usage Guidelines

Use this command to configure the rating group duration and volume thresholds.

profile charging offline zero-usage

Configures offline charging zero-usage parameters.

Command Modes

Exec > Global Configuration (config) > Charging Profile Configuration (config-charging-profile_name)

Syntax Description

offline zero-usage [**drop** *suppress_for_zero_usage* | **measurement** *parameters_to_suppress* | **trigger** *triggers_to_suppress*]

drop *suppress_for_zero_usage*

Specify the parameters to suppress for zero usage.

Must be one of the following:

- **cdr**
- **uuc**

measurement *parameters_to_suppress*

Specify the parameters to be suppressed.

Must be one of the following:

- **duration**
- **volume**

trigger *triggers_to_suppress*

Specify the list of triggers to be suppressed.

Must be one of the following:

- **external**
- **final**
- **internal**

Usage Guidelines Use this command to configure offline charging zero-usage parameters.

profile charging quota

Configures the charging quota parameters.

Command Modes Exec > Global Configuration (config) > Charging Profile Configuration (config-charging-*profile_name*)

Syntax Description **quota request** *request_quota*

request *request_quota*

Specify the request quota from CHF.

Must be one of the following:

- **always**
- **standard**

Default Value: standard.

Usage Guidelines Use this command to configure the charging quota parameters.

profile charging quota suppress

Configures the list of triggers to be suppressed.

Command Modes Exec > Global Configuration (config) > Charging Profile Configuration (config-charging-*profile_name*)

Syntax Description **quota suppress triggers** *triggers_to_suppress*

triggers *triggers_to_suppress*

Specify the list of triggers to be suppressed.

Must be one of the following:

- **qht**

Usage Guidelines Use this command to configure the list of triggers to be suppressed.

profile charging reporting-level

Configures the usage reporting level to be used if not sent by the PCF.

Command Modes Exec > Global Configuration (config) > Charging Profile Configuration (config-charging-profile_name)

Syntax Description **reporting-level** { **offline** *reporting_level* | **online** *reporting_level* }

offline *reporting_level*

Specify the reporting level configuration for offline.

Must be one of the following:

- **rating-group**
- **service-id**

Default Value: rating-group.

online *reporting_level*

Specify the reporting level configuration for online.

Must be one of the following:

- **rating-group**
- **service-id**

Default Value: rating-group.

Usage Guidelines Use this command to configure the usage reporting level to be used if not sent by the PCF.

profile charging requested-service-unit

Configures the Requested Service Unit time parameter.

Command Modes Exec > Global Configuration (config) > Charging Profile Configuration (config-charging-profile_name)

Syntax Description **requested-service-unit time** *rsu_time*

time *rsu_time*

Specify the Requested Service Unit time value in seconds.

Must be an integer in the range of 1-4000000000.

Usage Guidelines

Use this command to configure the Requested Service Unit time parameter.

profile charging requested-service-unit volume

Configures the Requested Service Unit Volume parameters.

Command Modes

Exec > Global Configuration (config) > Charging Profile Configuration (config-charging-profile_name)

Syntax Description

```
requested-service-unit volume { uplink uplink_volume | downlink downlink_volume  
| total total_volume }
```

downlink *downlink_volume*

Specify the downlink volume in bytes.

Must be an integer in the range of 1-4000000000.

total *total_volume*

Specify the total volume in bytes.

Must be an integer in the range of 1-4000000000.

uplink *uplink_volume*

Specify the uplink volume in bytes.

Must be an integer in the range of 1-4000000000.

Usage Guidelines

Use this command to configure the Requested Service Unit Volume parameters.

profile charging tariff-time-change

Configures timestamps for tariff-time change.

Command Modes

Exec > Global Configuration (config) > Charging Profile Configuration (config-charging-profile_name)

Syntax Description

```
tariff-time-change { hour hour | minute minute }
```

hour *hour*

Specify the hour timestamp for tariff-time change.

Must be an integer in the range of 0-23.

minute *minute*

Specify the minute timestamp for tariff-time change.

Must be an integer in the range of 0-59.

Usage Guidelines

Use this command to configure timestamps for tariff-time change.

profile charging triggers

Configures the list of triggers.

Command Modes

Exec > Global Configuration (config) > Charging Profile Configuration (config-charging-profile_name)

Syntax Description

triggers **session** *triggers*

session *triggers*

Specify the list of session-level triggers.

Must be one of the following:

- **3gpp-ps-change**
- **ambr-change**
- **max-number-of-changes-in-charging-conditions**
- **plmn-change**
- **qos-change**
- **rat-change**
- **serv-node-change**
- **tarrif-time-change**
- **ue-pra-change**
- **ue-time-change**
- **upf-add**
- **upf-rem**
- **user-loc-change**

Usage Guidelines

Use this command to configure the list of triggers.

profile charging-characteristics

Configures the charging characteristics profile.

Command Modes	Exec > Global Configuration (config)
Syntax Description	<p>profile charging-characteristics <i>cc_profile_name</i> [charging-profile <i>charging_profile_name</i>]</p> <p>charging-characteristics <i>cc_profile_name</i></p> <p>Specify name of the charging characteristics profile. For example, 1, 2, 3, 12, 14, till 16. Must be a string of 1-2 characters in the pattern '[0-9]*'.</p> <p>charging-profile <i>charging_profile_name</i></p> <p>Specify name of the charging profile. Must be a string.</p>
Usage Guidelines	Use this command to configure the charging characteristics profile.

profile charging-characteristics network-element-profile-list

Configures the network elements profile list.

Command Modes	Exec > Global Configuration (config) > Charging Characteristics Profile Configuration (config-charging-characteristics-profile_name)
Syntax Description	<p>network-element-profile-list chf <i>charging_server</i></p> <p>chf <i>charging_server</i></p> <p>Specify the list of charging servers. Must be a string.</p>
Usage Guidelines	Use this command to configure the network elements profile list.

profile compliance

Configures 3GPP compliance configuration.

Command Modes	Exec > Global Configuration (config)
Syntax Description	<p>compliance <i>profile_name</i></p> <p>compliance <i>profile_name</i></p> <p>Specify name of the compliance profile. Must be a string.</p>
Usage Guidelines	Use this command to configure the 3GPP compliance configuration.

profile compliance service

Configures the SMF service names.

Command Modes Exec> Global Configuration (config)> Compliance Profile Configuration (config-compliance-*profile_name*)

Syntax Description **service** *service_name*

service_name

Specify the service names.

Must be one of the following:

- **n1**
- **n2**
- **namf-comm**
- **nchf-convergedcharging**
- **nnrf-disc**
- **nnrf-nfm**
- **npcf-smpolicycontrol**
- **nsmf-pdusession**
- **nudm-sdm**
- **nudm-uecm**
- **threagpp23502**

Usage Guidelines Use this command to configure the SMF service names. The service names are specified in 3GPPTS 29.510 V15.2.0, Section 6.1.6.3.11.

profile compliance service n1-version

Configures the 3GPP N1 specification version number.

Command Modes Exec> Global Configuration (config)> Compliance Profile Configuration (config-compliance-*profile_name*)

Syntax Description **service n1 version** { **full** *full_version* | **spec** *3gpp_spec_version* | **uri** *version_uri* }

full full_version

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*.

Must be a string in the pattern '\d+.\d+.\d+^(.alpha-\d+)?'.

spec 3gpp_spec_version

Specify the 3GPP N1 specification version number.

Must be one of the following:

- 15.2.0
- 15.4.0

Default Value: 15.2.0.

uri version_uri

Specify the version URI.

Must be a string in the pattern 'v\d'.

Usage Guidelines

Use this command to configure the 3GPP N1 specification version number.

profile compliance service n2-version

Configures the 3GPP n2 service specification version number.

Command Modes

Exec > Global Configuration (config) > Compliance Profile Configuration (config-compliance-profile_name)

Syntax Description

```
service n2-version { full full_version | spec 3gpp_spec_version | uri version_uri }
```

full full_version

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*.

Must be a string in the pattern '\d+.\d+.\d+^(.alpha-\d+)?'.

spec 3gpp_spec_version

Specify the 3GPP n2 service specification version number.

Must be one of the following:

- 15.0.0
- 15.2.0
- 15.4.0

Default Value: 15.0.0.

uri version_uri

Specify the version URI.

Must be a string in the pattern 'v\d'.

Usage Guidelines

Use this command to configure the 3GPP n2 service specification version number.

profile compliance service namf-version

Configures the 3GPP namf-comm specification version number.

Command Modes Exec> Global Configuration (config)> Compliance Profile Configuration (config-compliance-profile_name)

Syntax Description **service namf-comm version** { **full** *full_version* | **spec** *3gpp_spec_version* | **uri** *version_uri* }

full *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*.

Must be a string in the pattern '\d+.\d+.\d+^?(.alpha-\d+)?'.

spec *3gpp_spec_version*

Specify the 3GPP namf-comm specification version number.

Must be one of the following:

- 15.0.0
- 15.2.0
- 15.4.0

Default Value: 15.0.0.

uri *version_uri*

Specify the version URI.

Must be a string in the pattern '\d'.

Usage Guidelines Use this command to configure the 3GPP namf-comm specification version number.

profile compliance service nchf-version

Configures the 3GPP nchf-convergedcharging service specification version number.

Command Modes Exec> Global Configuration (config)> Compliance Profile Configuration (config-compliance-profile_name)

Syntax Description **service nchf-convergedcharging version** { **full** *full_version* | **spec** *3gpp_spec_version* | **uri** *version_uri* }

full *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*.

Must be a string in the pattern '\d+.\d+.\d+^?(.alpha-\d+)?'.

spec 3gpp_spec_version

Specify the 3GPP nchf-convergedcharging service specification version number.

Must be one of the following:

- 15.0.0
- 15.1.0
- 15.2.1
- 15.3.0.std
- 15.3.0

Default Value: 15.0.0.

uri version_uri

Specify the version URI.

Must be a string in the pattern '\d'.

Usage Guidelines

Use this command to configure the 3GPP nchf-convergedcharging service specification version number.

profile compliance service nrf-disc-version

Configures the 3GPP nrf-disc service specification version number.

Command Modes

Exec > Global Configuration (config) > Compliance Profile Configuration (config-compliance-profile_name)

Syntax Description

service nrf-disc version { **full** *full_version* | **spec** *3gpp_spec_version* | **uri** *version_uri* }

full full_version

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*.

Must be a string in the pattern '\d+.\d+.\d+^?(.alpha-\d+)?'.

spec 3gpp_spec_version

Specify the 3GPP nrf-disc service specification version number.

Must be one of the following:

- 15.0.0
- 15.2.0
- 15.4.0

Default Value: 15.2.0.

uri *version_uri*

Specify the version URI.

Must be a string in the pattern '\d'.

Usage Guidelines Use this command to configure the 3GPP nrf-disc service specification version number.

profile compliance service nrf-nfm-version

Configures the 3GPP nrf-nfm service specification version number.

Command Modes Exec > Global Configuration (config) > Compliance Profile Configuration (config-compliance-*profile_name*)

Syntax Description **service nrf-nfm version** { **full** *full_version* | **spec** *3gpp_spec_version* | **uri** *version_uri* }

full *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*.

Must be a string in the pattern '\d+.\d+.\d+^(.alpha-\d+)?'.

spec *3gpp_spec_version*

Specify the 3GPP nrf-nfm service specification version number.

Must be one of the following:

- 15.0.0
- 15.2.0
- 15.4.0

Default Value: 15.2.0.

uri *version_uri*

Specify the version URI.

Must be a string in the pattern '\d'.

Usage Guidelines Use this command to configure the 3GPP nrf-nfm service specification version number.

profile compliance service npcf-version

Configures the 3GPP npcf-smpolicycontrol service specification version number.

Command Modes Exec > Global Configuration (config) > Compliance Profile Configuration (config-compliance-*profile_name*)

Syntax Description **version npcf-smpolicycontrol version** { **full** *full_version* | **spec** *3gpp_spec_version* | **uri** *version_uri* }

full *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*.

Must be a string in the pattern '\d+.\d+.\d+^(.alpha-\d+)?'.

spec *3gpp_spec_version*

Specify the 3GPP npcf-smpolicycontrol service specification version number.

Must be one of the following:

- 15.0.0
- 15.2.0
- 15.4.0

Default Value: 15.2.0.

uri *version_uri*

Specify the version URI.

Must be a string in the pattern '\d'.

Usage Guidelines

Use this command to configure the 3GPP npcf-smpolicycontrol service specification version number.

profile compliance service nsmf-version

Configures the 3GPP nsmf-pdusession specification version number.

Command Modes

Exec > Global Configuration (config) > Compliance Profile Configuration (config-compliance-profile_name)

Syntax Description

```
service nsmf-version { full full_version | spec 3gpp_spec_version | uri version_uri }
```

full *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*.

Must be a string in the pattern '\d+.\d+.\d+^(.alpha-\d+)?'.

spec *3gpp_spec_version*

Specify the 3GPP nsmf-pdusession specification version number.

Must be one of the following:

- 15.0.0
- 15.2.0
- 15.4.0

Default Value: 15.0.0.

uri *version_uri*

Specify the version URI.

Must be a string in the pattern '\d'.

Usage Guidelines Use this command to configure the 3GPP nsmf-pdusession specification version number.

profile compliance service nudm-sdm-version

Configures the 3GPP nudm-sdm service specification version number.

Command Modes Exec > Global Configuration (config) > Compliance Profile Configuration (config-compliance-*profile_name*)

Syntax Description **service nudm-sdm version** { **full** *full_version* | **spec** *3gpp_spec_version* | **uri** *version_uri* }

full *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*.

Must be a string in the pattern '\d+\.\d+\.\d+^?(alpha-\d+)?'.

spec *3gpp_spec_version*

Specify the 3GPP nudm-sdm service specification version number.

Must be one of the following:

- 15.1.0
- 15.2.1
- 15.4.0

Default Value: 15.2.1.

uri *version_uri*

Specify the version URI.

Must be a string in the pattern '\d'.

Usage Guidelines Use this command to configure the 3GPP nudm-sdm service specification version number.

profile compliance service nudm-uecm-version

Configures the 3GPP nudm-uecm service specification version number.

Command Modes Exec > Global Configuration (config) > Compliance Profile Configuration (config-compliance-*profile_name*)

Syntax Description **service nudm-uecm version** { **full** *full_version* | **spec** *3gpp_spec_version* | **uri** *version_uri* }

full *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*.

Must be a string in the pattern '\d+.\d+.\d+^?(.alpha-\d+)?'.

spec *3gpp_spec_version*

Specify the 3GPP nudm-uecm service specification version number.

Must be one of the following:

- 15.1.0
- 15.2.1
- 15.4.0

Default Value: 15.2.1.

uri *version_uri*

Specify the version URI.

Must be a string in the pattern '\d'.

Usage Guidelines

Use this command to configure the 3GPP nudm-uecm service specification version number.

profile compliance service threegpp23502-version

Configures the 3GPP 23.502 Stage-2 5GS specification version number.

Command Modes

Exec > Global Configuration (config) > Compliance Profile Configuration (config-compliance-profile_name)

Syntax Description

```
service threegpp23502 version { full full_version | spec 3gpp_spec_version | uri version_uri }
```

full *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*.

Must be a string in the pattern '\d+.\d+.\d+^?(.alpha-\d+)?'.

spec *3gpp_spec_version*

Specify the 3GPP 23.502 Stage-2 5GS specification version number.

Must be one of the following:

- 15.4.0
- 15.6.0

Default Value: 15.4.0.

uri *version_uri*

Specify the version URI.

Must be a string in the pattern '\d'.

Usage Guidelines Use this command to configure the 3GPP 23.502 Stage-2 5GS specification version number.

profile content-filtering category database

Configures the Content Filtering database parameter.

Command Modes Exec > Global Configuration (config)

Syntax Description `content-filtering category database max-versions max_versions`

max-versions *max_versions*

Specify the maximum number of Content-Filtering database versions.

Must be an integer in the range of 1-3.

Usage Guidelines Use this command to configure the Content Filtering database parameter.

profile content-filtering category database directory

Configures the Content Filtering database directory parameter.

Command Modes Exec > Global Configuration (config)

Syntax Description `content-filtering category database directory path cf_directory_path`

path *cf_directory_path*

Specify the Content-Filtering directory path.

Must be a string of 1-255 characters.

Usage Guidelines Use this command to configure the Content Filtering database directory parameter.

profile dnn

Configures DNN profile.

Command Modes Exec > Global Configuration (config)

Syntax Description `profile dnn dnn_profile_name [always-on { false | true } | charging-profile profile_name | dcnr { false | true } | dnn-selection-mode dnn_selection_mode | dnn_profile_name | emergency { false | true } | mode dnn_mode |`

```

only-nr-capable-ue { false | true } | pcc-ue-rule-precedence-mapping {
false | true } | pcscf-profile profile_name | ppd-profile profile_name |
presence-reporting { false | true } | qci-qos-profile qci_qos_profile |
qos-profile profile_name | upf-selection-policy upf_selection_policy |
userplane-inactivity-timer timeout_period | virtual-mac mac_address | wps-profile
profile_name ]

```

always-on { false | true }

Specify to enable or disable Always On PDU session.

Must be one of the following:

- false
- true

Default Value: false.

charging-characteristics-id *cc_id*

Specify the charging characteristics ID.

Must be an integer in the range of 1-16.

charging-profile *profile_name*

Specify name of the charging profile.

Must be a string.

charging-qbc-profile *profile_name*

Specify name of the charging QBC profile.

Must be a string.

dcnr { false | true }

Specify to enable or disable support for dual connectivity with new radio.

Must be one of the following:

- false
- true

Default Value: false.

dnn-selection-mode *dnn_selection_mode*

Specify the selection mode for subscription. The default mode is "verified".

Must be one of the following:

- network-provided
- ue-provided

- **verified**

dnn *dnn_profile_name*

Specify name of the DNN profile.

Must be a string.

emergency { false | true }

Specify whether the DNN is emergency DNN or not.

Must be one of the following:

- **false**
- **true**

Default Value: false.

mode *dnn_mode*

Specify the DNN mode of operation.

Must be one of the following:

- **offline**: Offline. DNN in offline mode, new sessions are rejected.

only-nr-capable-ue { false | true }

Specify whether to allow only 5G capable UE, and reject calls from non-5G capable UE.

Must be one of the following:

- **false**
- **true**

Default Value: false.

override *profiles*

Specify the list of profiles for local preference.

Must be one of the following:

- **charging-characteristics-id**
- **charging-profile**
- **charging-qbc-profile**

pcc-ue-rule-precedence-mapping { false | true }

Specify whether to map PCC rule precedence to SMF-assigned TFT and auth rule precedence values. If disabled, values sent by PCF are used.

Must be one of the following:

- **false**
- **true**

Default Value: true.

pcscf-profile *profile_name*

Specify the P-CSCF profile association.

Must be a string.

ppd-profile *profile_name*

Specify the Paging-Policy differentiation.

Must be a string.

presence-reporting { **false | **true** }**

Specify whether to enable or disable presence reporting for this DNN.

Must be one of the following:

- **false**
- **true**

Default Value: false.

qci-qos-profile *qci_qos_profile*

Specify the QCI QoS Profile configuration related to QCI to QoS mapping.

Must be a string.

qos-profile *qos_profile*

Specify the QoS Profile configuration.

Must be a string.

upf-selection-policy *upf_selection_policy*

Specify the UPF selection policy specific configuration.

Must be a string.

userplane-inactivity-timer *timeout_period*

Specify the user plane inactivity timer in seconds.

Must be an integer in the range of 0-86400.

Default Value: 0.

virtual-mac *mac_address*

Specify the remote virtual MAC address used to generate interface ID for UE.

Must be a string in the mac-address pattern. For information on the mac-address pattern, see the Input Pattern Types section.

wps-profile *profile_name*

Specify name of the Wireless Priority Service (WPS) profile.

Must be a string.

Usage Guidelines

Use this command to configure the DNN profile. The CLI prompt changes to the DNN Profile Configuration mode (config-dnn-<profile_name>).

profile dnn accounting

Configures accounting parameters.

Command Modes

Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-*profile_name*)

Syntax Description

accounting server-group *radius_server_group_name*

server-group *radius_server_group_name*

Specify name of the RADIUS server group.

Usage Guidelines

Use this command to configure the accounting parameters.

profile dnn authentication algorithm

Configures the authentication algorithm.

Command Modes

Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-*profile_name*)

Syntax Description

authentication algorithm { **chap** *chap_preference* | **convert-to-mschap** | **mschap** *mschap_preference* | **pap** *pap_preference* | **password-use-pco** }

chap *chap_preference*

Specify the Challenge Handshake Authentication Protocol (CHAP) and preference. Lower value means higher preference. To disable, set it to 0.

Must be an integer in the range of 0-3.

Default Value: 0.

convert-to-mschap

Specify conversion of CHAP to MSCHAP when CHAP response length is 49 bytes.

mschap *mschap_preference*

Specify the Microsoft Challenge Handshake Authentication Protocol (MS-CHAP) and preference. Lower value means higher preference. To disable, set it to 0.

Must be an integer in the range of 0-3.

Default Value: 0.

pap *pap_preference*

Specify the Password Authentication Protocol (PAP) and preference. Lower value means higher preference. To disable, set it to 0.

Must be an integer in the range of 0-3.

Default Value: 0.

password-use-pco

Specify to override password with PCO password.

Usage Guidelines

Use this command to configure the authentication algorithm.

profile dnn authentication secondary

Configures the secondary authentication method.

Command Modes

Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-profile_name)

Syntax Description

authentication secondary radius group *radius_server_group_name*

group *radius_server_group_name*

Specify name of the RADIUS server group.

radius

Specify to use RADIUS as secondary authentication method.

Usage Guidelines

Use this command to configure the secondary authentication method.

profile dnn authorization

Configures the authorization method.

Command Modes

Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-profile_name)

Syntax Description

authorization local [**rat-type** *rat_types*]

local

Specify to use local policy configuration.

rat-type *rat_types*

Specify the RAT types.

Must be one of the following:

- **eutra**
- **nr**
- **wlan**

Usage Guidelines Use this command to configure the authorization method.

profile dnn dnn

Configures a Virtual DNN profile under a DNN profile and NF user list.

Command Modes Exec > Global Configuration (config)

Syntax Description **dnn** *profile_name*

Usage Guidelines Use this command to configure a DNN profile that is used to map a UE-requested DNN to a Virtual DNN. The SMF sends "Mapped" DNNs for configured network functions and "UE-requested" DNNs for other network functions. The UE-requested DNN is always sent on the N1 interface.

profile dnn dnn nw-fu-conf

Configures network function parameters.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-profile_name)

Syntax Description **dnn** *dnn_name* **network-function-list** *nf_list*

dnn *dnn_name*

Specify name of the DNN.

Must be a string.

network-function-list *nf_list*

Specify the list of network functions that the selected DNN profile will be sent. The list of network functions supported are CHF, PCF, and UPF.

Must be a string.

Usage Guidelines Configures a Virtual DNN profile under a DNN profile and NF user list. Use this command to configure the network function parameters.

profile dnn dnn rmgr-conf

Configures the RMGR parameters.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-profile_name)

Syntax Description **dnn rmgr** *rmgr_nf*

rmgr rmgr_nf

Specify the RMGR Network Function.

Must be a string.

Usage Guidelines Use this command to configure the RMGR parameters.

profile dnn dns primary

Configures the primary DNS server details.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-profile_name)

Syntax Description **dns primary** { **ipv4** *ipv4_address* | **ipv6** *ipv6_address* }

ipv4 ipv4_address

Specify the primary DNS server's IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 ipv6_address

Specify the primary DNS server's IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

Usage Guidelines Use this command to configure the primary DNS server details.

profile dnn dns secondary

Configures the secondary DNS server details.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-profile_name)

Syntax Description `dns secondary { ipv4 ipv4_address | ipv6 ipv6_address }`

ipv4 ipv4_address

Specify the secondary DNS server's IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 ipv6_address

Specify the secondary DNS server's IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

Usage Guidelines Use this command to configure the secondary DNS server details.

profile dnn ims mark

Configures marking standard QCI value as IMS media.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-profile_name)

Syntax Description `ims mark qci qos_class_id`

qci qos_class_id

Specify the standard QoS Class Identifiers.

Must be an integer in the range of 1-9.

You can configure a maximum of four elements with this keyword.

Usage Guidelines Use this command to configure marking standard QCI value as IMS media.

profile dnn network-element-profiles

Configures network element profiles.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-profile_name)

Syntax Description `network-element-profiles { amf | chf | pcf | udm } profile_name`

amf profile_name

Specify name of the AMF network element profile. Changing the current profile name may impact existing calls. Requires DNN in offline mode.

Must be a string.

cht *profile_name*

Specify name of the CHF network element profile. Changing the current profile name may impact existing calls. Requires DNN in offline mode.

Must be a string.

pct *profile_name*

Specify name of the PCF network element profile. Changing the current profile name may impact existing calls. Requires DNN in offline mode.

Must be a string.

udm *profile_name*

Specify name of the UDM network element profile. Changing the current profile name may impact existing calls. Requires DNN in offline mode.

Must be a string.

Usage Guidelines

Use this command to configure network element profiles. Changing the current profile name may impact existing calls. Requires DNN in offline mode.

profile dnn nexthop-forwarding-address

Configures the Redirect Service/NextHop IP address.

Command Modes

Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-*profile_name*)

Syntax Description

nexthop-forwarding-address { **ipv4** *ipv4_address* | **ipv6** *ipv6_address* }

ipv4 *ipv4_address*

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 *ipv6_address*

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

Usage Guidelines

Use this command to configure the Redirect Service/NextHop IP address.

profile dnn nssai

Configures the default NSSAI configuration.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-profile_name)

Syntax Description **nssai** { [**sd** slice_differentiator] [**sst** slice_service_type] }

sd slice_differentiator

Specify the S-NSSAI Slice Differentiator (SD).

Must be a string in the hex-string6 pattern. For information on the hex-string6 pattern, see the Input Pattern Types section.

sst slice_service_type

Specify the S-NSSAI Slice/Service Type (SST).

Must be an integer in the range of 0-255.

Usage Guidelines Use this command to configure the default NSSAI configuration.

profile dnn outbound

Configures DNN host password for PPP session authentication.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-profile_name)

Syntax Description **outbound password** dnn_host_password

password dnn_host_password

Specify the DNN host password.

Must be a string.

Usage Guidelines Use this command to configure designating the DNN host password for PPP session authentication.

profile dnn primary-plmn

Configures the primary PLMN configuration.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-profile_name)

Syntax Description **primary-plmn** { [**mcc** mobile_country_code] [**mnc** mobile_network_code] }

mcc mobile_country_code

Specify the 3-digit Mobile Country Code.

mnc mobile_network_code

Specify the 2- or 3-digit Mobile Country Network.

Usage Guidelines Use this command to configure the primary PLMN configuration.

profile dnn session type

Configures the PDU session type.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-profile_name)

Syntax Description **session type** *default_session_type* [**allowed** *allowed_session_type*]

allowed *allowed_session_type*

Specify the SMF allowed session types. Up to two allowed session types can be configured in addition to the default session type. The same session type cannot be configured both as allowed and default.

Must be one of the following:

- **IPV4**
- **IPV4V6**
- **IPV6**

You can configure a maximum of two elements with this keyword.

type *default_session_type*

Specify the default session type.

Must be one of the following:

- **IPV4**
- **IPV4V6**
- **IPV6**

Usage Guidelines Use this command to configure the PDU session type.

profile dnn ssc-mode

Configures Session and Service Continuity (SSC) Mode parameters.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-profile_name)

Syntax Description **ssc-mode** *default_ssc_mode* [**allowed** *allowed_ssc_mode*]

allowed *allowed_ssc_mode*

Specify the allowed SSC Modes. Up to two allowed modes can be configured in addition to the default SSC mode. The same SSC mode cannot be configured both as allowed and default.

Must be one of the following:

- 1
- 2
- 3

You can configure a maximum of two elements with this keyword.

ssc-mode *default_ssc_mode*

Specify the default SSC mode.

Must be one of the following:

- 1
- 2
- 3

Usage Guidelines Use this command to configure SSC mode parameters.

profile dnn timeout

Configures session time-to-live (TTL) configuration.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-profile_name)

Syntax Description `timeout { [absolute max_duration] [backoff backoff_timer_duration] [cp-idle cp_idle_duration] [default-flow-only default_flow_only_duration] [jitter jitter_duration] [setup setup_duration] [up-idle up_idle_duration] }`

absolute *max_session_duration*

Specify the maximum duration of the session in seconds, before the system automatically terminates the session. Value 0 indicates the function is disabled.

Must be an integer in the range of 0-2147483647.

Default Value: 0.

backoff *backoff_timer_duration*

Specify the maximum duration in seconds for backoff timer during IP Exhaustion and N4 Path Failure cases.

Must be an integer in the range of 0-576000.

Default Value: 0.

cp-idle *cp_idle_duration*

Specify the maximum duration after a 5G session has moved to idle (controlplane) state, before the system automatically terminates it. Value 0 indicates the function is disabled.

Must be an integer in the range of 0-2147483647.

Default Value: 0.

default-flow-only *default_flow_only_duration*

Specify the maximum allowed duration for a PDU/PDN session to be in idle state, after which the system automatically terminates it. Value 0 indicates the function is disabled.

Must be an integer in the range of 0-604800000.

Default Value: 0.

jitter *jitter_value*

Specify the jitter value in seconds.

Must be an integer in the range of 0-1000.

Default Value: 0.

setup *max_setup_duration*

Specify the maximum setup time duration in milliseconds, after which the system automatically aborts the request.

Must be an integer in the range of 5000-60000.

Default Value: 10000.

up-idle *up_idle_duration*

Specify the maximum duration after a 5G session has moved to idle (userplane) state, before the system automatically terminates it. Value 0 indicates the function is disabled.

Must be an integer in the range of 0-2147483647.

Default Value: 0.

Usage Guidelines

Use this command to configure session time-to-live (TTL) configuration.

profile dnn upf

Configures the UPF APN profile.

Command Modes

Exec > Global Configuration (config) > DNN Profile Configuration (*config-dnn-profile_name*)

Syntax Description

upf **apn** *apn_name*

apn *apn_name*

Specify name of the APN.

Must be a string of 1-63 characters.

Usage Guidelines

Use this command to configure the UPF APN profile.

profile dns-proxy

Configures DNS proxy profile parameters.

Command Modes

Exec > Global Configuration (config)

Syntax Description

profile dns-proxy [**cache-ttl** *t1* | **query-type** *query_type* | **randomize-answers** | **round-robin-answers** | **timeout** *dns_timeout*]

cache-ttl *t1*

Specify the TTL value of DNS responses in cache, in seconds.

Must be an integer in the range of 60-86400.

query-type *query_type*

Specify the DNS query type.

Must be one of the following:

- **ipv4-ipv6**
- **ipv4**
- **ipv6**

Default Value: ipv4.

randomize-answers

Specify to enable randomizing address fetch.

round-robin-answers

Specify to enable round-robin address fetch.

timeout *dns_timeout*

Specify the DNS timeout.

Must be an integer.

Default Value: 500.

Usage Guidelines

Use this command to enable and configure DNS proxy parameters.

profile dns-proxy servers

Configures DNS server parameters.

Command Modes

Exec > Global Configuration (config) > DNS Proxy Configuration (config-dns-proxy)

Syntax Description

servers *dns_server_name* [**ip** *dns_server_ip_address* | **port** *dns_server_port_number* | **priority** *dns_server_priority* | **protocol** *dns_server_protocol*]

ip *dns_server_ip_address*

Specify the IP address of the DNS server.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

-Or-

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port *dns_server_port_number*

Specify the port number of the DNS server.

Must be an integer in the range of 1-65535.

priority *dns_server_priority*

Specify the priority for the DNS server.

Must be an integer in the range of 1-100.

protocol *dns_server_protocol*

Specify the protocol type for the DNS server.

Must be one of the following:

- tcp
- udp

Default Value: tcp.

servers *dns_server_name*

Specify the name of the DNS server.

Must be a string.

Usage Guidelines

Use this command to configure the DNS server parameters.

profile ecgi-group

Configures ECGI group profile parameters.

Command Modes

Exec > Global Configuration (config)

Syntax Description

profile ecgi-group *group_name*

ecgi-group *group_name*

Specify name of the ECGI group.

Must be a string.

Usage Guidelines Use this command to configure ECGI group profile parameters.

profile ecgi-group ecgis

Configures the list of MCC, MNC, TAC, and ECGI groups.

Command Modes Exec > Global Configuration (config) > ECGI Group Configuration (config-ecgi-group-*profile_name*)

Syntax Description **mcc** *mobile_country_code* **mnc** *mobile_network_code*

mcc *mobile_country_code*

Specify the Mobile Country Code (MCC).

Must be a string in the three-digit pattern. For information on the three-digit pattern, see the Input Pattern Types section.

mnc *mobile_network_code*

Specify the Mobile Network Code (MNC).

Must be a string in the two-or-three-digit pattern. For information on the two-or-three-digit pattern, see the Input Pattern Types section.

Usage Guidelines Use this command to configure the list of MCC, MNC, TAC, and ECGI groups.

You can configure a maximum of 16 elements with this command.

profile ecgi-group ecgis ecgi

Configures ECGI group parameters.

Command Modes Exec > Global Configuration (config) > ECGI Group Configuration (config-ecgi-group-*profile_name*) > ECGI Group MCC/MNC Configuration (config-ecgi-group-*mcc_mnc*)

Syntax Description **ecgi list** *ecgi_values*

list *ecgi_values*

Specify the list of ECGI values - 7 digit hex string Eutra Cell ID. For example, A12345f.

Must be a string in the hex-stringecgi pattern. For information on the hex-stringecgi pattern, see the Input Pattern Types section.

You can configure a maximum of 64 elements with this keyword.

Usage Guidelines Use this command to configure ECGI group parameters.

profile ecgi-group ecgis ecgi range

Configures ECGI range.

Command Modes Exec > Global Configuration (config) > ECGI Group Configuration (config-ecgi-group-profile_name) > ECGI Group MCC/MNC Configuration (config-ecgi-group-mcc_mnc)

Syntax Description **ecgi range start** *ecgi_range_start* **end** *ecgi_range_end*

end ecgi_range_end

Specify the ECGI range end value.

Must be a string in the hex-stringecgi pattern. For information on the hex-stringecgi pattern, see the Input Pattern Types section.

start ecgi_range_start

Specify the ECGI range start value.

Must be a string in the hex-stringecgi pattern. For information on the hex-stringecgi pattern, see the Input Pattern Types section.

Usage Guidelines Use this command to configure an ECGI range.

You can configure a maximum of 64 elements with this command.

profile emergency-profile

Configures emergency profile.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile emergency-profile** *emergency_profile_name* [**udm-profile** *udm_profile_name*]

emergency-profile emergency_profile_name

Specify name of the emergency profile.

Must be a string.

udm-profile udm_profile_name

Specify name of the UDM profile.

Must be a string.

Usage Guidelines Use this command to configure emergency profiles.

profile failure-handling

Configures the Failure Handling profile.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile failure-handling** *profile_name*

failure-handling *profile_name*

Specify name of the Failure Handling profile.

Must be a string.

Usage Guidelines Use this command to configure the Failure Handling profile.

profile failure-handling interface gtpc message

Configures GTPC failure-handling template message types.

Command Modes Exec > Global Configuration (config) > Failure Handling Profile Configuration (config-failure-handling-*profile_name*)

Syntax Description **interface gtpc message** *gtpc_message_type*

message *gtpc_message_type*

Specify the GTPC message type.

Must be one of the following:

- S5S8CreateBearerReq
- S5S8DeleteBearerReq
- S5S8UpdateBearerReq

Usage Guidelines Use this command to configure GTPC failure-handling template message types.

profile failure-handling interface gtpc message cause-code-type cause-code

Configures GTPC interface cause code types.

Command Modes Exec > Global Configuration (config) > Failure Handling Profile Configuration (config-failure-handling-*profile_name*) > GTPC Message Configuration (config-message-*gtpc_message_type*)

Syntax Description **cause-code** *gtpc_cause_code_type*

cause-code *gtpc_cause_code_type*

Specify the GTPC cause code type.

Must be one of the following:

- **temp-fail**

Usage Guidelines Use this command to configure GTPC interface cause code types.

profile failure-handling interface gtpc message cause-code-type cause-code action

Configures the action type for the cause.

Command Modes Exec > Global Configuration (config) > Failure Handling Profile Configuration (config-failure-handling-*profile_name*) > GTPC Message Configuration (config-message-*gtpc_message_type*) > Cause Code Configuration (config-cause-code-*cause_code*)

Syntax Description **action** *action_type* [**timeout** *retry_interval* | **max-retry** *max_retry*]

action *action_type*

Specify the action type for the cause.

Must be one of the following:

- **clear**
- **retry**
- **terminate**

max-retry *max_retry*

Specify the maximum retry count.

Must be an integer in the range of 0-5.

Default Value: 1.

timeout *retry_interval*

Specify the retry interval in milliseconds.

Must be an integer in the range of 1000-5000.

Default Value: 1000.

Usage Guidelines Use this command to configure the action type for the cause.

profile failure-handling interface n11

Configures the N11 interface - SMF/PGW-C timer for reattempting bearer creation/updation.

Command Modes Exec > Global Configuration (config) > Failure Handling Profile Configuration (config-failure-handling-*profile_name*)

Syntax Description **interface n11**

Usage Guidelines Use this command to configure the N11 interface - SMF/PGW-C timer for reattempting bearer creation/updation.

profile failure-handling interface n11 message

Configures N11 message types.

Command Modes Exec > Global Configuration (config) > Failure Handling Profile Configuration (config-failure-handling-*profile_name*) > N11 Interface Configuration (config-n11)

Syntax Description **message** *message_type*

message *message_type*

Specify the N11 message type.

Must be one of the following:

- **n1n2transfer**

Usage Guidelines Use this command to configure n11 message types.

profile failure-handling interface n11 message cause-code-value cause-code

Configures the N11 interface cause code types.

Command Modes Exec > Global Configuration (config) > Failure Handling Profile Configuration (config-failure-handling-*profile_name*) > N11 Interface Configuration (config-n11) > n1n2transfer Message Configuration (config-message-n1n2transfer)

Syntax Description **cause-code** *n11_cause_code_type*

cause-code *n11_cause_code_type*

Specify the N11 interface cause code type.

Must be one of the following:

- **temp-reject-handover**
- **temp-reject-register**

Usage Guidelines Use this command to configure the N11 interface cause code types.

profile failure-handling interface n11 message cause-code-value cause-code action

Configures the action type for the cause.

Command Modes Exec > Global Configuration (config) > Failure Handling Profile Configuration (config-failure-handling-profile_name) > N11 Interface Configuration (config-n11) > n1n2transfer Message Configuration (config-message-n1n2transfer) > Cause Code Configuration (config-cause-code-temp-cause_code)

Syntax Description **action** *action_type* [**timeout** *retry_interval* | **max-retry** *max_retry*]

action *action_type*

Specify the action type for the cause.

Must be one of the following:

- **clear**
- **retry**
- **terminate**

max-retry *max_retry*

Specify the maximum retry count.

Must be an integer in the range of 1-5.

Default Value: 1.

timeout *retry_interval*

Specify the retry interval in milliseconds.

Must be an integer in the range of 100-5000.

Default Value: 300.

Usage Guidelines Use this command to configure the action type for the cause.

profile failure-handling interface pfcf

Configures PFCF Failure Handling template.

Command Modes Exec > Global Configuration (config) > Failure Handling Profile Configuration (config-failure-handling-*profile_name*)

Syntax Description **interface pfcpc**

Usage Guidelines Use this command to configure PFCPC Failure Handling template.

profile failure-handling interface pfcpc message

Configures PFCPC message types.

Command Modes Exec > Global Configuration (config) > Failure Handling Profile Configuration (config-failure-handling-*profile_name*) > PFCPC Interface Configuration (config-pfcpc)

Syntax Description **message** *pfcpc_message_type*

message *pfcpc_message_type*

Specify the PFCPC message type.

Must be one of the following:

- **N4SessionEstablishmentReq**
- **N4SessionModificationReq**
- **N4SessionReportReq**

Usage Guidelines Use this command to configure PFCPC message types.

profile failure-handling interface pfcpc message cause-code-type-est cause-code

Configures PFCPC interface cause code types.

Command Modes Exec > Global Configuration (config) > Failure Handling Profile Configuration (config-failure-handling-*profile_name*) > PFCPC Interface Configuration (config-pfcpc) > PFCPC Message Configuration (config-message-*message_type*)

Syntax Description **cause-code** *cause_code_type*

cause-code *cause_code_type*

Specify the cause code type.

Must be a string.

-Or-

Must be one of the following:

- **no-resource-available**
- **no-response-received**
- **pfcpc-entity-in-congestion**
- **reject**
- **service-not-supported**
- **system-failure**

Usage Guidelines Use this command to configure PFCPC interface cause code types.

profile failure-handling interface pfcpc message cause-code-type-est cause-code action

Configures the action type for the cause.

Command Modes Exec > Global Configuration

Syntax Description **action** *action_type* [**timeout** *retry_interval* | **max-retry** *max_retry_count*]

action *action_type*

Specify the action type for the cause.

Must be one of the following:

- **retry-terminate**
- **terminate**

max-retry *max_retry_count*

Specify the maximum retry count for the retry-terminate action.

Must be an integer in the range of 0-5.

Default Value: 1.

Usage Guidelines Use this command to configure the action type for the cause.

profile failure-handling interface pfcpc message cause-code-type-mod cause-code

Configures PFCPC interface cause code types.

Command Modes Exec > Global Configuration (config) > Failure Handling Profile Configuration (config-failure-handling-profile_name) > PFCPC Interface Configuration (config-pfcpc) > PFCPC Message Configuration (config-message-message_type)

Syntax Description **cause-code-type-mod cause-code** pfcpc_cause_code_type

cause-code pfcpc_cause_code_type

Specify the PFCPC cause code type.

Must be a string.

-Or-

Must be one of the following:

- **mandatory-ie-incorrect**
- **no-resource-available**
- **no-response-received**
- **pfcpc-entity-in-congestion**
- **reject**
- **session-ctx-not-found**

Usage Guidelines Use this command to configure the PFCPC cause code type.

profile failure-handling interface pfcpc message cause-code-type-mod cause-code action

Configures the action type for the cause.

Command Modes Exec > Global Configuration

Syntax Description **action** action_type

action action_type

Specify the action type for the cause.

Must be one of the following:

- **terminate**

Usage Guidelines Use this command to configure the action type for the cause.

profile failure-handling interface pfcf message cause-code-type-sessreport cause-code

Configures the PFCF interface cause code types.

Command Modes Exec > Global Configuration

Syntax Description **cause-code-type-sessreport cause-code** *cause_id*

cause-code *cause_id*

Specify the cause ID or a range of cause IDs separated by either hyphen (-) or comma (,) or both.

Must be a string.

Usage Guidelines Use this command to configure the PFCF interface cause-code types.

profile failure-handling interface pfcf message cause-code-type-sessreport cause-code action

Configures the action type for the cause.

Command Modes Exec > Global Configuration

Syntax Description **action** *action_type*

action *action_type*

Specify the action type for the cause.

Must be one of the following:

- **ignore**
- **terminate**

Usage Guidelines Use this command to configure the action type for the cause.

profile failure-handling interface sxa message

Configures Sxa message types.

Command Modes Exec > Global Configuration

Syntax Description **sxa message** *sxa_message_type*

message *sxa_message_type*

Specify the Sxa message type.

Must be one of the following:

- **SessionEstablishmentReq**

Usage Guidelines Use this command to configure Sxa message types.

profile failure-handling interface sxa message cause-code-type-est cause-code

Configures Sxa interface cause code types.

Command Modes Exec > Global Configuration

Syntax Description **cause-code** *sxa_cause_code_type*

cause-code *sxa_cause_code_type*

Specify the Sxa interface cause code type, or range of cause codes separated by either hyphen (-) or comma (,) or both.

Must be a string.

-Or-

Must be one of the following:

- **no-resource-available**
- **no-response-received**
- **pfc-p-entity-in-congestion**
- **reject**
- **service-not-supported**
- **system-failure**

Usage Guidelines Use this command to configure Sxa interface cause code types.

profile failure-handling interface sxa message cause-code-type-est cause-code action

Configures the action type for the cause.

Command Modes Exec > Global Configuration

Syntax Description `action` *action_type* [`timeout` *retry_interval* | `max-retry` *max_retry_count*]

action *action_type*

Specify the action type for the cause.

Must be one of the following:

- **retry-terminate**
- **terminate**

max-retry *max_retry_count*

Specify the maximum retry count for the retry-terminate action.

Must be an integer in the range of 0-5.

Default Value: 1.

Usage Guidelines Use this command to configure the action type for the cause.

profile icmpv6

Configures ICMPv6 profile parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `profile icmpv6` *profile_name*

icmpv6 *profile_name*

Specify name of the ICMPv6 profile.

Must be a string.

Usage Guidelines Use this command to configure the ICMPv6 profile parameters.

profile icmpv6 options

Configures ICMPv6 configuration parameters.

Command Modes Exec > Global Configuration (config) > ICMPv6 Profile Configuration (config-icmpv6-*profile_name*)

Syntax Description `options` { [`hop-limit` *hop_limit*] [`mtu` *mtu_size*] [`reachable-time` *reachable_period*] [`retrans-timer` *retransmission_period*] [`router-lifetime` *lifetime_period*] [`virtual-mac` *mac_address*] }

hop-limit *hop_limit*

Specify the hop limit.

Must be an integer in the range of 0-255.

Default Value: 255.

mtu *mtu_size*

Specify the Maximum Transmission Unit (MTU) size.

Must be an integer.

Default Value: 1500.

reachable-time *reachable_period*

Specify the reachable time in milliseconds.

Must be an integer.

Default Value: 0.

retrans-timer *retransmission_period*

Specify the retransmission time in milliseconds.

Must be an integer.

Default Value: 0.

router-lifetime *lifetime_period*

Specify the router lifetime in seconds.

Must be an integer in the range of 0-65535.

Default Value: 65535.

virtual-mac *mac_address*

Specify the local virtual MAC address.

Must be a string in the mac-address pattern. For information on the mac-address pattern, see the Input Pattern Types section.

Usage Guidelines

Use this command to configure the ICMPv6 configuration parameters.

profile icmpv6 ra trigger

Configures trigger to send router advertisements.

Command Modes

Exec > Global Configuration (config) > ICMPv6 Profile Configuration (config-icmpv6-*profile_name*)

Syntax Description

ra trigger handover { false | true }

handover { false | true }

Specify whether to disable or enable handovers of Wi-Fi.

Must be one of the following:

- **false**
- **true**

Default Value: false.

Usage Guidelines Use this command to configure trigger to send router advertisements.

profile load

Configures the load profile for load calculation and publishing.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile load** *load_profile_name* [**load-calc-frequency** *load_calc_frequency*] [**load-fetch-frequency** *load_fetch_frequency*]

load-calc-frequency *load_calc_frequency*

Specify the system load calculation interval in seconds.

Must be an integer in the range of 5-3600.

Default Value: 10.

load-fetch-frequency *load_fetch_frequency*

Specify the time interval at which Service pod fetches load from Cache pod in seconds.

Must be an integer in the range of 5-3600.

Default Value: 10.

load *load_profile_name*

Specify name of the load profile.

Must be a string.

Usage Guidelines Use this command to configure the load profile for load calculation and publishing.

You can configure a maximum of one element with this command.

profile load advertise

Configures the advertising action.

Command Modes Exec > Global Configuration (config) > Load Profile Configuration (config-load-*profile_name*)

Syntax Description **advertise** [**change-factor** *change_factor*] [**interval** *interval*]

change-factor *change_factor*

Specify the minimum change between current LCI and last indicated LCI, after which only advertising should happen.

Must be an integer in the range of 1-20.

Default Value: 5.

interval *interval*

Specify the periodicity of sending LCI to the peers in seconds.

Must be an integer in the range of 0-3600.

Default Value: 300.

Usage Guidelines Use this command to configure the advertising action.

profile load interface

Configures the list of interfaces.

Command Modes Exec > Global Configuration (config) > Load Profile Configuration (config-load-*profile_name*)

Syntax Description **interface** *interface_type* [**action** *action_on_interface*]

action *action_on_interface*

Specify the action on the interface.

Must be one of the following:

- **advertise**

interface *interface_type*

Specify the interface type.

Must be one of the following:

- **gtpc**

Usage Guidelines Use this command to configure the list of interfaces.

profile location-area-group

Configures the Location Area Group profile parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile location-area-group** *profile_name* [**ecgi-group** *ecgi_group_name*] [**ncgi-group** *ncgi_group_name*] [**tai-group** *tai_group_name*]

ecgi-group *ecgi_group_name*

Specify name of the ECGI group.

Must be a string.

location-area-group *profile_name*

Specify name of the Location Area Group profile.

Must be a string.

ncgi-group *ncgi_group_name*

Specify name of the NCGI group.

Must be a string.

tai-group *tai_group_name*

Specify name of the TAI group.

Must be a string.

Usage Guidelines Use this command to configure the Location Area Group profile parameters.

profile n3-tunnel

Configures N3 tunnelling information profile configuration.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile n3-tunnel** *profile_name* [**notify**]

n3-tunnel *profile_name*

Specify name of the N3 tunnelling profile.

Must be a string.

notify

Specify to enable downlink data notification.

Usage Guidelines Use this command to configure N3 tunnelling information profile configuration.

profile n3-tunnel buffer

Configures the buffering for downlink direction.

Command Modes Exec > Global Configuration (config) > N3 Tunnel Profile Configuration (config-n3-tunnel-*profile_name*)

Syntax Description `buffer` *node*

buffer *node*

Specify to enable buffering.

Must be one of the following:

- **upf**: Enables buffering in UPF.

Usage Guidelines Use this command to configure buffering for downlink direction.

profile ncgi-group

Configures NCGI Group profile parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `profile ncgi-group` *profile_name*

ncgi-group *profile_name*

Specify name of the NCGI Group profile.

Must be a string.

Usage Guidelines Use this command to configure NCGI Group profile parameters.

profile ncgi-group ncgis

Configures the list of MCC, MNC, TAC, and NCGI groups.

Command Modes Exec > Global Configuration (config) > NCGI Group Profile Configuration (config-ncgi-group-*profile_name*)

Syntax Description `mcc` *mobile_country_code* `mnc` *mobile_network_code*

mcc *mobile_country_code*

Specify the Mobile Country Code (MCC). For example, 01, 001.

Must be a string in the three-digit pattern. For information on the three-digit pattern, see the Input Pattern Types section.

mnc *mobile_network_code*

Specify the Mobile Network Code (MNC). For example, 23, 456.

Must be a string in the two-or-three-digit pattern. For information on the two-or-three-digit pattern, see the Input Pattern Types section.

Usage Guidelines Use this command to configure the list of MCC, MNC, TAC, and NCGI groups.

You can configure a maximum of 16 elements with this command.

profile ncgi-group ncgis ncgi

Configures NCGI Group parameters.

Command Modes Exec > Global Configuration (config) > NCGI Group Profile Configuration (config-ncgi-group-*profile_name*) > NCGI Group Profile MCC MNC Configuration (config-ncgi-group-*mcc/mnc*)

Syntax Description **ncgi list** *ncgi_values*

list *ncgi_values*

Specify the list of NCGI values - 9 digit hex string NR Cell ID.

Must be a string in the hex-stringncgi pattern. For information on the hex-stringncgi pattern, see the Input Pattern Types section.

You can configure a maximum of 64 elements with this keyword.

Usage Guidelines Use this command to configure NCGI Group parameters.

profile ncgi-group ncgis ncgi range

Configures an NCGI range.

Command Modes Exec > Global Configuration (config) > NCGI Group Profile Configuration (config-ncgi-group-*profile_name*) > NCGI Group Profile MCC MNC Configuration (config-ncgi-group-*mcc/mnc*)

Syntax Description **ncgi range start** *ncgi_range_start* **end** *ncgi_range_end*

end *ncgi_range_end*

Specify the NCGI range end value.

Must be a string in the hex-stringncgi pattern. For information on the hex-stringncgi pattern, see the Input Pattern Types section.

start *ncgi_range_start*

Specify the NCGI range start value.

Must be a string in the hex-stringncgi pattern. For information on the hex-stringncgi pattern, see the Input Pattern Types section.

Usage Guidelines Use this command to configure an NCGI range.

You can configure a maximum of 64 elements with this command.

profile network-element amf

Configures the AMF profile.

Command Modes

Exec > Global Configuration (config)

Syntax Description

```
profile network-element amf amf_profile_name [ [ failure-handling-profile
profile_name ] [ nf-client-profile profile_name ] [ query-target-plmn
query_target_plmn ] ]
```

amf *amf_profile_name*

Specify name of the AMF profile.

Must be a string.

failure-handling-profile *profile_name*

Specify name of the Failure Handling profile.

Must be a string.

nf-client-profile *profile_name*

Specify name of the NF Client profile.

Must be a string.

query-target-plmn *query_target_plmn*

Specify the query parameter target-plmn to be used.

Must be one of the following:

- **primary**
- **servicing**
- **ue**

Usage Guidelines

Use this command to configure the AMF profile. The CLI prompt changes to the AMF Profile Configuration mode (config-amf-<profile_name>).

profile network-element amf discovery

Configures the discovery method.

Command Modes

Exec > Global Configuration (config) > AMF Profile Configuration (config-amf-*profile_name*)

Command Modes

Exec > Global Configuration (config) > CHF Profile Configuration (config-chf-*profile_name*)

Command Modes

Exec > Global Configuration (config) > PCF Profile Configuration (config-pcf-*profile_name*)

Command Modes	Exec > Global Configuration (config) > UDM Profile Configuration (config-udm-profile_name)
Syntax Description	discovery local local Specify to use local configuration for NF discovery. NF discovery through NRF will be skipped.
Usage Guidelines	Use this command to configure the discovery method.

profile network-element amf query-params

Configures query parameter for NF discovery.

Command Modes	Exec > Global Configuration (config) > AMF Profile Configuration (config-amf-profile_name)
Command Modes	Exec > Global Configuration (config) > CHF Profile Configuration (config-chf-profile_name)
Command Modes	Exec > Global Configuration (config) > PCF Profile Configuration (config-pcf-profile_name)
Command Modes	Exec > Global Configuration (config) > UDM Profile Configuration (config-udm-profile_name)
Syntax Description	query-params <i>query_parameters</i> query-params <i>query_parameters</i> Specify the query parameters. Must be one of the following:

- **chf-supported-plmn**
- **dcnr**
- **dnn**
- **load**
- **location**
- **pdn-type-session**
- **pdn-type-subscription**
- **priority**
- **requester-snsais**
- **slice**
- **supi**
- **tai**
- **target-nf-instance-id**

- **target-plmn**

Usage Guidelines Use this command to configure the query parameter for NF discovery.

profile network-element chf

Configures the CHF profile.

Command Modes Exec > Global Configuration (config)

Syntax Description `profile network-element chf chf_profile_name [[failure-handling-profile profile_name] [failure-handling-profile-offline profile_name] [nf-client-profile profile_name] [nf-client-profile-offline profile_name] [nf-client-profile profile_name]]`

chf *chf_profile_name*

Specify name of the CHF profile.

Must be a string.

failure-handling-profile-offline *profile_name*

Specify the Failure Handling profile name for offline server.

Must be a string.

failure-handling-profile *profile_name*

Specify name of the Failure Handling profile.

Must be a string.

nf-client-profile-offline *profile_name*

Specify the NF Client profile name for offline server.

Must be a string.

nf-client-profile *profile_name*

Specify name of the NF Client profile.

Must be a string.

query-chf-supported-plmn *plmn_type*

Specify the PLMN type to be used for query parameter chf-supported-plmn.

Must be one of the following:

- **primary**
- **serving**

- **ue**

query-target-plmn *query_target_plmn*

Specify the query parameter target-plmn to be used.

Must be one of the following:

- **primary**
- **servicing**
- **ue**

Usage Guidelines

Use this command to configure the CHF profile. The CLI prompt changes to the CHF Profile Configuration mode (config-chf-<profile_name>).

profile network-element chf discovery

Configures the discovery method.

Command Modes

Exec > Global Configuration (config) > AMF Profile Configuration (config-amf-*profile_name*)

Command Modes

Exec > Global Configuration (config) > CHF Profile Configuration (config-chf-*profile_name*)

Command Modes

Exec > Global Configuration (config) > PCF Profile Configuration (config-pcf-*profile_name*)

Command Modes

Exec > Global Configuration (config) > UDM Profile Configuration (config-udm-*profile_name*)

Syntax Description

discovery local

local

Specify to use local configuration for NF discovery. NF discovery through NRF will be skipped.

Usage Guidelines

Use this command to configure the discovery method.

profile network-element chf query-params

Configures query parameter for NF discovery.

Command Modes

Exec > Global Configuration (config) > AMF Profile Configuration (config-amf-*profile_name*)

Command Modes

Exec > Global Configuration (config) > CHF Profile Configuration (config-chf-*profile_name*)

Command Modes

Exec > Global Configuration (config) > PCF Profile Configuration (config-pcf-*profile_name*)

Command Modes

Exec > Global Configuration (config) > UDM Profile Configuration (config-udm-*profile_name*)

Syntax Description `query-params` *query_parameters*

query-params *query_parameters*

Specify the query parameters.

Must be one of the following:

- **chf-supported-plmn**
- **dcnr**
- **dnn**
- **load**
- **location**
- **pdn-type-session**
- **pdn-type-subscription**
- **priority**
- **requester-snssais**
- **slice**
- **supi**
- **tai**
- **target-nf-instance-id**
- **target-plmn**

Usage Guidelines Use this command to configure the query parameter for NF discovery.

profile network-element pcf

Configures the PCF profile.

Command Modes Exec > Global Configuration (config)

Syntax Description `profile network-element pcf` *pcf_profile_name* [[**cause-map-class-profile** *profile_name*] [**failure-handling-profile** *profile_name*] [**nf-client-profile** *profile_name*] [**predefined-rule-prefix** *prefix_name*] [**query-target-plmn** *query_target_plmn*] [**response-timeout** *response_timeout_duration*] [**rulebase-prefix** *rulebase_prefix*] [**update-notify** *update_notify*] [**use-amf-provided-pcf** [**false** | **true**]]]

cause-map-class-profile *profile_name*

Specify name of the Cause Map Class profile.

Must be a string.

failure-handling-profile *profile_name*

Specify name of the Failure Handling profile.

Must be a string.

nf-client-profile *profile_name*

Specify name of the NF Client profile.

Must be a string.

pct *pcf_profile_name*

Specify name of the PCF profile.

Must be a string.

predefined-rule-prefix *prefix_name*

Specify the predefined rule prefix string.

Must be a string.

query-target-plmn *query_target_plmn*

Specify the query parameter target-plmn to be used.

Must be one of the following:

- **primary**
- **servicing**
- **ue**

response-timeout *response_timeout_duration*

Specify the response timeout duration, in milliseconds.

Must be an integer in the range of 1000-30000.

Default Value: 4000.

rulebase-prefix *rulebase_prefix*

Specify the rulebase prefix string.

Must be a string.

update-notify *update_notify*

Specify the SMF Immediate UpdateNotify Response behavior.

Must be one of the following:

- **expidite-response**

use-amf-provided-pcf { false | true }

Specify to enable or disable PCF discovery using PCF ID provided by the AMF.

Must be one of the following:

- **false**
- **true**

Default Value: true.

Usage Guidelines

Use this command to configure the PCF profile. The CLI prompt changes to the PCF Profile Configuration mode ().

profile network-element pcf bitrates

Configures bitrates round-up parameter.

Command Modes

Exec > Global Configuration (config) > PCF Profile Configuration (config-pcf-profile_name)

Syntax Description

bitrates rounded-up

rounded-up

Specify to round up.

Usage Guidelines

Use this command to configure bitrates round-up parameter.

profile network-element pcf discovery

Configures the discovery method.

Command Modes

Exec > Global Configuration (config) > AMF Profile Configuration (config-amf-profile_name)

Command Modes

Exec > Global Configuration (config) > CHF Profile Configuration (config-chf-profile_name)

Command Modes

Exec > Global Configuration (config) > PCF Profile Configuration (config-pcf-profile_name)

Command Modes

Exec > Global Configuration (config) > UDM Profile Configuration (config-udm-profile_name)

Syntax Description

discovery local

local

Specify to use local configuration for NF discovery. NF discovery through NRF will be skipped.

Usage Guidelines

Use this command to configure the discovery method.

profile network-element pcf query-params

Configures query parameter for NF discovery.

Command Modes Exec > Global Configuration (config) > AMF Profile Configuration (config-amf-profile_name)

Command Modes Exec > Global Configuration (config) > CHF Profile Configuration (config-chf-profile_name)

Command Modes Exec > Global Configuration (config) > PCF Profile Configuration (config-pcf-profile_name)

Command Modes Exec > Global Configuration (config) > UDM Profile Configuration (config-udm-profile_name)

Syntax Description **query-params** *query_parameters*

query-params *query_parameters*

Specify the query parameters.

Must be one of the following:

- **chf-supported-plmn**
- **dcnr**
- **dnn**
- **load**
- **location**
- **pdn-type-session**
- **pdn-type-subscription**
- **priority**
- **requester-snsais**
- **slice**
- **supi**
- **tai**
- **target-nf-instance-id**
- **target-plmn**

Usage Guidelines Use this command to configure the query parameter for NF discovery.

profile network-element udm

Configures UDM profile.

Command Modes Exec > Global Configuration (config)

Syntax Description `profile network-element udm udm_profile_name [[cause-map-class-profile profile_name] [nf-client-profile profile_name] [failure-handling-profile profile_name]]`

cause-map-class-profile profile_name

Specify name of the Cause Map Class profile.

Must be a string.

failure-handling-profile profile_name

Specify name of the Failure Handling profile.

Must be a string.

nf-client-profile profile_name

Specify name of the NF Client profile.

Must be a string.

query-target-plmn query_target_plmn

Specify the query parameter target-plmn to be used.

Must be one of the following:

- **primary**
- **-serving**
- **ue**

response-timeout response_timeout_duration

Specify the response timeout duration in milliseconds.

Must be an integer in the range of 1000-30000.

Default Value: 4000.

udm udm_profile_name

Specify name of the UDM profile.

Must be a string.

Usage Guidelines Use this command to configure the UDM profile. The CLI prompt changes to the UDM Profile Configuration mode (config-udm-<profile_name>)

profile network-element udm discovery

Configures the discovery method.

Command Modes Exec > Global Configuration (config) > AMF Profile Configuration (config-amf-profile_name)

Command Modes Exec > Global Configuration (config) > CHF Profile Configuration (config-chf-profile_name)

Command Modes Exec > Global Configuration (config) > PCF Profile Configuration (config-pcf-profile_name)

Command Modes Exec > Global Configuration (config) > UDM Profile Configuration (config-udm-profile_name)

Syntax Description **discovery local**

local

Specify to use local configuration for NF discovery. NF discovery through NRF will be skipped.

Usage Guidelines Use this command to configure the discovery method.

profile network-element udm failure-handling-profile-rat

Configures Failure Handling profile specific to RAT type.

Command Modes Exec > Global Configuration > Profile Configuration

Syntax Description **failure-handling-profile-rat rat-type rat_type failure-handling-profile failure_handling_profile_name**

failure-handling-profile failure_handling_profile_name

Specify name of Failure Handling profile.

Must be a string.

rat-type rat_type

Specify the RAT type.

Must be one of the following:

- **eutra**
- **nr**
- **wlan**

Usage Guidelines Use this command to configure Failure Handling profile specific to RAT type.

profile network-element udm query-params

Configures query parameter for NF discovery.

Command Modes Exec > Global Configuration (config) > AMF Profile Configuration (config-amf-profile_name)

Command Modes	Exec > Global Configuration (config) > CHF Profile Configuration (config-chf-profile_name)
Command Modes	Exec > Global Configuration (config) > PCF Profile Configuration (config-pcf-profile_name)
Command Modes	Exec > Global Configuration (config) > UDM Profile Configuration (config-udm-profile_name)
Syntax Description	query-params <i>query_parameters</i>

query-params *query_parameters*

Specify the query parameters.

Must be one of the following:

- **chf-supported-plmn**
- **dcnr**
- **dnn**
- **load**
- **location**
- **pdn-type-session**
- **pdn-type-subscription**
- **priority**
- **requester-snsais**
- **slice**
- **supi**
- **tai**
- **target-nf-instance-id**
- **target-plmn**

Usage Guidelines Use this command to configure the query parameter for NF discovery.

profile network-element upf

Configures the UPF profile.

Command Modes	Exec > Global Configuration (config)
Syntax Description	profile network-element upf <i>upf_profile_name</i> [[capacity <i>lb_capacity</i>] [dnn-list <i>dnn_list</i>] [downlink-data-buffer { false true }] [downlink-data-report { false true }] [mode <i>mode_of_operation</i>] [n4-peer-port <i>port_number</i>] [node-id <i>node_id</i>] [priority <i>lb_priority</i>] [upf-group-profile <i>profile_name</i>]]

capacity *lb_capacity*

Specify the static capacity relative to other UPFs used for load balancing.

Must be an integer in the range of 0-65535.

Default Value: 10.

dnn-list *dnn_list*

Specify the list of DNNs supported by the UPF node.

Must be a string.

downlink-data-buffer { *false* | *true* }

Specify to enable or disable buffering in UPF for downlink data.

Must be one of the following:

- **false**
- **true**

Default Value: true.

downlink-data-report { *false* | *true* }

Specify to enable or disable notification from UPF for downlink data.

Must be one of the following:

- **false**
- **true**

Default Value: true.

mode *mode_of_operation*

Specify the UPF mode of operation.

Must be one of the following:

- **offline**

n4-peer-port *port_number*

Specify the UPF N4 peer port number.

Must be an integer in the range of 0-65535.

Default Value: 8805.

node-id *node_id*

Specify the node ID for the UPF peer node.

Must be a string.

priority lb_priority

Specify the static priority relative to other UPFs used for load balancing.

Must be an integer in the range of 0-65535.

Default Value: 1.

upf-group-profile profile_name

Specify name of the UPF Group profile.

Must be a string.

upf upf_profile_name

Specify name of the UPF peer.

Must be a string.

Usage Guidelines

Use this command to configure the UPF profile. When active profile is removed, clears if any existing sessions and upf will be un-associated. The CLI prompt changes to the UPF Profile Configuration mode (config-upf-<profile_name>).

profile network-element upf n4-peer-address

Configures the N4 peer address.

Command Modes

Exec > Global Configuration (config) > UPF Profile Configuration (config-upf-profile_name)

Syntax Description

```
n4-peer-address { [ ipv4-address ipv4_address ] [ ipv6-address ipv6_address ]
}
```

ipv4-address ipv4_address

Specify the N4 peer IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6-address ipv6_address

Specify the N4 peer IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

Usage Guidelines

Use this command to configure the N4 peer address.

profile nf-client nf-type amf amf-profile

Configures AMF profile parameters.

Command Modes	Exec > Global Configuration (config)
Syntax Description	profile nf-client nf-type amf amf-profile <i>profile_name</i> amf-profile <i>profile_name</i> Specify the AMF profile name Must be a string.
Usage Guidelines	Use this command to configure AMF profile parameters.

profile nf-client nf-type amf amf-profile locality

Configures the AMF profile locality parameter.

Command Modes	Exec > Global Configuration (config) > AMF Profile Configuration (config-amf-profile- <i>profile_name</i>)
Syntax Description	locality <i>locality_name</i> [priority <i>locality_priority</i>] locality <i>locality_name</i> Specify name of the locality. Must be a string. priority <i>locality_priority</i> Specify priority of the locality configuration. Must be an integer in the range of 0-65535.
Usage Guidelines	Use this command to configure the AMF profile locality parameter.

profile nf-client nf-type amf amf-profile locality service name type

Configures the AMF service name type parameter.

Command Modes	Exec > Global Configuration (config) > AMF Configuration (config-amf) > Failure Handling <i>profile_name</i> Configuration mode (config-failure-handling- <i>profile_name</i>)
Syntax Description	type <i>amf_service_name_type</i> responsetimeout <i>response_timeout</i> Specify the response timeout interval in milliseconds. Must be an integer. Default Value: 2000.

type *amf_service_name_type*

Specify the service name type.

Must be one of the following:

- **namf-comm**
- **namf-evts**
- **namf-loc**
- **namf-mt**

Usage Guidelines

Use this command to configure the AMF service name type parameter.

profile nf-client nf-type amf amf-profile locality service name type endpoint-profile

Configures endpoint profile parameters.

Command Modes

Exec > Global Configuration

Syntax Description

```
endpoint-profile endpoint_profile_name { capacity capacity_value | priority
profile_priority | api-uri-prefix api_uri_prefix | api-root api_root | uri-scheme
uri_scheme }
```

api-root *api_root*

Specify the API root.

Must be a string.

api-uri-prefix *api_uri_prefix*

Specify the API URI prefix.

Must be a string.

capacity *capacity_value*

Specify the profile capacity.

Must be an integer in the range of 0-65535.

Default Value: 10.

endpoint-profile *endpoint_profile_name*

Specify name of the endpoint profile.

Must be a string.

priority *profile_priority*

Specify the priority of the profile.

Must be an integer in the range of 0-65535.

Default Value: 1.

uri-scheme *uri_scheme*

Specify the URI scheme.

Must be one of the following:

- **http**: HTTP.
- **https**: HTTPS.

Usage Guidelines Use this command to configure endpoint profile parameters.

profile nf-client nf-type amf amf-profile locality service name type endpoint-profile endpoint-name

Configures the endpoint name parameter.

Command Modes Exec > Global Configuration

Syntax Description **endpoint-name** *endpoint_name* [**priority** *node_priority* | **capacity** *node_capacity*]

capacity *node_capacity*

Specify the node capacity for the endpoint.

Must be an integer in the range of 0-65535.

endpoint-name *endpoint_name*

Specify name of the endpoint. You can configure the primary, secondary, and tertiary host (IP: Port) within each endpoint for NF server failover handling. The server failover configuration accepts both the IPv4 and IPv6 addresses. However, the SMF gives preference to the IPv4 address.

Must be a string.

priority *node_priority*

Specify the node priority for the endpoint.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this configuration to configure the endpoint name parameter.

profile nf-client nf-type amf amf-profile locality service name type endpoint-profile endpoint-name primary ip-address

Configures the endpoint IP address and port number.

Command Modes Exec > Global Configuration

Syntax Description `ip-address { { ipv4 ipv4_address | ipv6 ipv6_address } | port port_number }`

ipv4 ipv4_address

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 ipv6_address

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port port_number

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to configure the endpoint IP address and port number.

profile nf-client nf-type amf amf-profile locality service name type endpoint-profile endpoint-name secondary ip-address

Configures the endpoint IP address and port number.

Command Modes Exec > Global Configuration

Syntax Description `ip-address { { ipv4 ipv4_address | ipv6 ipv6_address } | port port_number }`

ipv4 ipv4_address

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 *ipv6_address*

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port *port_number*

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines

Use this command to configure the endpoint IP address and port number.

profile nf-client nf-type amf amf-profile locality service name type endpoint-profile endpoint-name tertiary ip-address

Configures the endpoint IP address and port number.

Command Modes

Exec > Global Configuration

Syntax Description

ip-address { { **ipv4** *ipv4_address* | **ipv6** *ipv6_address* } | **port** *port_number* }

ipv4 *ipv4_address*

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 *ipv6_address*

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port *port_number*

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines

Use this command to configure the endpoint IP address and port number.

profile nf-client nf-type amf amf-profile locality service name type endpoint-profile version uri-version

Configures the URI version.

Command Modes Exec > Global Configuration > UDM NF-Client Profile Configuration > UDM Profile Configuration > Locality Configuration > UDM Service Name Type Configuration > Endpoint Profile Configuration > Version Configuration > URL Version Configuration

Syntax Description **version** **uri-version** { *uri_version* | **full-version** *full_version* }

full-version *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*
Must be a string.

uri-version *uri_version*

Specify the URI version.
Must be a string in the pattern *v\d*.

Usage Guidelines Use this command to configure the URI version information.

profile nf-client nf-type ausf ausf-profile

Configures AUSF profile parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile nf-client nf-type ausf ausf-profile** *profile_name*

ausf-profile *profile_name*

Specify name of the AUSF profile.
Must be a string.

Usage Guidelines Use this command to configure AUSF profile parameters.

profile nf-client nf-type ausf ausf-profile locality

Configures the AUSF profile locality parameter.

Command Modes Exec > Global Configuration (config) > AUSF Profile Configuration (config-ausf-profile-*profile_name*)

Syntax Description **locality** *locality_name* [**priority** *locality_priority*]

locality *locality_name*

Specify name of the locality.
Must be a string.

priority *locality_priority*

Specify priority of the locality configuration.

Must be an integer in the range of 0-65535.

Usage Guidelines

Use this command to configure the AUSF profile locality parameter.

profile nf-client nf-type ausf ausf-profile locality service name type

Configures the AUSF service name type parameter.

Command Modes

Exec > Global Configuration (config) > AUSF Configuration (config-ausf) > Failure Handling *profile_name* Configuration mode (config-failure-handling-*profile_name*)

Syntax Description

type *ausf_service_name_type*

type *ausf_service_name_type*

Specify the AUSF service name type.

Must be one of the following:

- **nausf-auth**

Usage Guidelines

Use this command to configure the AUSF service name type parameter.

profile nf-client nf-type ausf ausf-profile locality service name type endpoint-profile

Configures endpoint profile parameters.

Command Modes

Exec > Global Configuration

Syntax Description

```
endpoint-profile endpoint_profile_name { capacity capacity_value | priority
profile_priority | api-uri-prefix api_uri_prefix | api-root api_root | uri-scheme
uri_scheme }
```

api-root *api_root*

Specify the API root.

Must be a string.

api-uri-prefix *api_uri_prefix*

Specify the API URI prefix.

profile nf-client nf-type ausf ausf-profile locality service name type endpoint-profile endpoint-name

Must be a string.

capacity *capacity_value*

Specify the profile capacity.

Must be an integer in the range of 0-65535.

Default Value: 10.

endpoint-profile *endpoint_profile_name*

Specify name of the endpoint profile.

Must be a string.

priority *profile_priority*

Specify the priority of the profile.

Must be an integer in the range of 0-65535.

Default Value: 1.

uri-scheme *uri_scheme*

Specify the URI scheme.

Must be one of the following:

- **http**: HTTP.
- **https**: HTTPS.

Usage Guidelines

Use this command to configure endpoint profile parameters.

profile nf-client nf-type ausf ausf-profile locality service name type endpoint-profile endpoint-name

Configures the endpoint name parameter.

Command Modes

Exec > Global Configuration

Syntax Description

endpoint-name *endpoint_name* [**priority** *node_priority* | **capacity** *node_capacity*]

capacity *node_capacity*

Specify the node capacity for the endpoint.

Must be an integer in the range of 0-65535.

endpoint-name *endpoint_name*

Specify name of the endpoint. You can configure the primary, secondary, and tertiary host (IP: Port) within each endpoint for NF server failover handling. The server failover configuration accepts both the IPv4 and IPv6 addresses. However, the SMF gives preference to the IPv4 address.

Must be a string.

priority *node_priority*

Specify the node priority for the endpoint.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this configuration to configure the endpoint name parameter.

profile nf-client nf-type ausf ausf-profile locality service name type endpoint-profile endpoint-name primary ip-address

Configures the endpoint IP address and port number.

Command Modes Exec > Global Configuration

Syntax Description `ip-address { { ipv4 ipv4_address | ipv6 ipv6_address } | port port_number }`

ipv4 *ipv4_address*

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 *ipv6_address*

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port *port_number*

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to configure the endpoint IP address and port number.

profile nf-client nf-type ausf ausf-profile locality service name type endpoint-profile endpoint-name secondary ip-address

Configures the endpoint IP address and port number.

Command Modes Exec > Global Configuration

Syntax Description `ip-address { { ipv4 ipv4_address | ipv6 ipv6_address } | port port_number }`

ipv4 ipv4_address

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 ipv6_address

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port port_number

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to configure the endpoint IP address and port number.

profile nf-client nf-type ausf ausf-profile locality service name type endpoint-profile endpoint-name tertiary ip-address

Configures the endpoint IP address and port number.

Command Modes Exec > Global Configuration

Syntax Description `ip-address { { ipv4 ipv4_address | ipv6 ipv6_address } | port port_number }`

ipv4 ipv4_address

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 *ipv6_address*

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port *port_number*

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines

Use this command to configure the endpoint IP address and port number.

profile nf-client nf-type ausf ausf-profile locality service name type endpoint-profile version uri-version

Configures the URI version.

Command Modes

Exec > Global Configuration > UDM NF-Client Profile Configuration > UDM Profile Configuration > Locality Configuration > UDM Service Name Type Configuration > Endpoint Profile Configuration > Version Configuration > URL Version Configuration

Syntax Description

version uri-version { *uri_version* | **full-version** *full_version* }

full-version *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*

Must be a string.

uri-version *uri_version*

Specify the URI version.

Must be a string in the pattern *v\d*.

Usage Guidelines

Use this command to configure the URI version information.

profile nf-client nf-type chf chf-profile

Configures the CHF profile parameters.

Command Modes

Exec > Global Configuration (config)

Syntax Description

profile nf-client nf-type chf chf-profile *profile_name*

chf-profile *profile_name*

Specify name of the CHF profile.

Must be a string.

Usage Guidelines Use this command to configure the CHF profile parameters.

profile nf-client nf-type chf chf-profile locality

Configures the CHF profile locality parameter.

Command Modes Exec > Global Configuration (config) > CHF Profile Configuration (config-chf-profile-*profile_name*)

Syntax Description **locality** *locality_name* [**priority** *locality_priority*]

locality *locality_name*

Specify name of the locality.

Must be a string.

priority *locality_priority*

Specify priority of the locality configuration.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to configure the CHF profile locality parameter.

profile nf-client nf-type chf chf-profile locality service name type

Configures the CHF service name type parameter.

Command Modes Exec > Global Configuration (config) > CHF Configuration (config-chf) > Failure Handling *profile_name* Configuration mode (config-failure-handling-*profile_name*)

Syntax Description **type** *service_name_type*

responsetimeout *response_timeout*

Specify the response timeout interval in milliseconds.

Must be an integer.

Default Value: 2000.

type *service_name_type*

Specify the CHF service name type.

Must be one of the following:

- **nchf-convergedcharging**

- **nchf-spendinglimitcontrol**

Usage Guidelines Use this command to configure the CHF service name type parameter.

profile nf-client nf-type chf chf-profile locality service name type endpoint-profile

Configures endpoint profile parameters.

Command Modes Exec > Global Configuration

Syntax Description **endpoint-profile** *endpoint_profile_name* { **capacity** *capacity_value* | **priority** *profile_priority* | **api-uri-prefix** *api_uri_prefix* | **api-root** *api_root* | **uri-scheme** *uri_scheme* }

api-root *api_root*

Specify the API root.

Must be a string.

api-uri-prefix *api_uri_prefix*

Specify the API URI prefix.

Must be a string.

capacity *capacity_value*

Specify the profile capacity.

Must be an integer in the range of 0-65535.

Default Value: 10.

endpoint-profile *endpoint_profile_name*

Specify name of the endpoint profile.

Must be a string.

priority *profile_priority*

Specify the priority of the profile.

Must be an integer in the range of 0-65535.

Default Value: 1.

uri-scheme *uri_scheme*

Specify the URI scheme.

Must be one of the following:

profile nf-client nf-type chf chf-profile locality service name type endpoint-profile endpoint-name

- **http**: HTTP.
- **https**: HTTPS.

Usage Guidelines Use this command to configure endpoint profile parameters.

profile nf-client nf-type chf chf-profile locality service name type endpoint-profile endpoint-name

Configures the endpoint name parameter.

Command Modes Exec > Global Configuration

Syntax Description **endpoint-name** *endpoint_name* [**priority** *node_priority* | **capacity** *node_capacity*]

capacity *node_capacity*

Specify the node capacity for the endpoint.

Must be an integer in the range of 0-65535.

endpoint-name *endpoint_name*

Specify name of the endpoint. You can configure the primary, secondary, and tertiary host (IP: Port) within each endpoint for NF server failover handling. The server failover configuration accepts both the IPv4 and IPv6 addresses. However, the SMF gives preference to the IPv4 address.

Must be a string.

priority *node_priority*

Specify the node priority for the endpoint.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this configuration to configure the endpoint name parameter.

profile nf-client nf-type chf chf-profile locality service name type endpoint-profile endpoint-name primary ip-address

Configures the endpoint IP address and port number.

Command Modes Exec > Global Configuration

Syntax Description **ip-address** { { **ipv4** *ipv4_address* | **ipv6** *ipv6_address* } | **port** *port_number* }

ipv4 *ipv4_address*

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 *ipv6_address*

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port *port_number*

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines

Use this command to configure the endpoint IP address and port number.

profile nf-client nf-type chf chf-profile locality service name type endpoint-profile endpoint-name secondary ip-address

Configures the endpoint IP address and port number.

Command Modes

Exec > Global Configuration

Syntax Description

ip-address { { **ipv4** *ipv4_address* | **ipv6** *ipv6_address* } | **port** *port_number* }

ipv4 *ipv4_address*

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 *ipv6_address*

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port *port_number*

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines

Use this command to configure the endpoint IP address and port number.

profile nf-client nf-type chf chf-profile locality service name type endpoint-profile endpoint-name tertiary ip-address

Configures the endpoint IP address and port number.

Command Modes Exec > Global Configuration

Syntax Description `ip-address { { ipv4 ipv4_address | ipv6 ipv6_address } | port port_number }`

ipv4 ipv4_address

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 ipv6_address

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port port_number

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to configure the endpoint IP address and port number.

profile nf-client nf-type chf chf-profile locality service name type endpoint-profile version uri-version

Configures the URI version.

Command Modes Exec > Global Configuration > UDM NF-Client Profile Configuration > UDM Profile Configuration > Locality Configuration > UDM Service Name Type Configuration > Endpoint Profile Configuration > Version Configuration > URL Version Configuration

Syntax Description `version uri-version { uri_version | full-version full_version }`

full-version full_version

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*

Must be a string.

uri-version *uri_version*

Specify the URI version.

Must be a string in the pattern v\d.

Usage Guidelines Use this command to configure the URI version information.

profile nf-client nf-type eir eir-profile

Configures EIR profile parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile nf-client nf-type eir eir-profile** *eir_profile_name*

eir-profile *eir_profile_name*

Specify name of the EIR profile.

Must be a string.

Usage Guidelines Use this command to configure the EIR profile parameters.

profile nf-client nf-type eir eir-profile locality

Configures the EIR profile locality parameter.

Command Modes Exec > Global Configuration (config) > EIR Profile Configuration (config-eir-profile-*profile_name*)

Syntax Description **locality** *locality_name* [**priority** *priority*]

locality *locality_name*

Specify name of the locality.

Must be a string.

priority *priority*

Specify the priority of the locality configuration.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to configure the EIR profile locality parameter.

profile nf-client nf-type eir eir-profile locality service name type

Configures the EIR service name type parameter.

Command Modes Exec > Global Configuration (config) > EIR Configuration (config-eir) > Failure Handling *profile_name* Configuration mode (config-failure-handling-*profile_name*)

Syntax Description **type** *service_name_type*

responsetimeout *response_timeout_interval*

Specify the response timeout interval in milliseconds.

Must be an integer.

Default Value: 2000.

type *service_name_type*

Specify the EIR service name type.

Must be one of the following:

- **n5g-eir-eic**

Usage Guidelines Use this command to configure the EIR service name type parameter.

profile nf-client nf-type eir eir-profile locality service name type endpoint-profile

Configures endpoint profile parameters.

Command Modes Exec > Global Configuration

Syntax Description **endpoint-profile** *endpoint_profile_name* { **capacity** *capacity_value* | **priority** *profile_priority* | **api-uri-prefix** *api_uri_prefix* | **api-root** *api_root* | **uri-scheme** *uri_scheme* }

api-root *api_root*

Specify the API root.

Must be a string.

api-uri-prefix *api_uri_prefix*

Specify the API URI prefix.

Must be a string.

capacity *capacity_value*

Specify the profile capacity.

Must be an integer in the range of 0-65535.

Default Value: 10.

endpoint-profile *endpoint_profile_name*

Specify name of the endpoint profile.

Must be a string.

priority *profile_priority*

Specify the priority of the profile.

Must be an integer in the range of 0-65535.

Default Value: 1.

uri-scheme *uri_scheme*

Specify the URI scheme.

Must be one of the following:

- **http**: HTTP.
- **https**: HTTPS.

Usage Guidelines

Use this command to configure endpoint profile parameters.

profile nf-client nf-type eir eir-profile locality service name type endpoint-profile endpoint-name

Configures the endpoint name parameter.

Command Modes

Exec > Global Configuration

Syntax Description

endpoint-name *endpoint_name* [**priority** *node_priority* | **capacity** *node_capacity*]

capacity *node_capacity*

Specify the node capacity for the endpoint.

Must be an integer in the range of 0-65535.

endpoint-name *endpoint_name*

Specify name of the endpoint. You can configure the primary, secondary, and tertiary host (IP: Port) within each endpoint for NF server failover handling. The server failover configuration accepts both the IPv4 and IPv6 addresses. However, the SMF gives preference to the IPv4 address.

profile nf-client nf-type eir eir-profile locality service name type endpoint-profile endpoint-name primary ip-address

Must be a string.

priority *node_priority*

Specify the node priority for the endpoint.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this configuration to configure the endpoint name parameter.

profile nf-client nf-type eir eir-profile locality service name type endpoint-profile endpoint-name primary ip-address

Configures the endpoint IP address and port number.

Command Modes Exec > Global Configuration

Syntax Description `ip-address { { ipv4 ipv4_address | ipv6 ipv6_address } | port port_number }`

ipv4 *ipv4_address*

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 *ipv6_address*

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port *port_number*

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to configure the endpoint IP address and port number.

profile nf-client nf-type eir eir-profile locality service name type endpoint-profile endpoint-name secondary ip-address

Configures the endpoint IP address and port number.

Command Modes Exec > Global Configuration

Syntax Description `ip-address { { ipv4 ipv4_address | ipv6 ipv6_address } | port port_number }`

ipv4 *ipv4_address*

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 *ipv6_address*

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port *port_number*

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines

Use this command to configure the endpoint IP address and port number.

profile nf-client nf-type eir eir-profile locality service name type endpoint-profile endpoint-name tertiary ip-address

Configures the endpoint IP address and port number.

Command Modes

Exec > Global Configuration

Syntax Description

ip-address { { **ipv4** *ipv4_address* | **ipv6** *ipv6_address* } | **port** *port_number* }

ipv4 *ipv4_address*

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 *ipv6_address*

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port *port_number*

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines

Use this command to configure the endpoint IP address and port number.

profile nf-client nf-type eir eir-profile locality service name type endpoint-profile version uri-version

Configures the URI version.

Command Modes Exec > Global Configuration > UDM NF-Client Profile Configuration > UDM Profile Configuration > Locality Configuration > UDM Service Name Type Configuration > Endpoint Profile Configuration > Version Configuration > URL Version Configuration

Syntax Description **version uri-version** { *uri_version* | **full-version** *full_version* }

full-version *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*

Must be a string.

uri-version *uri_version*

Specify the URI version.

Must be a string in the pattern *v\d*.

Usage Guidelines Use this command to configure the URI version information.

profile nf-client nf-type pcf pcf-profile

Configures PCF profile parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile nf-client nf-type pcf pcf-profile** *profile_name*

pcf-profile *profile_name*

Specify name of the PCF profile.

Must be a string.

Usage Guidelines Use this command to configure the PCF profile.

profile nf-client nf-type pcf pcf-profile locality

Configures the PCF profile locality parameter.

Command Modes Exec > Global Configuration (config) > PCF Profile Configuration (config-psf-profile-*profile_name*)

Syntax Description **locality** *locality_name* [**priority** *locality_priority*]

locality *locality_name*

Specify name of the locality.

Must be a string.

priority *locality_priority*

Specify priority of the locality configuration.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to configure the PCF profile locality parameter.

profile nf-client nf-type pcf pcf-profile locality service name type

Configures the PCF service name type parameter.

Command Modes Exec > Global Configuration (config) > PCF Configuration (config-pcf) > Failure Handling *profile_name*
Configuration mode (config-failure-handling-*profile_name*)

Syntax Description **type** *service_name_type*

responsetimeout *response_timeout*

Specify the response timeout interval in milliseconds.

Must be an integer.

Default Value: 2000.

type *service_name_type*

Specify the PCF service name parameters.

Must be one of the following:

- **npcf-am-policy-control**
- **npcf-bdtpolicycontrol**
- **npcf-eventexposure**
- **npcf-policyauthorization**
- **npcf-smpolicycontrol**
- **npcf-ue-policy-control**

Usage Guidelines Use this command to configure the PCF service name type parameter.

profile nf-client nf-type pcf pcf-profile locality service name type endpoint-profile

Configures endpoint profile parameters.

Command Modes Exec > Global Configuration

Syntax Description **endpoint-profile** *endpoint_profile_name* { **capacity** *capacity_value* | **priority** *profile_priority* | **api-uri-prefix** *api_uri_prefix* | **api-root** *api_root* | **uri-scheme** *uri_scheme* }

api-root *api_root*

Specify the API root.

Must be a string.

api-uri-prefix *api_uri_prefix*

Specify the API URI prefix.

Must be a string.

capacity *capacity_value*

Specify the profile capacity.

Must be an integer in the range of 0-65535.

Default Value: 10.

endpoint-profile *endpoint_profile_name*

Specify name of the endpoint profile.

Must be a string.

priority *profile_priority*

Specify the priority of the profile.

Must be an integer in the range of 0-65535.

Default Value: 1.

uri-scheme *uri_scheme*

Specify the URI scheme.

Must be one of the following:

- **http**: HTTP.
- **https**: HTTPS.

Usage Guidelines Use this command to configure endpoint profile parameters.

profile nf-client nf-type pcf pcf-profile locality service name type endpoint-profile endpoint-name

Configures the endpoint name parameter.

Command Modes Exec > Global Configuration

Syntax Description **endpoint-name** *endpoint_name* [**priority** *node_priority* | **capacity** *node_capacity*]

capacity *node_capacity*

Specify the node capacity for the endpoint.

Must be an integer in the range of 0-65535.

endpoint-name *endpoint_name*

Specify name of the endpoint. You can configure the primary, secondary, and tertiary host (IP: Port) within each endpoint for NF server failover handling. The server failover configuration accepts both the IPv4 and IPv6 addresses. However, the SMF gives preference to the IPv4 address.

Must be a string.

priority *node_priority*

Specify the node priority for the endpoint.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this configuration to configure the endpoint name parameter.

profile nf-client nf-type pcf pcf-profile locality service name type endpoint-profile endpoint-name primary ip-address

Configures the endpoint IP address and port number.

Command Modes Exec > Global Configuration

Syntax Description **ip-address** { { **ipv4** *ipv4_address* | **ipv6** *ipv6_address* } | **port** *port_number* }

ipv4 *ipv4_address*

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

profile nf-client nf-type pcf pcf-profile locality service name type endpoint-profile endpoint-name secondary ip-address

ipv6 *ipv6_address*

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port *port_number*

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to configure the endpoint IP address and port number.

profile nf-client nf-type pcf pcf-profile locality service name type endpoint-profile endpoint-name secondary ip-address

Configures the endpoint IP address and port number.

Command Modes Exec > Global Configuration

Syntax Description `ip-address { { ipv4 ipv4_address | ipv6 ipv6_address } | port port_number }`

ipv4 *ipv4_address*

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 *ipv6_address*

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port *port_number*

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to configure the endpoint IP address and port number.

profile nf-client nf-type pcf pcf-profile locality service name type endpoint-profile endpoint-name tertiary ip-address

Configures the endpoint IP address and port number.

Command Modes Exec > Global Configuration

Syntax Description `ip-address { { ipv4 ipv4_address | ipv6 ipv6_address } | port port_number }`

ipv4 ipv4_address

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 ipv6_address

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port port_number

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to configure the endpoint IP address and port number.

profile nf-client nf-type pcf pcf-profile locality service name type endpoint-profile version uri-version

Configures the URI version.

Command Modes Exec > Global Configuration > UDM NF-Client Profile Configuration > UDM Profile Configuration > Locality Configuration > UDM Service Name Type Configuration > Endpoint Profile Configuration > Version Configuration > URL Version Configuration

Syntax Description `version uri-version { uri_version | full-version full_version }`

full-version full_version

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*

Must be a string.

uri-version uri_version

Specify the URI version.

Must be a string in the pattern `v\d`.

Usage Guidelines Use this command to configure the URI version information.

profile nf-client nf-type smf smf-profile

Configures SMF profile parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile nf-client nf-type smf smf-profile** *smf_profile_name*

smf-profile *smf_profile_name*

Specify name of the SMF profile.

Must be a string.

Usage Guidelines Use this command to configure the SMF profile parameters.

profile nf-client nf-type smf smf-profile locality

Configures the SMF profile locality parameter.

Command Modes Exec > Global Configuration (config) > SMF Profile Configuration (config-smf-profile-*profile_name*)

Syntax Description **locality** *locality_name* [**priority** *priority*]

locality *locality_name*

Specify name of the locality.

Must be a string.

priority *priority*

Specify the priority of the locality configuration.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to configure the SMF profile locality parameter.

profile nf-client nf-type smf smf-profile locality service name type

Configures the SMF service name type parameter.

Command Modes Exec > Global Configuration (config) > SMF Configuration (config-smf) > Failure Handling *profile_name* Configuration mode (config-failure-handling-*profile_name*)

Syntax Description **type** *smf_service_name_type*

type smf_service_name_type

Specify the service name type.

Must be one of the following:

- **nsmf-pdusession**

Usage Guidelines

Use this command to configure the SMF service name type parameter.

profile nf-client nf-type smf smf-profile locality service name type endpoint-profile

Configures endpoint profile parameters.

Command Modes

Exec > Global Configuration

Syntax Description

```
endpoint-profile endpoint_profile_name { capacity capacity_value | priority
profile_priority | api-uri-prefix api_uri_prefix | api-root api_root | uri-scheme
uri_scheme }
```

api-root *api_root*

Specify the API root.

Must be a string.

api-uri-prefix *api_uri_prefix*

Specify the API URI prefix.

Must be a string.

capacity *capacity_value*

Specify the profile capacity.

Must be an integer in the range of 0-65535.

Default Value: 10.

endpoint-profile *endpoint_profile_name*

Specify name of the endpoint profile.

Must be a string.

priority *profile_priority*

Specify the priority of the profile.

Must be an integer in the range of 0-65535.

Default Value: 1.

uri-scheme *uri_scheme*

Specify the URI scheme.

Must be one of the following:

- **http**: HTTP.
- **https**: HTTPS.

Usage Guidelines

Use this command to configure endpoint profile parameters.

profile nf-client nf-type smf smf-profile locality service name type endpoint-profile endpoint-name

Configures the endpoint name parameter.

Command Modes

Exec > Global Configuration

Syntax Description

endpoint-name *endpoint_name* [**priority** *node_priority* | **capacity** *node_capacity*]

capacity *node_capacity*

Specify the node capacity for the endpoint.

Must be an integer in the range of 0-65535.

endpoint-name *endpoint_name*

Specify name of the endpoint. You can configure the primary, secondary, and tertiary host (IP: Port) within each endpoint for NF server failover handling. The server failover configuration accepts both the IPv4 and IPv6 addresses. However, the SMF gives preference to the IPv4 address.

Must be a string.

priority *node_priority*

Specify the node priority for the endpoint.

Must be an integer in the range of 0-65535.

Usage Guidelines

Use this configuration to configure the endpoint name parameter.

profile nf-client nf-type smf smf-profile locality service name type endpoint-profile endpoint-name primary ip-address

Configures the endpoint IP address and port number.

Command Modes

Exec > Global Configuration

Syntax Description **ip-address** { { **ipv4** *ipv4_address* | **ipv6** *ipv6_address* } | **port** *port_number* }

ipv4 *ipv4_address*

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 *ipv6_address*

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port *port_number*

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to configure the endpoint IP address and port number.

profile nf-client nf-type smf smf-profile locality service name type endpoint-profile endpoint-name secondary ip-address

Configures the endpoint IP address and port number.

Command Modes Exec > Global Configuration

Syntax Description **ip-address** { { **ipv4** *ipv4_address* | **ipv6** *ipv6_address* } | **port** *port_number* }

ipv4 *ipv4_address*

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 *ipv6_address*

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port *port_number*

Specify the port number.

Must be an integer in the range of 0-65535.

profile nf-client nf-type smf smf-profile locality service name type endpoint-profile endpoint-name tertiary ip-address

Usage Guidelines Use this command to configure the endpoint IP address and port number.

profile nf-client nf-type smf smf-profile locality service name type endpoint-profile endpoint-name tertiary ip-address

Configures the endpoint IP address and port number.

Command Modes Exec > Global Configuration

Syntax Description **ip-address** { { **ipv4** *ipv4_address* | **ipv6** *ipv6_address* } | **port** *port_number* }

ipv4 *ipv4_address*

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 *ipv6_address*

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port *port_number*

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to configure the endpoint IP address and port number.

profile nf-client nf-type smf smf-profile locality service name type endpoint-profile version uri-version

Configures the URI version.

Command Modes Exec > Global Configuration > UDM NF-Client Profile Configuration > UDM Profile Configuration > Locality Configuration > UDM Service Name Type Configuration > Endpoint Profile Configuration > Version Configuration > URL Version Configuration

Syntax Description **version uri-version** { *uri_version* | **full-version** *full_version* }

full-version *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*

Must be a string.

uri-version *uri_version*

Specify the URI version.

Must be a string in the pattern \vd.

Usage Guidelines Use this command to configure the URI version information.

profile nf-client nf-type udm udm-profile

Configures UDM profile parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile nf-client nf-type udm udm-profile** *udm_profile_name*

udm-profile *udm_profile_name*

Specify name of the UDM profile.

Must be a string.

Usage Guidelines Use this command to configure the UDM profile for an NF client.

profile nf-client nf-type udm udm-profile locality

Configures the UDM profile locality parameters.

Command Modes Exec > Global Configuration (config) > UDM Profile Configuration (config-udm-profile-*profile_name*)

Syntax Description **locality** *locality_name* [**priority** *priority*]

locality *locality_name*

Specify name of the locality.

Must be a string.

priority *priority*

This keyword sets the priority for the locality configuration.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to configure the UDM profile locality parameter.

profile nf-client nf-type udm udm-profile locality service name type

Configures the UDM service name type parameter.

Command Modes Exec > Global Configuration (config) > UDM Configuration (config-udm) > Failure Handling *profile_name* Configuration mode (config-failure-handling-*profile_name*)

Syntax Description **type** *service_name_type*

responsetimeout *response_timeout*

Specify the response timeout interval in milliseconds.

Must be an integer.

Default Value: 2000.

type *service_name_type*

Specify the UDM service name type.

Must be one of the following:

- **nudm-ee**
- **nudm-pp**
- **nudm-sdm**
- **nudm-ueau**
- **nudm-uecm**

Usage Guidelines Use this command to configure the UDM service name type parameter.

profile nf-client nf-type udm udm-profile locality service name type endpoint-profile

Configures endpoint profile parameters.

Command Modes Exec > Global Configuration

Syntax Description **endpoint-profile** *endpoint_profile_name* { **capacity** *capacity_value* | **priority** *profile_priority* | **api-uri-prefix** *api_uri_prefix* | **api-root** *api_root* | **uri-scheme** *uri_scheme* }

api-root *api_root*

Specify the API root.

Must be a string.

api-uri-prefix *api_uri_prefix*

Specify the API URI prefix.

Must be a string.

capacity *capacity_value*

Specify the profile capacity.

Must be an integer in the range of 0-65535.

Default Value: 10.

endpoint-profile *endpoint_profile_name*

Specify name of the endpoint profile.

Must be a string.

priority *profile_priority*

Specify the priority of the profile.

Must be an integer in the range of 0-65535.

Default Value: 1.

uri-scheme *uri_scheme*

Specify the URI scheme.

Must be one of the following:

- **http**: HTTP.
- **https**: HTTPS.

Usage Guidelines Use this command to configure endpoint profile parameters.

profile nf-client nf-type udm udm-profile locality service name type endpoint-profile endpoint-name

Configures the endpoint name parameter.

Command Modes Exec > Global Configuration

Syntax Description **endpoint-name** *endpoint_name* [**priority** *node_priority* | **capacity** *node_capacity*]

capacity *node_capacity*

Specify the node capacity for the endpoint.

profile nf-client nf-type udm udm-profile locality service name type endpoint-profile endpoint-name primary ip-address

Must be an integer in the range of 0-65535.

endpoint-name *endpoint_name*

Specify name of the endpoint. You can configure the primary, secondary, and tertiary host (IP: Port) within each endpoint for NF server failover handling. The server failover configuration accepts both the IPv4 and IPv6 addresses. However, the SMF gives preference to the IPv4 address.

Must be a string.

priority *node_priority*

Specify the node priority for the endpoint.

Must be an integer in the range of 0-65535.

Usage Guidelines

Use this configuration to configure the endpoint name parameter.

profile nf-client nf-type udm udm-profile locality service name type endpoint-profile endpoint-name primary ip-address

Configures the endpoint IP address and port number.

Command Modes

Exec > Global Configuration

Syntax Description

ip-address { { **ipv4** *ipv4_address* | **ipv6** *ipv6_address* } | **port** *port_number* }

ipv4 *ipv4_address*

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 *ipv6_address*

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port *port_number*

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines

Use this command to configure the endpoint IP address and port number.

profile nf-client nf-type udm udm-profile locality service name type endpoint-profile endpoint-name secondary ip-address

Configures the endpoint IP address and port number.

Command Modes Exec > Global Configuration

Syntax Description `ip-address { { ipv4 ipv4_address | ipv6 ipv6_address } | port port_number }`

ipv4 ipv4_address

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 ipv6_address

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port port_number

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to configure the endpoint IP address and port number.

profile nf-client nf-type udm udm-profile locality service name type endpoint-profile endpoint-name tertiary ip-address

Configures the endpoint IP address and port number.

Command Modes Exec > Global Configuration

Syntax Description `ip-address { { ipv4 ipv4_address | ipv6 ipv6_address } | port port_number }`

ipv4 ipv4_address

Specify the IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

profile nf-client nf-type udm udm-profile locality service name type endpoint-profile version uri-version

ipv6 *ipv6_address*

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port *port_number*

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines

Use this command to configure the endpoint IP address and port number.

profile nf-client nf-type udm udm-profile locality service name type endpoint-profile version uri-version

Configures the URI version.

Command Modes

Exec > Global Configuration > UDM NF-Client Profile Configuration > UDM Profile Configuration > Locality Configuration > UDM Service Name Type Configuration > Endpoint Profile Configuration > Version Configuration > URL Version Configuration

Syntax Description

version uri-version { *uri_version* | **full-version** *full_version* }

full-version *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*

Must be a string.

uri-version *uri_version*

Specify the URI version.

Must be a string in the pattern v\d.

Usage Guidelines

Use this command to configure the URI version information.

profile nf-client-failure nf-type amf

Configures the AMF Profile Failure Handling parameters.

Command Modes

Exec > Global Configuration (config)

Syntax Description

profile nf-client-failure nf-type amf

Usage Guidelines

Use this command to configure the AMF Profile Failure Handling parameters. The CLI prompt changes to the AMF Configuration mode (config-amf).

profile nf-client-failure nf-type amf profile failure-handling

Configures the AMF failure handling template parameter.

Command Modes Exec > Global Configuration (config) > AMF Configuration (config-amf)

Syntax Description **profile failure-handling** *fh_template_name*

failure-handling *fh_template_name*

Specify name of the AMF failure handling template.

Must be a string.

Usage Guidelines Use this command to configure the AMF failure handling template parameter. The CLI prompt changes to the Failure Handling <profile_name> Configuration mode (config-failure-handling-<profile_name>).

profile nf-client-failure nf-type amf profile failure-handling service name type

Configures the AMF service name type parameter.

Command Modes Exec > Global Configuration (config) > AMF Configuration (config-amf) > Failure Handling *profile_name* Configuration mode (config-failure-handling-*profile_name*)

Syntax Description **service name type** *amf_service_name_type*

responsetimeout *response_timeout*

Specify the response timeout interval in milliseconds.

Must be an integer.

Default Value: 2000.

type *amf_service_name_type*

Specify the AMF service name type.

Must be one of the following:

- **namf-comm**
- **namf-evts**
- **namf-loc**
- **namf-mt**

Usage Guidelines Use this command to configure AMF service name type parameter. The CLI prompt changes to the Failure Handling Service Name Type Configuration mode (config-type-<service_name_type>)

profile nf-client-failure nf-type amf profile failure-handling service name type message type

Configures the AMF message type parameters.

Command Modes Exec > Global Configuration (config) > AMF Configuration (config-amf) > Failure Handling *profile_name* Configuration mode (config-failure-handling-*profile_name*) > Failure Handling Service Name Type Configuration (config-type-*service_name_type*)

Syntax Description `message type amf_message_type`

type amf_message_type

Specify the AMF message type.

Must be one of the following:

- **AmfCommEBIAssignment**
- **AmfCommN1N2MessageTransfer**
- **AmfCommSMSStatusChangeNotify**

Usage Guidelines Use this command to configure the AMF message type parameters.

profile nf-client-failure nf-type amf profile failure-handling service name type message type status-code httpv2

Configures HTTPv2 status codes.

Command Modes Exec > Global Configuration

Syntax Description `status-code httpv2 range { code code_value | retry retry_value | action action }`

action action

Specify the action.

Must be one of the following:

- **continue**: Specify to continue the session without any retry. The retry count configuration is invalid with this action.
- **retry-and-continue**: Specify to retry as per the configured retry count and continue the session.
- **retry-and-ignore**
- **retry-and-terminate**: Specify to retry as per the configured retry count and terminate the session in case all retry fails.

- **terminate**: Specify to terminate the session without any retry. Retry count configuration is invalid with this action.

code *code_value*

Specify the code, or a range of status codes separated by either - (hyphen) or , (comma).

Must be an integer.

-Or-

Must be a string.

retry *retry_value*

Specify the number of times the NF service must retry before proceeding with the action.

Must be an integer in the range of 1-10.

Usage Guidelines Use this command to configure HTTPv2 status codes.

profile nf-client-failure nf-type ausf

Configures AUSF profile failure handling parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `profile nf-client-failure nf-type ausf`

Usage Guidelines Use this command to configure AUSF failure handling parameters. The CLI prompt changes to the AUSF Configuration mode (config-ausf).

profile nf-client-failure nf-type ausf profile failure-handling

Configures the AUSF failure handling template parameters.

Command Modes Exec > Global Configuration (config) > AUSF Configuration (config-ausf)

Syntax Description `profile failure-handling fh_template_name`

failure-handling *fh_template_name*

Specify name of the AUSF failure handling template.

Must be a string.

Usage Guidelines Use this command to configure the AUSF failure handling template parameters. The CLI prompt changes to the Failure Handling Profile Configuration mode (config-failure-handling-<profile_name>).

profile nf-client-failure nf-type ausf profile failure-handling service name type

Configures the AUSF service name type.

Command Modes Exec > Global Configuration (config) > AUSF Configuration (config-ausf) > Failure Handling *profile_name* Configuration mode (config-failure-handling-*profile_name*)

Syntax Description **service name type** *ausf_service_name_type*

type *ausf_service_name_type*

Specify the AUSF service name type.

Must be one of the following:

- **nausf-auth**

Usage Guidelines Use this command to configure the AUSF service name type.

profile nf-client-failure nf-type ausf profile failure-handling service name type message type

Configures the AUSF message type parameters.

Command Modes Exec > Global Configuration (config) > AUSF Configuration (config-ausf) > Failure Handling *profile_name* Configuration mode (config-failure-handling-*profile_name*) > Failure Handling Service Name Type Configuration (config-type-*service_name_type*)

Syntax Description **message type** *ausf_message_type*

type *ausf_message_type*

Specify the AUSF message type.

Must be one of the following:

- **AusfAuthenticationCfm**
- **AusfAuthenticationReq**

Usage Guidelines Use this command to configure the AUSF message type parameters.

profile nf-client-failure nf-type ausf profile failure-handling service name type message type status-code http2

Configures HTTPv2 status codes.

Command Modes Exec > Global Configuration

Syntax Description `status-code httpv2 range { code code_value | retry retry_value | action action }`

action action

Specify the action.

Must be one of the following:

- **continue**: Specify to continue the session without any retry. The retry count configuration is invalid with this action.
- **retry-and-continue**: Specify to retry as per the configured retry count and continue the session.
- **retry-and-ignore**
- **retry-and-terminate**: Specify to retry as per the configured retry count and terminate the session in case all retry fails.
- **terminate**: Specify to terminate the session without any retry. Retry count configuration is invalid with this action.

code code_value

Specify the code, or a range of status codes separated by either - (hyphen) or , (comma).

Must be an integer.

-Or-

Must be a string.

retry retry_value

Specify the number of times the NF service must retry before proceeding with the action.

Must be an integer in the range of 1-10.

Usage Guidelines Use this command to configure HTTPv2 status codes.

profile nf-client-failure nf-type chf

Configures CHF profile failure handling parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `profile nf-client-failure nf-type chf`

Usage Guidelines Use this command to configure CHF failure handling parameters. The CLI prompt changes to the CHF Configuration mode (config-chf).

profile nf-client-failure nf-type chf profile failure-handling

Configures the CHF failure handling template parameters.

Command Modes Exec > Global Configuration (config) > CHF Configuration (config-chf)

Syntax Description `profile failure-handling fh_template_name`

failure-handling fh_template_name

Specify name of the CHF failure handling template.

Must be a string.

Usage Guidelines Use this command to configure the CHF failure handling template for CHF profile.

profile nf-client-failure nf-type chf profile failure-handling service name type

Configures the CHF service name type parameters.

Command Modes Exec > Global Configuration

Syntax Description `type chf_service_name_type`

responsetimeout response_timeout

Specify the response timeout interval in milliseconds.

Must be an integer.

Default Value: 2000.

type chf_service_name_type

Specify the CHF service name type.

Must be one of the following:

- **nchf-convergedcharging**
- **nchf-spendinglimitcontrol**

Usage Guidelines Use this command to configure the CHF service name type parameters.

profile nf-client-failure nf-type chf profile failure-handling service name type message type

Configures the CHF message type parameters.

Command Modes Exec > Global Configuration (config) > CHF Configuration (config-chf) > Failure Handling *profile_name* Configuration mode (config-failure-handling-*profile_name*) > Failure Handling Service Name Type Configuration (config-type-*service_name_type*)

Syntax Description `message type chf_message_type`

type chf_message_type

Specify the CHF message type.

Must be one of the following:

- ChfConvergedchargingCreate
- ChfConvergedchargingDelete
- ChfConvergedchargingUpdate
- ChfSpendingLimitContolSubscribe
- ChfSpendingLimitContolUnSubscribe

Usage Guidelines Use this command to configure the CHF message type parameters.

profile nf-client-failure nf-type chf profile failure-handling service name type message type status-code httpv2

Configures HTTPv2 status codes.

Command Modes Exec > Global Configuration

Syntax Description `status-code httpv2 range { code code_value | retry retry_value | action action }`

action action

Specify the action.

Must be one of the following:

- **continue**: Specify to continue the session without any retry. The retry count configuration is invalid with this action.
- **retry-and-continue**: Specify to retry as per the configured retry count and continue the session.
- **retry-and-ignore**

- **retry-and-terminate**: Specify to retry as per the configured retry count and terminate the session in case all retry fails.
- **terminate**: Specify to terminate the session without any retry. Retry count configuration is invalid with this action.

code code_value

Specify the code, or a range of status codes separated by either - (hyphen) or , (comma).

Must be an integer.

-Or-

Must be a string.

retry retry_value

Specify the number of times the NF service must retry before proceeding with the action.

Must be an integer in the range of 1-10.

Usage Guidelines Use this command to configure HTTPv2 status codes.

profile nf-client-failure nf-type eir

Configures EIR profile failure handling parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `profile nf-client-failure nf-type eir`

Usage Guidelines Use this command to configure EIR failure handling parameters. The CLI prompt changes to the EIR Configuration mode (config-eir).

profile nf-client-failure nf-type eir profile failure-handling

Configures the EIR failure handling template parameters.

Command Modes Exec > Global Configuration (config) > EIR Configuration (config-eir)

Syntax Description `profile failure-handling fh_template_name`

failure-handling fh_template_name

Specify name of the EIR failure handling template.

Must be a string.

Usage Guidelines Use this command to configure the EIR failure handling template for EIR profile.

profile nf-client-failure nf-type eir profile failure-handling service name type

Configures the EIR service name type parameters.

Command Modes Exec > Global Configuration

Syntax Description **type** *eir_service_name_type*

responsetimeout response_timeout

Specify the response timeout interval in milliseconds.

Must be an integer.

Default Value: 2000.

type eir_service_name_type

Specify the EIR service name type.

Must be one of the following:

- n5g-eir-eic

Usage Guidelines Use this command to configure the EIR service name type parameters.

profile nf-client-failure nf-type eir profile failure-handling service name type message type

Specify the EIR message type parameters.

Command Modes Exec > Global Configuration (config) > EIR Configuration (config-eir) > Failure Handling *profile_name* Configuration mode (config-failure-handling-*profile_name*) > Failure Handling Service Name Type Configuration (config-type-*service_name_type*)

Syntax Description **message type** *eir_message_type*

type eir_message_type

Specify the EIR message type.

Must be one of the following:

- EirCheckEquipmentIdentity

Usage Guidelines Use this command to configure the EIR message type parameters.

profile nf-client-failure nf-type eir profile failure-handling service name type message type status-code httpv2

Configures HTTPv2 status codes.

Command Modes

Exec > Global Configuration

Syntax Description

status-code httpv2 *range* { **code** *code_value* | **retry** *retry_value* | **action** *action* }

action *action*

Specify the action.

Must be one of the following:

- **continue**: Specify to continue the session without any retry. The retry count configuration is invalid with this action.
- **retry-and-continue**: Specify to retry as per the configured retry count and continue the session.
- **retry-and-ignore**
- **retry-and-terminate**: Specify to retry as per the configured retry count and terminate the session in case all retry fails.
- **terminate**: Specify to terminate the session without any retry. Retry count configuration is invalid with this action.

code *code_value*

Specify the code, or a range of status codes separated by either - (hyphen) or , (comma).

Must be an integer.

-Or-

Must be a string.

retry *retry_value*

Specify the number of times the NF service must retry before proceeding with the action.

Must be an integer in the range of 1-10.

Usage Guidelines

Use this command to configure HTTPv2 status codes.

profile nf-client-failure nf-type nrf

Configures NRF profile failure handling parameters.

Command Modes

Exec > Global Configuration (config)

Syntax Description `profile nf-client-failure nf-type nrf`

Usage Guidelines Use this command to configure NRF failure handling parameters. The CLI prompt changes to the NRF Configuration mode (config-nrf).

profile nf-client-failure nf-type nrf profile failure-handling

Configures the NRF failure handling template parameters.

Command Modes Exec > Global Configuration (config) > NRF Configuration (config-nrf)

Syntax Description `profile failure-handling fh_template_name`

failure-handling fh_template_name

Specify name of the NRF failure handling template.

Must be a string.

Usage Guidelines Use this command to configure the failure handling template parameters.

profile nf-client-failure nf-type nrf profile failure-handling service name type

Configures NRF service name type parameters.

Command Modes Exec > Global Configuration

Syntax Description `type nrf_service_name_type responsetimeout response_timeout`

responsetimeout response_timeout

Specify the timeout interval in milliseconds.

Must be an integer.

Default Value: 2000.

nrf_service_name_type

Specify the NRF service name type.

Must be one of the following:

- **nrf-nfm**

Usage Guidelines Use this command to configure the NRF service name type parameters.

profile nf-client-failure nf-type nrf profile failure-handling service name type message type

Configures NRF message type parameters.

Command Modes	Exec > Global Configuration (config) > NRF Configuration (config-nrf) > Failure Handling <i>profile_name</i> Configuration mode (config-failure-handling- <i>profile_name</i>) > Failure Handling Service Name Type Configuration (config-type- <i>service_name_type</i>)
Syntax Description	<pre>type <i>message_type</i> failover-enabled { false true } re-registration-enabled { false true }</pre> <p>failover-enabled { false true }</p> <p>Specify whether to enable or disable failover to next NRF.</p> <p>Must be one of the following:</p> <ul style="list-style-type: none"> • false • true <p>Default Value: true.</p> <p>re-registration-enabled { false true }</p> <p>Specify whether to enable or disable re-registration.</p> <p>Must be one of the following:</p> <ul style="list-style-type: none"> • false • true <p>Default Value: true.</p> <p>type <i>message_type</i></p> <p>Specify the message type.</p> <p>Must be one of the following:</p> <ul style="list-style-type: none"> • Heartbeat • NFUpdate • NRFRegistration
Usage Guidelines	Use this command to configure the NRF message type parameters.

profile nf-client-failure nf-type nrf profile failure-handling service name type message type status-code httpv2

Configures HTTPv2 status code.

Command Modes Exec > Global Configuration

Syntax Description `status-code httpv2 { code code_value | action action }`

action action

Specify the action.

Must be one of the following:

- **retry-next**
- **retry**

code code_value

Specify the code value. Ranges of status codes must be separated by either hyphen (-) or comma (,).

Must be an integer.

-Or-

Must be a string.

Usage Guidelines Use this command to configure HTTPv2 status codes.

profile nf-client-failure nf-type pcf

Configures PCF profile failure handling parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `profile nf-client-failure nf-type pcf`

Usage Guidelines Use this command to configure PCF failure handling parameters. The CLI prompt changes to the PCF Configuration mode (config-pcf).

profile nf-client-failure nf-type pcf profile failure-handling

Configures the PCF failure handling template parameters.

Command Modes Exec > Global Configuration (config) > PCF Configuration (config-pcf)

Syntax Description `profile failure-handling fh_template_name`

failure-handling fh_template_name

Specify name of the PCF failure handling template.

Must be a string.

Usage Guidelines Use this command to configure the failure handling template for PCF profile.

profile nf-client-failure nf-type pcf profile failure-handling service name type

Configures PCF service name type.

Command Modes Exec > Global Configuration

Syntax Description `type pcf_service_name_type`

responsetimeout response_timeout

Specify the response timeout interval in milliseconds.

Must be an integer.

Default Value: 2000.

pcf_service_name_type

Specify the PCF service name type.

Must be one of the following:

- **npcf-am-policy-control**
- **npcf-bdtpolicycontrol**
- **npcf-eventexposure**
- **npcf-policyauthorization**
- **npcf-smpolicycontrol**
- **npcf-ue-policy-control**

Usage Guidelines Use this command to configure the PCF service name type.

profile nf-client-failure nf-type pcf profile failure-handling service name type message type

Configures the PCF message type parameters.

Command Modes Exec > Global Configuration (config) > PCF Configuration (config-pcf) > Failure Handling *profile_name* Configuration mode (config-failure-handling-*profile_name*) > Failure Handling Service Name Type Configuration (config-type-*service_name_type*)

Syntax Description **message type** *pcf_message_type*

type *pcf_message_type*

Specify the PCF message type.

Must be one of the following:

- PcfAmfPolicyControlCreate
- PcfSmpolicycontrolCreate
- PcfSmpolicycontrolDelete
- PcfSmpolicycontrolUpdate

Usage Guidelines Use this command to configure the PCF message type parameters.

profile nf-client-failure nf-type pcf profile failure-handling service name type message type status-code http2

Configures HTTPv2 status codes.

Command Modes Exec > Global Configuration

Syntax Description **status-code httpv2** *range* { **code** *code_value* | **retry** *retry_value* | **action** *action* }

action *action*

Specify the action.

Must be one of the following:

- **continue**: Specify to continue the session without any retry. The retry count configuration is invalid with this action.
- **retry-and-continue**: Specify to retry as per the configured retry count and continue the session.
- **retry-and-ignore**
- **retry-and-terminate**: Specify to retry as per the configured retry count and terminate the session in case all retry fails.
- **terminate**: Specify to terminate the session without any retry. Retry count configuration is invalid with this action.

code *code_value*

Specify the code, or a range of status codes separated by either - (hyphen) or , (comma).

Must be an integer.

-Or-

Must be a string.

retry *retry_value*

Specify the number of times the NF service must retry before proceeding with the action.

Must be an integer in the range of 1-10.

Usage Guidelines Use this command to configure HTTPv2 status codes.

profile nf-client-failure nf-type udm

Configures UDM profile failure handling parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile nf-client-failure nf-type udm**

Usage Guidelines Use this command to configure UDM failure handling parameters. The CLI prompt changes to the UDM Configuration mode (config-udm).

profile nf-client-failure nf-type udm profile failure-handling

Configures the UDM failure handling template parameters.

Command Modes Exec > Global Configuration (config) > UDM Configuration (config-udm)

Syntax Description **profile failure-handling *fh_template_name***

failure-handling *fh_template_name*

Specify name of the UDM failure handling template.

Must be a string.

Usage Guidelines Use this command to configure the failure handling template for UDM profile.

profile nf-client-failure nf-type udm profile failure-handling service name type

Configures UDM service name type.

Command Modes Exec > Global Configuration (config) > UDM Configuration (config-udm) > Failure Handling *profile_name* Configuration mode (config-failure-handling-*profile_name*)

Syntax Description **type** *udm_service_name_type* [**responsetimeout** *response_timeout*]

responsetimeout *response_timeout*

Specify the response timeout interval in milliseconds.

Must be an integer.

Default Value: 2000.

udm_service_name_type

Specify the UDM service name type.

Must be one of the following:

- **nudm-ee**
- **nudm-pp**
- **nudm-sdm**
- **nudm-ueau**
- **nudm-uecm**

Usage Guidelines Use this command to configure the UDM service name type.

profile nf-client-failure nf-type udm profile failure-handling service name type message type

Configures the UDM message type parameters.

Command Modes Exec > Global Configuration (config) > UDM Configuration (config-udm) > Failure Handling *profile_name* Configuration mode (config-failure-handling-*profile_name*) > Failure Handling Service Name Type Configuration (config-type-*service_name_type*)

Syntax Description **message type** *udm_message_type*

type *udm_message_type*

Specify the UDM message type.

Must be one of the following:

- **UdmRegistrationReq**
- **UdmSdmGetUESMSSubscriptionData**
- **UdmSdmSubscribeToNotification**
- **UdmSdmUnsubscribeToNotification**
- **UdmSubscriptionReq**

profile nf-client-failure nf-type udm profile failure-handling service name type message type status-code httpv2

- **UdmUecmRegisterSMF**
- **UdmUecmUnregisterSMF**

Usage Guidelines Use this command to configure the UDM message type parameters.

profile nf-client-failure nf-type udm profile failure-handling service name type message type status-code httpv2

Configures HTTPv2 status codes.

Command Modes Exec > Global Configuration

Syntax Description **status-code httpv2** *range* { **code** *code_value* | **retry** *retry_value* | **action** *action* }

action *action*

Specify the action.

Must be one of the following:

- **continue**: Specify to continue the session without any retry. The retry count configuration is invalid with this action.
- **retry-and-continue**: Specify to retry as per the configured retry count and continue the session.
- **retry-and-ignore**
- **retry-and-terminate**: Specify to retry as per the configured retry count and terminate the session in case all retry fails.
- **terminate**: Specify to terminate the session without any retry. Retry count configuration is invalid with this action.

code *code_value*

Specify the code, or a range of status codes separated by either - (hyphen) or , (comma).

Must be an integer.

-Or-

Must be a string.

retry *retry_value*

Specify the number of times the NF service must retry before proceeding with the action.

Must be an integer in the range of 1-10.

Usage Guidelines Use this command to configure HTTPv2 status codes.

profile nf-pair nf-type

Configures the NF client pair type parameter.

Command Modes Exec > Global Configuration (config)

Syntax Description `profile nf-pair nf-type nf_type [[limit max_discovery_profiles] [max-payload-size max_payload_size] [nrf-discovery-group group_name]]`

limit max_discovery_profiles

Specify the maximum number of discovery profiles that NRF can send.

Must be an integer in the range of 1-1000.

Default Value: 10.

max-payload-size max_payload_size

Specify the maximum payload size of the discovery response.

Must be an integer in the range of 124-2000.

Default Value: 124.

nf-type nf_type

Specify the NF client pair type.

Must be one of the following:

- **5G_EIR**
- **AF**
- **AMF**
- **AUSF**
- **BSF**
- **CHF**
- **GMLC**
- **LMF**
- **N3IWF**
- **NEF**
- **NRF**
- **NSSF**
- **NWDAF**
- **PCF**

- SEPP
- SMF
- SMSF
- UDM
- UDR
- UDSF
- UPF

nrf-discovery-group *group_name*

Specify name of the NRF discovery group.

Must be a string.

Usage Guidelines

Configures NF client pair parameters. Use this command to configure the NF client pair type parameter.

profile nf-pair nf-type cache invalidation true

Configures the invalidation cache for "true" case.

Command Modes

Exec > Global Configuration (config) > NF Type Configuration (config-nf-type-*nf_type*)

Syntax Description

cache invalidation { **false** | **true** [**timeout** *timeout_duration*] }

timeout *timeout_duration*

Specify the invalidation cache timeout duration in milliseconds.

Must be an integer.

Default Value: 0.

true

True condition.

Usage Guidelines

Use this command to configure the true case parameters for invalidation cache.

profile nf-pair nf-type locality

Configures client locality parameter.

Command Modes

Exec > Global Configuration (config) > NF Type Configuration (config-nf-type-*nf_type*)

Syntax Description

locality { **client** *locality_name* | **geo-server** *locality_name* | **preferred-server** *locality_name* }

client *locality_name*

Specify the Client Locality information.

Must be a string.

geo-server *locality_name*

Specify the Geo Service Locality information.

Must be a string.

preferred-server *locality_name*

Specify the preferred server locality information.

Must be a string.

Usage Guidelines Use this command to configure the client locality parameter.

profile overload

Configures overload protection profile.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile overload** *profile_name*

overload *profile_name*

Specify name of the overload protection profile.

Must be a string.

Usage Guidelines Use this command to configure overload protection profile. The CLI prompt changes to the Overload Profile Configuration mode (config-overload-<profile_name>)

You can configure a maximum of one element with this command.

profile overload node-level

Configures Overload profile's node-level parameters.

Command Modes Exec > Global Configuration (config) > Overload Profile Configuration (config-overload-*profile_name*)

Syntax Description **node-level**

Usage Guidelines Use this command to configure the overload profile's node-level parameters. The CLI prompt changes to the Node-level Configuration mode (config-node-level).

profile overload node-level advertise

Configures the advertising action.

Command Modes

Exec > Global Configuration (config) > Overload Profile Configuration (config-overload-*profile_name*) > Node Level Configuration (config-node-level)

Syntax Description

```
advertise { [ interval advertising_interval ] [ change-factor change_factor ] [ validity-period validity_period ] }
```

change-factor *change_factor*

Specify the minimum change between current OCI and last indicated OCI, after which only advertising should happen.

Must be an integer in the range of 1-20.

Default Value: 5.

interval *advertising_interval*

Specify the advertising interval in seconds.

Must be an integer in the range of 0-3600.

Default Value: 300.

validity-period *validity_period*

Specify the validity period of the advertised OCI value in seconds.

Must be an integer in the range of 1-3600.

Default Value: 600.

Usage Guidelines

Use this command to configure the advertising action.

profile overload node-level interface

Configures the list of interfaces.

Command Modes

Exec > Global Configuration (config) > Overload Profile Configuration (config-overload-*profile_name*) > Node Level Configuration (config-node-level)

Syntax Description

```
interface interface_type [ overloaded-action overloaded_action ]
```

interface *interface_type*

Specify the type of the interface.

Must be one of the following:

- **gtpc**

overloaded-action *overloaded_action*

Specify the action on the interface in overloaded state.

Must be one of the following:

- **advertise**

Usage Guidelines Use this command to configure the list of interfaces.

profile overload node-level reduction-metric

Configures the percentage reduction metric configuration.

Command Modes Exec > Global Configuration (config) > Overload Profile Configuration (config-overload-profile_name) > Node Level Configuration (config-node-level)

Syntax Description **reduction-metric** { [**minimum** *minimum_reduction*] [**maximum** *maximum_reduction*] }

maximum *maximum_reduction*

Specify the percentage of reduction in tandem with tolerance maximum configuration. Maximum reduction must be greater than minimum reduction.

Must be an integer in the range of 1-100.

Default Value: 100.

minimum *minimum_reduction*

Specify the percentage of reduction in tandem with tolerance minimum configuration. Minimum reduction must be lesser than maximum reduction.

Must be an integer in the range of 1-100.

Default Value: 10.

Usage Guidelines Use this command to configure the Percentage Reduction Metric configuration.

profile overload node-level tolerance

Configures the percentage tolerance level configuration.

Command Modes Exec > Global Configuration (config) > Overload Profile Configuration (config-overload-profile_name) > Node-level Configuration (config-node-level)

Syntax Description **tolerance** { [**minimum** *minimum_tolerance*] [**maximum** *maximum_tolerance*] }

maximum *maximum_tolerance*

Specify the tolerance level above which the system is considered to be in self-protection state. Maximum tolerance must be greater than minimum tolerance.

Must be an integer in the range of 1-100.

Default Value: 95.

minimum *minimum_tolerance*

Specify the tolerance level below which the system is considered to be in normal state. Minimum tolerance must be lesser than maximum tolerance.

Must be an integer in the range of 1-100.

Default Value: 80.

Usage Guidelines

Use this command to configure the percentage tolerance level configuration.

profile overload overload-exclude-profile

Configures excluding profiles for overload scenarios.

Command Modes

Exec > Global Configuration (config) > Overload Profile Configuration (config-overload-profile_name)

Syntax Description

overload-exclude-profile self-protection *exclude_profile_name* **peer-overload** *exclude_profile_name*

self-protection *exclude_profile_name*

Specify to exclude profile for self protection.

Must be a string.

Usage Guidelines

Use this command to configure excluding profiles for overload scenarios.

profile overload-exclude

Configures the list of exclude overloads.

Command Modes

Exec > Global Configuration (config)

Syntax Description

profile overload-exclude *exclude_profile_name* [[**arp-list** *arp_list*] [**dnn-list** *dnn_list*] [**procedure-list** *procedures_list*] [**qi5-list** *qi5_list*]]

arp-list *arp_list*

Specify the Allocation and Retention Priorities to be excluded from throttling decisions.

You can configure a maximum of eight elements with this keyword.

Must be an integer in the range of 1-15.

dnn-list *dnn_list*

Specify the DNNs to be excluded from throttling decisions.

You can configure a maximum of three elements with this keyword.

Must be a string.

overload-exclude *exclude_profile_name*

Specify the name of the exclude profile.

Must be a string.

procedure-list *procedures_list*

Specify the procedures to be excluded from throttling decisions.

Must be one of the following:

- **session-delete**

qi5-list *qi5_list*

Specify the 5G QoS Identifiers to be excluded from throttling decisions.

You can configure a maximum of eight elements with this keyword.

Must be an integer in the range of 1-15.

Usage Guidelines

Use this command to configure the list of exclude overloads.

profile overload-exclude message-priority

Configures the message priorities to be excluded from throttling decisions.

Command Modes

Exec > Global Configuration (config) > Overload Exclude Profile Configuration
(config-overload-exclude-*profile_name*)

Syntax Description

message-priority *interface_type* **upto** *message_priority_upto*

message-priority *interface_type*

Specify the interface type.

Must be one of the following:

- **s5**

upto *message_priority_upto*

Specify the message priority upto which must be excluded from throttling decisions.

Must be an integer in the range of 0-15.

Usage Guidelines

Use this command to configure the message priorities to be excluded from throttling decisions.

profile pcscf

Configures the P-CSCF profile.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile pcscf** *profile_name*

pcscf profile_name

Specify name of the P-CSCF profile.

Must be a string.

Usage Guidelines Use this command to configure the P-CSCF profile. The CLI prompt changes to the P-CSCF Profile Configuration mode (config-pcscf-<profile_name>).

profile pcscf fqdn

Configures the P-CSCF server's Fully Qualified Domain Name (FQDN).

Command Modes Exec > Global Configuration (config) > P-CSCF Profile Configuration (config-pcscf-*profile_name*)

Syntax Description **fqdn** *fqdn*

fqdn fqdn

Specify the P-CSCF server's FQDN.

Must be a string.

Usage Guidelines Use this command to configure the P-CSCF server's FQDN.

profile pcscf pcscf-selection

Configures the P-CSCF server selection algorithm.

Command Modes Exec > Global Configuration (config) > P-CSCF Profile Configuration (config-pcscf-*profile_name*)

Syntax Description **pcscf-selection** *algorithm*

pcscf-selection algorithm

Specify the P-CSCF server selection algorithm.

Must be one of the following:

- **round-robin**

Default Value: round-robin.

Usage Guidelines Use this command to configure the P-CSCF server selection method.

profile pcscf v4-list

Configures the P-CSCF IPv4 server details in the P-CSCF profile.

Command Modes Exec > Global Configuration (config) > P-CSCF Profile Configuration (config-pcscf-profile_name)

Syntax Description **v4-list**

Usage Guidelines Use this command to configure the P-CSCF IPv4 server details in the P-CSCF profile. The CLI prompt changes to the V4 List Configuration mode (config-v4-list).

profile pcscf v4-list list-entry

Configures the P-CSCF IPv4 server list entries.

Command Modes Exec > Global Configuration (config) > P-CSCF Profile Configuration (config-pcscf-profile_name) > V4 List Configuration (config-v4-list)

Syntax Description **precedence** *precedence_number*

precedence *precedence_number*

Specify the precedence number for P-CSCF IPv4 server configuration.

Must be an integer in the range of 1-64.

Usage Guidelines Configures the P-CSCF IPv4 server details in the P-CSCF profile. Use this command to configure the P-CSCF IPv4 server list entries.

profile pcscf v4-list list-entry primary

Configures the IPv4 address of the primary P-CSCF server.

Command Modes Exec > Global Configuration

Syntax Description **primary ipv4** *ipv4_address*

ipv4 *ipv4_address*

Specify the IPv4 address of the primary P-CSCF server in dotted-decimal notation.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

Usage Guidelines Use this command to configure the IPv4 address of the primary P-CSCF server.

Example

The following command configures the primary P-CSCF server with IPv4 address 30.22.21.44:

```
primary ipv4 30.22.21.44
```

profile pcscf v4-list list-entry secondary

Configures the IPv4 address of the secondary P-CSCF server.

Command Modes Exec > Global Configuration

Syntax Description **secondary ipv4** *ipv4_address*

ipv4 ipv4_address

Specify the IPv4 address of the secondary P-CSCF server in dotted-decimal notation.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

Usage Guidelines Use this to command configure the IPv4 address of the secondary P-CSCF server.

Example

The following command configures the secondary P-CSCF server with IPv4 address 30.22.21.44:

```
secondary ipv4 30.22.21.44
```

profile pcscf v4-list list-entry tertiary

Configures the IPv4 address of the tertiary P-CSCF server.

Command Modes Exec > Global Configuration

Syntax Description **tertiary ipv4** *ipv4_address*

ipv4 ipv4_address

Specify the IPv4 address of the tertiary P-CSCF server in dotted-decimal notation.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

Usage Guidelines Use this to command configure the IPv4 address of the tertiary P-CSCF server.

Example

The following command configures the tertiary P-CSCF server with IPv4 address 30.22.21.44:

```
tertiary ipv4 30.22.21.44
```

profile pcscf v4v6-list

Configures the P-CSCF IPv4v6 server details.

Command Modes	Exec > Global Configuration (config) > P-CSCF Profile Configuration (config-pcscf-profile_name)
Syntax Description	v4v6-list
Usage Guidelines	Use this command to configure the P-CSCF IPv4v6 server details in the P-CSCF profile. The CLI prompt changes to the v4v6 List Configuration Mode (config-v4v6-list).

profile pcscf v4v6-list list-entry

Configures the P-CSCF IPv4v6 server list entries.

Command Modes	Exec > Global Configuration (config) > P-CSCF Profile Configuration (config-pcscf-profile_name) > v4v6 Configuration Mode (config-v4v6-list)
Syntax Description	precedence <i>precedence_number</i> precedence <i>precedence_number</i> Specify the precedence of entries in the P-CSCF IPv4v6 server list. Must be an integer in the range of 1-64.
Usage Guidelines	Use this command to configure the P-CSCF IPv4v6 server list entries.

profile pcscf v4v6-list list-entry primary

Configures the IPv4v6 address of the primary P-CSCF server.

Command Modes	Exec > Global Configuration
Syntax Description	primary ipv4 <i>ipv4_address</i> ipv6 <i>ipv6_address</i> ipv4 <i>ipv4_address</i> Specify the IPv4 address of the primary P-CSCF server in dotted-decimal notation. Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 ipv6_address

Specify the IPv6 address of the primary P-CSCF server in colon-separated hexadecimal notation.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

Usage Guidelines

Use this command to configure the IPv4v6 address of the primary P-CSCF server.

Example

The following command configures the primary P-CSCF server with IPv4 address as 30.22.21.44 and IPv6 address as 123:345:456::6578:

```
primary ipv4 30.22.21.44 ipv6 123:345:456::6578
```

profile pcscf v4v6-list list-entry secondary

Configures the IPv4v6 address of the secondary P-CSCF server.

Command Modes

Exec > Global Configuration

Syntax Description

```
secondary { [ ipv4 ipv4_address ] [ ipv6 ipv6_address ] }
```

ipv4 ipv4_address

Specify the IPv4 address of the secondary P-CSCF server in dotted-decimal notation.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 ipv6_address

Specify the IPv6 address of the secondary P-CSCF server in colon-separated hexadecimal notation.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

Usage Guidelines

Use this command to configure the IPv4v6 address of the secondary P-CSCF server.

Example

The following command configures the secondary P-CSCF server with IPv4 address as 30.22.21.44 and IPv6 address as 123:345:456::6578:

```
secondary ipv4 30.22.21.44 ipv6 123:345:456::6578
```

profile pcscf v4v6-list list-entry tertiary

Configures the IPv4v6 address of the tertiary P-CSCF server.

Command Modes Exec > Global Configuration

Syntax Description `tertiary { [ipv4 ipv4_address] [ipv6 ipv6_address] }`

ipv4 ipv4_address

Specify the IPv4 address of the tertiary P-CSCF server in dotted-decimal notation.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

ipv6 ipv6_address

Specify the IPv6 address of the tertiary P-CSCF server in colon-separated hexadecimal notation.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

Usage Guidelines Use this command to configure the IPv4v6 address of the tertiary P-CSCF server.

Example

The following command configures the tertiary P-CSCF server with IPv4 address as 30.22.21.44 and IPv6 address as 123:345:456::6578:

```
tertiary ipv4 30.22.21.44 ipv6 123:345:456::6578
```

profile pcscf v6-list

Configures the P-CSCF IPv6 server details.

Command Modes Exec > Global Configuration (config) > P-CSCF Profile Configuration (config-pcscf-profile_name)

Syntax Description `v6-list`

Usage Guidelines Use this command to configure the P-CSCF IPv6 server details in the P-CSCF profile. The CLI prompt changes to the V6 List Configuration mode (config-v6-list).

profile pcscf v6-list list-entry

Configures the P-CSCF IPv6 server list entries.

Command Modes Exec > Global Configuration (config) > P-CSCF Profile Configuration (config-pcscf-profile_name) > V6 List Configuration (config-v6-list)

Syntax Description `precedence precedence_level`

precedence precedence_level

Specify the precedence of entries in the P-CSCF IPv6 server list.

Must be an integer in the range of 1-64.

Usage Guidelines Use this command to configure the P-CSCF IPv6 server list entries.

profile pcscf v6-list list-entry primary

Configures the IPv6 address of the primary P-CSCF server.

Command Modes Exec > Global Configuration (config) > P-CSCF Profile Configuration (config-pcscf-profile_name) > V6 List Configuration (config-v6-list)

Syntax Description `primary ipv6 ipv6_address`

ipv6 ipv6_address

Specify the IPv6 address of the primary P-CSCF server in colon-separated hexadecimal notation.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

Usage Guidelines Use this command to configure the IPv6 address of the primary P-CSCF server.

Example

The following command configures the primary P-CSCF server with IPv6 address 123:345:456::6578:

```
primary ipv6 123:345:456::6578
```

profile pcscf v6-list list-entry secondary

Configures the IPv6 address of the secondary P-CSCF server.

Command Modes Exec > Global Configuration

Syntax Description `secondary ipv6 ipv6_address`

ipv6 ipv6_address

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

Usage Guidelines Use this command to configure the IPv6 address of the secondary P-CSCF server.

Example

The following command configures the secondary P-CSCF server with IPv6 address 123:345:456::6578:

```
secondary ipv6 123:345:456::6578
```

profile pcscf v6-list list-entry tertiary

Configures the IPv6 address of the tertiary P-CSCF server.

Command Modes Exec > Global Configuration

Syntax Description **tertiary ipv6** *ipv6_address*

ipv6 ipv6_address

Specify the IPv6 address.

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

Usage Guidelines Use this command to configure the IPv6 address of the tertiary P-CSCF server.

Example

The following command configures the tertiary P-CSCF server with the IPv6 address 123:345:456::6578:

```
tertiary ipv6 123:345:456::6578
```

profile ppd

Configures the Paging Policy Differentiation (PPD) profile configuration.

Command Modes Exec > Global Configuration (config)

Syntax Description **ppd** *ppd_profile_name* [**fqi** *5qi_priority_levels*]

fqi 5qi_priority_levels

Specify the range of 5qi priority levels.

Must be an integer.

-Or-

Must be a string.

ppd ppd_profile_name

Specify name of the PPD profile.

Must be a string.

Usage Guidelines Use this command to configure the PPD profile configuration.

profile ppd dscp-list

Configures the Differentiated Services Code Point (DSCP) values.

Command Modes Exec > Global Configuration (config) > PPD Configuration (config-ppd-*profile_name*)

Syntax Description **dscp** *dscp_value* [**ppi** *ppi_value*]

dscp *dscp_value*

Specify the DSCP value.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ppi *ppi_value*

Specify the Paging Policy Indicator (PPI) value.

Must be an integer in the range of 0-7.

Usage Guidelines Use this command to configure the DSCP values.

profile qos

Configures the QoS profile configuration.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile qos** *qos_profile_name* [[**priority** *5qi_priority*] [**qi5** *qos_id*]]

priority *5qi_priority*

Specify the 5QI priority level.

Must be an integer in the range of 1-127.

profile qos *qos_profile_name*

Specify name of the QoS profile.

Must be a string.

qi5 *qos_id*

Specify the ID for the authorized QoS parameters.

Must be an integer in the range of 0-255.

Usage Guidelines Use this command to configure the QoS profile configuration.

profile qos ambr

Configures the Aggregate Maximum Bit Rate (AMBR).

Command Modes Exec > Global Configuration (config) > QoS Profile Configuration (config-qos-profile_name)

Syntax Description **ambr** { **ul** *ambr_uplink_threshold* | **dl** *ambr_downlink_threshold* }

dl *ambr_downlink_threshold*

Specify the AMBR downlink threshold in bps, Kbps, Mbps, Gbps, or Tbps.

Must be a string in the pattern '[0-9]+.[0-9]+' (bps|Kbps|Mbps|Gbps|Tbps)'.

ul *ambr_uplink_threshold*

Specify the AMBR uplink threshold in bps, Kbps, Mbps, Gbps, or Tbps.

Must be a string in the pattern '[0-9]+.[0-9]+' (bps|Kbps|Mbps|Gbps|Tbps)'.

Usage Guidelines Use this command to configure the AMBR.

profile qos arp

Configures the Allocation and Retention Priority (ARP) for the service data.

Command Modes Exec > Global Configuration (config) > QoS Profile Configuration (config-qos-profile_name)

Syntax Description **arp priority-level** *priority_level* [**preempt-cap** *preemption_capability*] [**preempt-vuln** *preemption_vulnerability*]

preempt-cap *preemption_capability*

Specify the preemption capability.

Must be one of the following:

- MAY_PREEMPT
- NOT_PREEMPT

Default Value: MAY_PREEMPT.

preempt-vuln *preemption_vulnerability*

Specify the preemption vulnerability.

Must be one of the following:

- NOT_PREEMPTABLE
- PREEMPTABLE

Default Value: NOT_PREEMPTABLE.

priority-level *priority_level*

Specify the priority level.

Must be an integer in the range of 1-15.

Usage Guidelines Use this command to configure the ARP for the service data.

profile qos dscp-map qi5

Configures the standard 5QI value.

Command Modes Exec > Global Configuration (config) > QoS Profile Configuration (config-qos-profile_name)

Syntax Description **dscp-map qi5** *standard_qci*

qi5 standard_qci

Specify the standard QCI value.

Must be an integer in the range of 1-255.

Usage Guidelines Configures the 5QI to DSCP-Marking mapping. Use this command to configure the standard 5QI value.

profile qos dscp-map qi5 arp-priority-level

Configures the ARP priority level.

Command Modes Exec > Global Configuration (config) > QoS Profile Configuration (config-qos-profile_name)

Syntax Description **arp priority-level** *arp_priority_level*

Command Modes Exec > Global Configuration (config) > SGW QoS Profile Configuration (config-sgw-qos-profile-profile_name)

Syntax Description **dscp-map operator-defined-qci** *operator_defined_qci* [**gbr arp-priority-level** *arp_priority_level*]

arp-priority-level *arp_priority_level*

Specify the ARP priority level.

Must be an integer in the range of 1-255.

Usage Guidelines Configures the type of the QCI to GBR. Use this command to configure the ARP priority level.

profile qos dscp-map qi5 arp-priority-level dscp-info

Configures the Differentiated Services Code Point (DSCP) type.

Command Modes Exec > Global Configuration

Syntax Description **dscp-info type** *dscp_type*

dl-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-encap-dscp-marking dscp_marking

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encaps-header

Specify the DSCP value be applied to encaps header.

dl-ud-dscp dscp_marking

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-ud-encap-dscp dscp_marking

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

encsp-header

Specify the DSCP value to be applied to encaps header.

type dscp_type

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

user-datagram1

Specify the DSCP value be applied to user datagram.

Usage Guidelines

Configures the type of the QCI to GBR. Use this command to configure the DSCP type.

profile qos dscp-map qi5 arp-priority-level dscp-info user-datagram

Configures the Differentiated Services Code Point (DCSP) value to be applied to user datagram.

Command Modes

Exec > Global Configuration

Syntax Description

user-datagram ul-uD-dscp-marking *dscp_marking*

ul-uD-dscp-marking *dscp_marking*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

Usage Guidelines

Use this command to configure the DCSP value to be applied to user datagram.

profile qos dscp-map qi5 dscp-info

Configures the Differentiated Services Code Point (DSCP) type.

Command Modes

Exec > Global Configuration

Syntax Description

dscp-info type *dscp_type*

dl-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-encap-dscp-marking *dscp_marking*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encaps-header

Specify the DSCP value be applied to encaps header.

dl-ud-dscp *dscp_marking*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-ud-encap-dscp *dscp_marking*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

encsp-header

Specify the DSCP value to be applied to encaps header.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

user-datagram1

Specify the DSCP value be applied to user datagram.

Usage Guidelines

Configures the type of the QCI to GBR. Use this command to configure the DSCP type.

profile qos dscp-map qi5 dscp-info user-datagram

Configures the Differentiated Services Code Point (DCSP) value to be applied to user datagram.

Command Modes

Exec > Global Configuration

Syntax Description

user-datagram ul-uD-dscp-marking *dscp_marking*

ul-uD-dscp-marking *dscp_marking*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

Usage Guidelines

Use this command to configure the DCSP value to be applied to user datagram.

profile qos max

Configures the maximum data burst volume.

Command Modes Exec > Global Configuration (config) > QoS Profile Configuration (config-qos-profile_name)

Syntax Description **max data-burst** *max_data_burst_volume*

data-burst *max_data_burst_volume*

Specify the maximum data burst volume.

Must be an integer in the range of 1-4095.

Usage Guidelines Use this command to configure the maximum data burst volume.

profile qos qos-enforcement

Configures flow-level QoS enforcement configuration.

Command Modes Exec > Global Configuration (config) > QoS Profile Configuration (config-qos-profile_name)

Syntax Description **qos-enforcement flow-level**

flow-level

Specify flow-level QoS enforcement.

Usage Guidelines Use this command to configure flow-level QoS enforcement configuration.

profile radius

Configures RADIUS client profile.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile radius** [[**algorithm** *server_selection_algorithm*] [**deadtime** *deadtime_interval*] [**enable-packet-dump**] [**max-retry** *max_retries*] [**timeout** *timeout_interval*]]

algorithm *server_selection_algorithm*

Specify the algorithm for selecting the RADIUS server. Default Value: first-server.

Must be one of the following:

- **first-server**
- **round-robin**

deadtime *deadtime_interval*

Specify the time interval, in minutes, between the RADIUS server being marked unreachable and connection can be re-attempted.

Must be an integer in the range of 0-65535.

enable-packet-dump

Specify to enable packet dump.

max_retries

Specify the maximum number of times the system will attempt retry with the RADIUS server.

Must be an integer in the range of 0-65535.

timeout_interval

Specify the time interval to elapse for a response from the RADIUS server before re-transmitting.

Must be an integer in the range of 1-65535.

Usage Guidelines

Use this command to configure RADIUS client profile. The CLI prompt changes to the RADIUS Configuration mode (config-radius).

profile radius accounting

Configures RADIUS accounting parameters.

Command Modes

Exec > Global Configuration

Syntax Description

accounting *options*

algorithm *server_selection_algorithm*

Specify the algorithm for selecting the RADIUS server. Default Value: first-server.

Must be one of the following:

- **first-server**
- **round-robin**

deadtime *deadtime_interval*

Specify the time interval, in minutes, between the RADIUS server being marked unreachable and connection can be re-attempted.

Must be an integer in the range of 0-65535.

max_retries

Specify the maximum number of times the system will attempt retry with the RADIUS server.

Must be an integer in the range of 0-65535.

timeout_interval

Specify the time interval to elapse for a response from the RADIUS server before re-transmitting.

Must be an integer in the range of 1-65535.

Usage Guidelines Use this command to configure the RADIUS accounting parameters.

profile radius accounting attribute

Configures RADIUS identification parameters.

Command Modes Exec > Global Configuration (config) > RADIUS Configuration (config-radius)

Syntax Description **attribute** { **nas-identifier** *nas_id* | **nas-ip** *aaa_nas_ipv4_address* }

nas-identifier *nas_identifier*

Specify the attribute name by which the system will be identified in Auth or Accounting Request messages.

Must be a string in the fmtstr pattern. For information on the fmtstr pattern, see the Input Pattern Types section.

nas-identifier *nas_identifier*

Specify the attribute name by which the system will be identified in Auth or Accounting Request messages.

Must be a string in the fmtstr pattern. For information on the fmtstr pattern, see the Input Pattern Types section.

nas-ip *aaa_nas_ipv4_address*

Specify the AAA NAS IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

-Or-

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

Usage Guidelines Use this command to configure RADIUS identification parameters.

profile radius accounting attribute instance

Configures instance configuration parameters.

Command Modes Exec > Global Configuration > RADIUS Configuration (config-radius)

Syntax Description **attribute instance** *instance_id* **nas-ip** *aaa_nas_ipv4_address*

instance *instance_id*

Specify the instance ID.

Must be an integer in the range of 1-8.

nas-identifier *nas_identifier*

Specify the attribute name by which the system will be identified in Auth or Accounting Request messages.

Must be a string in the fmtstr pattern. For information on the fmtstr pattern, see the Input Pattern Types section.

instance *instance_id*

Specify the instance ID.

Must be an integer in the range of 1-8.

nas-identifier *nas_identifier*

Specify the attribute name by which the system will be identified in Auth or Accounting Request messages.

Must be a string in the fmtstr pattern. For information on the fmtstr pattern, see the Input Pattern Types section.

nas-ip *aaa_nas_ipv4_address*

Specify the AAA NAS IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

-Or-

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

Usage Guidelines

Use this command to configure instance configuration parameters.

profile radius accounting detect-dead-server

Configures the response timeout duration, in seconds, to wait for a response from the RADIUS server after which it is marked as unreachable/dead.

Command Modes

Exec > Global Configuration (config) > RADIUS Configuration (config-radius)

Syntax Description

detect-dead-server response-timeout *response_timeout*

response-timeout *response_timeout*

Specify the time interval, in seconds, for response from RADIUS server to mark as unreachable.

Must be an integer in the range of 1-65535.

Usage Guidelines

Use this command to configure the response timeout duration, in seconds, to wait for a response from the RADIUS server after which it is marked as unreachable/dead.

profile radius attribute

Configures RADIUS identification parameters.

Command Modes

Exec > Global Configuration (config) > RADIUS Configuration (config-radius)

Syntax Description

attribute { **nas-identifier** *nas_id* | **nas-ip** *aaa_nas_ipv4_address* }

nas-identifier *nas_identifier*

Specify the attribute name by which the system will be identified in Auth or Accounting Request messages. Must be a string in the fmtstr pattern. For information on the fmtstr pattern, see the Input Pattern Types section.

nas-identifier *nas_identifier*

Specify the attribute name by which the system will be identified in Auth or Accounting Request messages. Must be a string in the fmtstr pattern. For information on the fmtstr pattern, see the Input Pattern Types section.

nas-ip *aaa_nas_ipv4_address*

Specify the AAA NAS IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

-Or-

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

Usage Guidelines

Use this command to configure RADIUS identification parameters.

profile radius attribute instance

Configures instance configuration parameters.

Command Modes

Exec > Global Configuration > RADIUS Configuration (config-radius)

Syntax Description

attribute instance *instance_id* **nas-ip** *aaa_nas_ipv4_address*

instance *instance_id*

Specify the instance ID.

Must be an integer in the range of 1-8.

nas-identifier *nas_identifier*

Specify the attribute name by which the system will be identified in Auth or Accounting Request messages.

Must be a string in the fmtstr pattern. For information on the fmtstr pattern, see the Input Pattern Types section.

instance *instance_id*

Specify the instance ID.

Must be an integer in the range of 1-8.

nas-identifier *nas_identifier*

Specify the attribute name by which the system will be identified in Auth or Accounting Request messages.

Must be a string in the fmtstr pattern. For information on the fmtstr pattern, see the Input Pattern Types section.

nas-ip *aaa_nas_ipv4_address*

Specify the AAA NAS IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

-Or-

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

Usage Guidelines

Use this command to configure instance configuration parameters.

profile radius detect-dead-server

Configures the response timeout duration, in seconds, to wait for a response from the RADIUS server after which it is marked as unreachable/dead.

Command Modes

Exec > Global Configuration (config) > RADIUS Configuration (config-radius)

Syntax Description

detect-dead-server **response-timeout** *response_timeout*

response-timeout *response_timeout*

Specify the time interval, in seconds, for response from RADIUS server to mark as unreachable.

Must be an integer in the range of 1-65535.

Usage Guidelines

Use this command to configure the response timeout duration, in seconds, to wait for a response from the RADIUS server after which it is marked as unreachable/dead.

profile radius dictionary

Configures RADIUS dictionary.

Command Modes

Exec > Global Configuration (config) > RADIUS Configuration (config-radius)

Syntax Description

dictionary *dictionary_name*

dictionary *dictionary_name*

Specify the name of the dictionary as Identify Services Engine (ISE).

If this dictionary is configured, the SMF service renders the RADIUS configuration and populates the request messages with ISE-specific parameters.

Must be a string.

Usage Guidelines Use this command to configure RADIUS dictionary.

profile radius server

Configures the external RADIUS server parameters.

Command Modes Exec > Global Configuration (config) > RADIUS Configuration (config-radius) > RADIUS Server Group Configuration (config-server-group-*group_name*)

Syntax Description **server** *radius_server_ip_address* *radius_server_port_number* [[**secret** *radius_server_secret*] [**priority** *radius_server_priority*] [**type** *server_type*]]

priority *radius_server_priority*

Specify the priority of the RADIUS server.

Must be an integer in the range of 1-100.

secret *radius_server_secret*

Specify the RADIUS server secret.

Must be a string.

type *server_type*

Specify the server type.

Must be one of the following:

- **acct**: Specify the server is used for Accounting requests.
- **auth**: Specify the server is used for Authentication/Author requests.

Default Value: auth.

radius_server_ip_address

Specify the IP address of the RADIUS server.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

-Or-

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

radius_server_port_number

Specify the port number of the RADIUS server.

Must be an integer in the range of 1-65535.

Usage Guidelines

Use this command to configure the external RADIUS server parameters.

profile radius server-group

Configures association of RADIUS servers to groups.

Command Modes

Exec > Global Configuration (config) > RADIUS Configuration (config-radius)

Syntax Description

server-group *server_group_name*

algorithm *sever_selection_algorithm*

Specify the algorithm for selecting the RADIUS server. Default Value: first-server.

Must be one of the following:

- **first-server**
- **round-robin**

server-group *server_group_name*

Specify name of the RADIUS server group.

Must be a string in the ffmtstr pattern. For information on the ffmtstr pattern, see the Input Pattern Types section.

max_retries

Specify the maximum number of times the system will attempt retry with the RADIUS server.

Must be an integer in the range of 0-65535.

timeout_interval

Specify the time interval to elapse for a response from the RADIUS server before re-transmitting.

Must be an integer in the range of 1-65535.

Usage Guidelines

Use this command to configure the association of RADIUS servers to groups.

profile radius server-group accounting

Configures RADIUS accounting parameters.

Command Modes

Exec > Global Configuration

Syntax Description

accounting *options*

algorithm *sever_selection_algorithm*

Specify the algorithm for selecting the RADIUS server. Default Value: first-server.

Must be one of the following:

- **first-server**
- **round-robin**

max_retries

Specify the maximum number of times the system will attempt retry with the RADIUS server.

Must be an integer in the range of 0-65535.

timeout_interval

Specify the time interval to elapse for a response from the RADIUS server before re-transmitting.

Must be an integer in the range of 1-65535.

Usage Guidelines

Use this command to configure the RADIUS accounting parameters.

profile radius server-group accounting attribute

Configures RADIUS identification parameters.

Command Modes

Exec > Global Configuration (config) > RADIUS Configuration (config-radius)

Syntax Description

```
attribute { nas-identifier nas_id | nas-ip aaa_nas_ipv4_address }
```

nas-identifier *nas_identifier*

Specify the attribute name by which the system will be identified in Auth or Accounting Request messages.

Must be a string in the fmtstr pattern. For information on the fmtstr pattern, see the Input Pattern Types section.

nas-identifier *nas_identifier*

Specify the attribute name by which the system will be identified in Auth or Accounting Request messages.

Must be a string in the fmtstr pattern. For information on the fmtstr pattern, see the Input Pattern Types section.

nas-ip *aaa_nas_ipv4_address*

Specify the AAA NAS IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

-Or-

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

Usage Guidelines Use this command to configure RADIUS identification parameters.

profile radius server-group accounting attribute instance

Configures instance configuration parameters.

Command Modes Exec > Global Configuration > RADIUS Configuration (config-radius)

Syntax Description **attribute instance** *instance_id* **nas-ip** *aaa_nas_ipv4_address*

instance *instance_id*

Specify the instance ID.

Must be an integer in the range of 1-8.

nas-identifier *nas_identifier*

Specify the attribute name by which the system will be identified in Auth or Accounting Request messages.

Must be a string in the fmtstr pattern. For information on the fmtstr pattern, see the Input Pattern Types section.

instance *instance_id*

Specify the instance ID.

Must be an integer in the range of 1-8.

nas-identifier *nas_identifier*

Specify the attribute name by which the system will be identified in Auth or Accounting Request messages.

Must be a string in the fmtstr pattern. For information on the fmtstr pattern, see the Input Pattern Types section.

nas-ip *aaa_nas_ipv4_address*

Specify the AAA NAS IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

-Or-

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

Usage Guidelines Use this command to configure instance configuration parameters.

profile radius server-group attribute

Configures RADIUS identification parameters.

Command Modes Exec > Global Configuration (config) > RADIUS Configuration (config-radius)

Syntax Description `attribute { nas-identifier nas_id | nas-ip aaa_nas_ipv4_address }`

nas-identifier nas_identifier

Specify the attribute name by which the system will be identified in Auth or Accounting Request messages. Must be a string in the fmtstr pattern. For information on the fmtstr pattern, see the Input Pattern Types section.

nas-identifier nas_identifier

Specify the attribute name by which the system will be identified in Auth or Accounting Request messages. Must be a string in the fmtstr pattern. For information on the fmtstr pattern, see the Input Pattern Types section.

nas-ip aaa_nas_ipv4_address

Specify the AAA NAS IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

-Or-

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

Usage Guidelines Use this command to configure RADIUS identification parameters.

profile radius server-group attribute instance

Configures instance configuration parameters.

Command Modes Exec > Global Configuration > RADIUS Configuration (config-radius)

Syntax Description `attribute instance instance_id nas-ip aaa_nas_ipv4_address`

instance instance_id

Specify the instance ID.

Must be an integer in the range of 1-8.

nas-identifier nas_identifier

Specify the attribute name by which the system will be identified in Auth or Accounting Request messages. Must be a string in the fmtstr pattern. For information on the fmtstr pattern, see the Input Pattern Types section.

instance instance_id

Specify the instance ID.

Must be an integer in the range of 1-8.

nas-identifier *nas_identifier*

Specify the attribute name by which the system will be identified in Auth or Accounting Request messages. Must be a string in the fmtstr pattern. For information on the fmtstr pattern, see the Input Pattern Types section.

nas-ip *aaa_nas_ipv4_address*

Specify the AAA NAS IPv4 address.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

-Or-

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

Usage Guidelines Use this command to configure instance configuration parameters.

profile radius server-group server

Configures the RADIUS server parameters.

Command Modes Exec > Global Configuration (config) > RADIUS Configuration (config-radius) > RADIUS Server Group Configuration (config-server-group-group_name)

Syntax Description **server type** *server_type radius_server_ip_address radius_server_port_number*

type *server_type*

Specify the RADIUS server type.

Must be one of the following:

- **acct**: Specify the server is used for Accounting requests.
- **auth**: Specify the server is used for Authentication/Author requests.

radius_server_ip_address

Specify the IP address of the RADIUS server.

radius_server_port_number

Specify the port number of the RADIUS server.

Usage Guidelines Use this command to configure the RADIUS server parameters.

profile radius-dynamic-author

Configures the RADIUS Dynamic Author/COA profile.

Command Modes	Exec > Global Configuration (config)
Syntax Description	<p>profile radius-dynamic-author [client <i>client_ip_address</i> secret <i>secret_key</i> nas-identifier <i>nas_identifier</i>]</p> <p>nas-identifier <i>nas_id</i></p> <p>Specify the Dynamic Author NAS ID.</p> <p>Must be a string in the fmtstr pattern. For information on the fmtstr pattern, see the Input Pattern Types section.</p> <p>nas-identifier <i>nas_id</i></p> <p>Specify the Dynamic Author NAS ID.</p> <p>Must be a string in the fmtstr pattern. For information on the fmtstr pattern, see the Input Pattern Types section.</p> <p>secret <i>secret_key</i></p> <p>Specify the Dynamic Author server shared secret key.</p> <p>Must be a string.</p>
Usage Guidelines	Use this command to configure the RADIUS Dynamic Author/COA profile.

profile radius-dynamic-author client

Configures the RADIUS Dynamic Author Client parameters.

Command Modes	Exec > Global Configuration
Syntax Description	<p>client ip <i>radius_client_ip_address</i> secret <i>secret_key</i></p> <p>ip <i>radius_client_ip_address</i></p> <p>Specify the IP address of the RADIUS client.</p> <p>Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.</p> <p>-Or-</p> <p>Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.</p> <p>secret <i>secret_key</i></p> <p>Specify the client shared secret key.</p> <p>Must be a string.</p>
Usage Guidelines	Use this command to configure the RADIUS Dynamic Author Client parameters.

profile sgw-qos-profile

Configures the SGW QoS profile configuration.

Command Modes	Exec > Global Configuration (config)
Syntax Description	<p>profile sgw-qos-profile <i>sgw_qos_profile_name</i></p> <p>sgw-qos-profile <i>sgw_qos_profile_name</i></p> <p>Specify name of the SGW QoS profile.</p> <p>Must be a string.</p>

Usage Guidelines Use this command to configure the SGW QoS profile configuration.

profile sgw-qos-profile dscp-map operator-defined-qci

Configures the non-standard QCI values.

Command Modes	Exec > Global Configuration (config) > SGW QoS Profile Configuration (config-sgw-qos-profile-profile_name)
Syntax Description	<p>dscp-map operator-defined-qci <i>non_standard_qos_class_id</i></p> <p>operator-defined-qci <i>non_standard_qos_class_id</i></p> <p>Specify the non-standard QoS class identifier.</p> <p>Must be an integer in the range of 128-254.</p>

Usage Guidelines Use this command to configure the non-standard QCI values.

profile sgw-qos-profile dscp-map operator-defined-qci gbr arp-priority-level

Configures the ARP priority level.

Command Modes	Exec > Global Configuration (config) > QoS Profile Configuration (config-qos-profile_name)
Syntax Description	<p>dscp-map qi5 <i>qci_name</i> arp-priority-level <i>arp_priority_level</i></p> <p>arp-priority-level <i>arp_priority_level</i></p> <p>Specify the ARP priority level.</p> <p>Must be an integer in the range of 1-15.</p>

Usage Guidelines Configures the type of the QCI to GBR. Use this command to configure the ARP priority level.

profile sgw-qos-profile dscp-map operator-defined-qci gbr arp-priority-level dscp-info

Configures the Differentiated Services Code Point (DSCP) type.

Command Modes Exec > Global Configuration

Syntax Description **dscp-info type** *dscp_type*

dl-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encap-ci-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-dscp-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-iq-copy-outer

Specify to copy the outer DSCP to inner.

dl-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-iq-encap-type

Specify to copy the inner DSCP to outer.

dl-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

dl-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-iq-user-datagram

Specify DSCP value be applied to user datagram.

dl-priority *dl_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-user-datagram

Specify DSCP value be applied to user datagram.

dscp-marking-dl *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

ul-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with "0x". For example, 0x3F.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encap-ci-priority *ul_encap_ci_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-dscp-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encaps-header *dscp_value*

Specify the DCSP value to be applied to encaps header.

ul-iq-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-iq-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

ul-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-iq-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with 0x. For example, 0x3F.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-ud-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

ul-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

Usage Guidelines

Use this command to configure the DSCP type.

profile sgw-qos-profile dscp-map operator-defined-qci gbr dscp-info

Configures the Differentiated Services Code Point (DSCP) type.

Command Modes

Exec > Global Configuration

Syntax Description

dscp-info type *dscp_type*

dl-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encap-ci-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-dscp-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-iq-copy-outer

Specify to copy the outer DSCP to inner.

dl-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-iq-encap-type

Specify to copy the inner DSCP to outer.

dl-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

dl-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-iq-user-datagram

Specify DSCP value be applied to user datagram.

dl-priority *dl_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-user-datagram

Specify DSCP value be applied to user datagram.

dscp-marking-dl *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

ul-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with "0x". For example, 0x3F.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encap-ci-priority *ul_encap_ci_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-dscp-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encaps-header *dscp_value*

Specify the DCSP value to be applied to encaps header.

ul-iq-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-iq-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

ul-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-iq-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with 0x. For example, 0x3F.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-ud-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

ul-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

Usage Guidelines

Use this command to configure the DSCP type.

profile sgw-qos-profile dscp-map operator-defined-qci non-gbr

Configures the QCI type to non GBR.

Command Modes Exec > Global Configuration

Syntax Description **non-gbr** *options*

Usage Guidelines Use this command to configure the QCI type to non GBR.

profile sgw-qos-profile dscp-map operator-defined-qci non-gbr arp-priority-level

Configures the ARP priority level.

Command Modes Exec > Global Configuration (config) > QoS Profile Configuration (config-qos-profile_name)

Syntax Description **dscp-map qi5** *qci_name* **arp-priority-level** *arp_priority_level*

arp-priority-level *arp_priority_level*

Specify the ARP priority level.

Must be an integer in the range of 1-15.

Usage Guidelines Configures the type of the QCI to GBR. Use this command to configure the ARP priority level.

profile sgw-qos-profile dscp-map operator-defined-qci non-gbr arp-priority-level dscp-info

Configures the Differentiated Services Code Point (DSCP) type.

Command Modes Exec > Global Configuration

Syntax Description **dscp-info type** *dscp_type*

dl-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encap-ci-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-dscp-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-iq-copy-outer

Specify to copy the outer DSCP to inner.

dl-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-iq-encap-type

Specify to copy the inner DSCP to outer.

dl-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

dl-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-iq-user-datagram

Specify DSCP value be applied to user datagram.

dl-priority *dl_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-user-datagram

Specify DSCP value be applied to user datagram.

dscp-marking-dl *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

ul-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with "0x". For example, 0x3F.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encap-ci-priority *ul_encap_ci_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-dscp-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encaps-header *dscp_value*

Specify the DCSP value to be applied to encaps header.

ul-iq-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-iq-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

ul-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-iq-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with 0x. For example, 0x3F.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-ud-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

ul-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

Usage Guidelines

Use this command to configure the DSCP type.

profile sgw-qos-profile dscp-map operator-defined-qci non-gbr dscp-info

Configures the Differentiated Services Code Point (DSCP) type.

Command Modes

Exec > Global Configuration

Syntax Description

dscp-info type *dscp_type*

dl-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encap-ci-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-dscp-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-iq-copy-outer

Specify to copy the outer DSCP to inner.

dl-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-iq-encap-type

Specify to copy the inner DSCP to outer.

dl-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

dl-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-iq-user-datagram

Specify DSCP value be applied to user datagram.

dl-priority *dl_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-user-datagram

Specify DSCP value be applied to user datagram.

dscp-marking-dl *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

ul-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with "0x". For example, 0x3F.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encap-ci-priority *ul_encap_ci_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-dscp-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encaps-header *dscp_value*

Specify the DCSP value to be applied to encaps header.

ul-iq-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-iq-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

ul-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-iq-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with 0x. For example, 0x3F.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-ud-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

ul-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

Usage Guidelines Use this command to configure the DSCP type.

profile sgw-qos-profile dscp-map qci

Configures the standard QCI value.

Command Modes Exec > Global Configuration (config) > SGW QoS Profile Configuration (config-sgw-qos-profile-*profile_name*)

Syntax Description **dscp-map qci** *standard_qos_class_id options*

qci *standard_qos_class_id*

Specify the standard QoS class identifier.

Must be an integer from the following: 1-9, 65, 66, 69, 70, 80, 82, 83.

Usage Guidelines Use this command to configure the standard QCI value.

profile sgw-qos-profile dscp-map qci arp-priority-level

Configures the ARP priority level.

Command Modes Exec > Global Configuration (config) > QoS Profile Configuration (config-qos-*profile_name*)

Syntax Description `dscp-map qi5 qci_name arp-priority-level arp_priority_level`

arp-priority-level *arp_priority_level*

Specify the ARP priority level.

Must be an integer in the range of 1-15.

Usage Guidelines Configures the type of the QCI to GBR. Use this command to configure the ARP priority level.

profile sgw-qos-profile dscp-map qci arp-priority-level dscp-info

Configures the Differentiated Services Code Point (DSCP) type.

Command Modes Exec > Global Configuration

Syntax Description `dscp-info type dscp_type`

dl-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encap-ci-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-dscp-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-iq-copy-outer

Specify to copy the outer DSCP to inner.

dl-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-iq-encap-type

Specify to copy the inner DSCP to outer.

dl-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

dl-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-iq-user-datagram

Specify DSCP value be applied to user datagram.

dl-priority *dl_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-user-datagram

Specify DSCP value be applied to user datagram.

dscp-marking-dl *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

ul-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with "0x". For example, 0x3F.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encap-ci-priority *ul_encap_ci_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-dscp-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encaps-header *dscp_value*

Specify the DCSP value to be applied to encaps header.

ul-iq-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-iq-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

ul-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-iq-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with 0x. For example, 0x3F.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-ud-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

ul-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

Usage Guidelines Use this command to configure the DSCP type.

profile sgw-qos-profile dscp-map qci default

Configures the default QCI parameter.

Command Modes Exec > Global Configuration

Syntax Description `default options`

Usage Guidelines Use this command to configure the default QCI parameter.

profile sgw-qos-profile dscp-map qci default dscp-info

Configures the Differentiated Services Code Point (DSCP) type.

Command Modes Exec > Global Configuration

Syntax Description **dscp-info type** *dscp_type*

dl-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encap-ci-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-dscp-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-iq-copy-outer

Specify to copy the outer DSCP to inner.

dl-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-iq-encap-type

Specify to copy the inner DSCP to outer.

dl-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

dl-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-iq-user-datagram

Specify DSCP value be applied to user datagram.

dl-priority *dl_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-user-datagram

Specify DSCP value be applied to user datagram.

dscp-marking-dl *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

ul-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with "0x". For example, 0x3F.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encap-ci-priority *ul_encap_ci_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-dscp-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encaps-header *dscp_value*

Specify the DCSP value to be applied to encaps header.

ul-iq-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-iq-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

ul-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-iq-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with 0x. For example, 0x3F.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-ud-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

ul-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

Usage Guidelines Use this command to configure the DSCP type.

profile sgw-qos-profile dscp-map qci gbr dscp-info

Configures the Differentiated Services Code Point (DSCP) type.

Command Modes Exec > Global Configuration

Syntax Description **dscp-info type** *dscp_type*

dl-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encap-ci-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-dscp-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-iq-copy-outer

Specify to copy the outer DSCP to inner.

dl-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-iq-encap-type

Specify to copy the inner DSCP to outer.

dl-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

dl-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-iq-user-datagram

Specify DSCP value be applied to user datagram.

dl-priority *dl_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-user-datagram

Specify DSCP value be applied to user datagram.

dscp-marking-dl *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

ul-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with "0x". For example, 0x3F.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encap-ci-priority *ul_encap_ci_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-dscp-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encaps-header *dscp_value*

Specify the DCSP value to be applied to encaps header.

ul-iq-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-iq-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

ul-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-iq-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with 0x. For example, 0x3F.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-ud-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

ul-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

Usage Guidelines Use this command to configure the DSCP type.

profile sgw-qos-profile dscp-map qci non-gbr dscp-info

Configures the Differentiated Services Code Point (DSCP) type.

Command Modes Exec > Global Configuration

Syntax Description **dscp-info** **type** *dscp_type*

dl-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encap-ci-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-dscp-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-iq-copy-outer

Specify to copy the outer DSCP to inner.

dl-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-iq-encap-type

Specify to copy the inner DSCP to outer.

dl-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

dl-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-iq-user-datagram

Specify DSCP value be applied to user datagram.

dl-priority *dl_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

dl-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-user-datagram

Specify DSCP value be applied to user datagram.

dscp-marking-dl *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

ul-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with "0x". For example, 0x3F.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encap-ci-priority *ul_encap_ci_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-dscp-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-encaps-header *dscp_value*

Specify the DCSP value to be applied to encaps header.

ul-iq-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-iq-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

ul-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-iq-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with 0x. For example, 0x3F.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-ud-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

ul-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

ul-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

Usage Guidelines

Use this command to configure the DSCP type.

profile smf

Configures SMF profile.

Command Modes

Exec > Global Configuration (config)

Syntax Description

```
smf profile_name [ [ allowed-nassi allowed_nssai ] [ dnn-selection-mode
dnn_selection_mode ] [ load-profile load_profile_name ] [ locality locality ] [
mode mode_of_operation ] [ nf-services nf_services ] [ node-id node_id ] [
overload-profile overload_profile_name ] [ ue-authorization ue_authorization ] ]
```

allowed-nassi *nssai*

Specify the Network Slice Selection Assistance Information (NSSAI).

Must be a string.

dnn-selection-mode *dnn_selection_mode*

NOTE: This command/keyword is deprecated from SMF Profile and has been added under DNN Profile. Specify the selection mode for subscription.

Must be one of the following:

- **network-provided**
- **ue-provided**
- **verified**

load-profile *load_profile_name*

Specify the name of the load profile.

Must be a string.

locality *locality*

Specify the locality for geo support.

Must be a string.

mode mode_of_operation

Specify the mode of operation.

Must be one of the following:

- **offline**: Offline mode. New sessions will be rejected.

nf-services nf_services

Specify the NF services.

Must be a string.

overload-profile overload_profile_name

Specify the name of the overload profile. Note that the load-profile configuration is mandatory to configure the overload-profile configuration.

Must be a string.

smf profile_name

Specify name of the SMF profile.

Must be a string.

ue-authorization ue_authorization

The SMF supports PDU sessions with IPv4v6 type in addition to IPv4 and IPv6 PDU session types for UEs. When a UE requests establishment of PDU session with a specific session type, the SMF checks the UE request against the UE subscription information maintained as default and allowed listPDU session types in the UDM. The SMF performs UE authorization and allocates IP address when the requested PDN type is matching with the values in the UDM. The SMF communicates about the allocated IP address to all other network functions.

Must be one of the following:

- **none**

Usage Guidelines Use this command to configure the SMF network function profile parameters.

profile smf instances

Configures the Geographic Redundancy (GR) instance ID. NOTE: The GR functionality is not fully qualified in this release. This command is available only for testing purposes. For more information contact your Cisco Account representative.

Command Modes Exec > Global Configuration (config) > SMF Profile Configuration (config-smf-profile_name)

Syntax Description **instances** *gr_instance_id* [**fqdn** *fqdn*]

fqdn fqdn

Specify the SMF+PGW-C FQDN.

Must be a string.

node-id node_id

Specify the SMF's node ID. For example, 1A2B3c.

Must be a string in the hex-string6 pattern. For information on the hex-string6 pattern, see the Input Pattern Types section.

gr_instance_id

Specify the GR instance ID.

Usage Guidelines

Use this command to configure the GR instance ID.

profile smf plmn-id

Configures the definition for public land mobile network identifier (PLMN ID) and the preferred radio access technology (RAT). This is one of PLMNs which is considered by the mobile as equivalent to the visited PLMN for cell reselection and network selection. When configured, the equivalent PLMN list will be sent to the UE in NAS ATTACH ACCEPT / TAU ACCEPT messages.

Command Modes

Exec > Global Configuration (config) > SMF Profile Configuration (config-smf-profile_name)

Syntax Description

```
plmn-id { [ mcc mobile_country_code ] [ mnc mobile_network_code ] }
```

mcc mobile_country_code

Specify the Mobile Country Code (MCC) portion of the PLMN ID.

Must be a string in the three-digit pattern. For information on the three-digit pattern, see the Input Pattern Types section.

mnc mobile_network_code

Specify the Mobile Network Code (MNC) portion of the PLMN ID.

Must be a string in the two-or-three-digit pattern. For information on the two-or-three-digit pattern, see the Input Pattern Types section.

Usage Guidelines

Use the command to identify a PLMN and assign it a priority to define the preferred PLMN to be used. This command can be entered multiple times to set priorities of usage.

profile smf plmn-list

Configures the SMF profile PLMN list parameters.

Command Modes

Exec > Global Configuration (config) > SMF Profile Configuration (config-smf-profile_name)

Syntax Description `plmn-list mcc mobile_country_code mnc mobile_network_code`

mcc *mobile_country_code*

Specify the 3-digit Mobile Country Code.

mnc *mobile_network_code*

Specify the 2- or 3-digit Mobile Country Network.

Usage Guidelines

Use this command to configure the SMF profile PLMN list parameters. If configured, both PLMN ID and PLMN list are used.

You can configure a maximum of 32 elements with this command.

profile smf service

Configures the session management network function services.

Command Modes

Exec > Global Configuration (config) > SMF Profile Configuration (config-smf-profile_name)

Syntax Description

```
service name service_name [ access-profile profile_name | capacity capacity |
compliance-profile compliance_profile_name | icmpv6-profile profile_name |
nf-service nf_service_name | priority priority | schema schema_name | service-id
service_id | subscriber-policy policy_name | type service_type | version version
]
```

access-profile *profile_name*

Specify name of the access profile.

Must be a string.

capacity *capacity*

Specify the static weight relative to other NFs of the same type.

Must be an integer in the range of 0-65535.

Default Value: 10.

compliance-profile *compliance_profile_name*

Specify name of the compliance profile.

Must be a string.

icmpv6-profile *profile_name*

Specify name of the ICMPv6 profile.

Must be a string.

name *nf_service_name*

Specify name of the NF service.

Must be a string.

priority *priority*

Specify the priority relative to other NFs of the same type.

Must be an integer in the range of 0-65535.

Default Value: 1.

schema *schema_name*

Specify name of the schema.

Must be a string.

service-id *service_id*

Specify the service ID.

Must be a string.

Default Value: 1.

subscriber-policy *policy_name*

Specify name of the subscriber policy.

Must be a string.

type *service_type*

Specify the service type.

Must be one of the following:

- **pdu-session**
- **sm-event-exposure**

version *version*

Specify the version.

Must be a string.

Usage Guidelines

Use this command to configure the N1, N2, and N11 interfaces in compliance with the 3GPP. The service names are specified in 3GPPTS 29.510 V15.2.0, Section 6.1.6.3.11. The CLI prompt changes to the Service Configuration mode (config-service-<service_name>).

profile smf service http-endpoint

Configures the SMF HTTP REST endpoint parameters.

Command Modes Exec > Global Configuration (config) > SMF Profile Configuration (config-smf-profile_name) > Service Configuration (config-service-service_name)

Syntax Description **http-endpoint base-url** *base_url*

base-url *base_url*

Specify the SMF base URL that is exposed and accessible externally.

Must be a string.

Usage Guidelines Use this command to configure the SMF HTTP REST endpoint parameters.

profile tai-group

Configures TAI group profile parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile tai-group** *tai_group_name* [**priority** *tai_group_priority*]

priority *tai_group_priority*

Specify the priority of this TAI group.

Must be an integer in the range of 0-65535.

tai-group *tai_group_name*

Specify name of the TAI group.

Must be a string.

Usage Guidelines Use this command to configure the TAI group profile parameters.

profile tai-group tais

Configures the list of MCC and MNC.

Command Modes Exec > Global Configuration (config) > TAI Group Profile Configuration (config-tai-group-profile_name)

Syntax Description **tais** { **mcc** *mobile_country_code* | **mnc** *mobile_network_code* }

mcc *mobile_country_code*

Specify the Mobile Country Code (MCC).

Must be a string in the three-digit pattern. For information on the three-digit pattern, see the Input Pattern Types section.

mnc *mobile_network_code*

Specify the Mobile Network Code (MNC).

Must be a string in the two-or-three-digit pattern. For information on the two-or-three-digit pattern, see the Input Pattern Types section.

Usage Guidelines

Use this command to configure the list of MCC and MNC.

You can configure a maximum of 16 elements with this command.

profile tai-group tais tac

Configures the TAC Group parameters.

Command Modes

Exec > Global Configuration (config) > TAI Group Profile Configuration (config-tai-group-*profile_name*)

Syntax Description

tac *tac_values*

tac *tac_values*

Specify the list of TAC values.

Must be a string in the hex-stringtac pattern. For information on the hex-stringtac pattern, see the Input Pattern Types section.

You can configure a maximum of 64 elements with this keyword.

Usage Guidelines

Use this command to configure the TAC Group parameters.

profile tai-group tais tac range

Configures TAC ranges.

Command Modes

Exec > Global Configuration (config) > TAI Group Profile Configuration (config-tai-group-*profile_name*)

Syntax Description

range start *tac_range_start* **end** *tac_range_end*

end *tac_range_end*

Specify the TAC range end value.

Must be a string in the hex-stringtac pattern. For information on the hex-stringtac pattern, see the Input Pattern Types section.

start *tac_range_start*

Specify the TAC range start value.

Must be a string in the hex-stringtac pattern. For information on the hex-stringtac pattern, see the Input Pattern Types section.

Usage Guidelines

Use this command to configure a TAC range.

You can configure a maximum of 64 elements with this command.

profile upf-group

Configures the UPF group profile.

Command Modes

Exec > Global Configuration (config)

Syntax Description

```
profile upf-group upf_group_name [ dcnr { false | true } |
location-area-group-list location_area_group_list | pdn-session-type
pdn_session_type | slice-group-list slice_group_list ]
```

dcnr { false | true }

Specify to enable or disable support for dual connectivity with new radio.

Must be one of the following:

- **false**
- **true**

Default Value: false.

location-area-group-list *location_area_group_list*

Specify the list of Location Area Group supported by UPF node.

Must be a string.

pdn-session-type *pdn_session_type*

Specify the list of PDN session type supported by UPF node.

Must be one of the following:

- **ipv4**
- **ipv4v6**
- **ipv6**

slice-group-list *slice_group_list*

Specify the list of slice group supported by UPF node.

Must be a string.

upf-group *upf_group_name*

Specify name of the UPF group.

Must be a string.

Usage Guidelines Use this command to configure the UPF group profile.

profile upf-group failure-profile

Configures the UPF Group failure profile.

Command Modes Exec > Global Configuration (config) > UPF Group Profile Configuration (config-upf-group-profile_name)

Syntax Description **failure-profile** *failure_profile_name*

failure-profile *failure_profile_name*

Specify name of the UPF failure profile.

Must be a string.

Usage Guidelines Use this command to configure the UPF Group failure profile.

profile upf-group heartbeat

Enables PFCP path management.

Command Modes Exec > Global Configuration (config) > UPF Group Profile Configuration (config-upf-group-profile_name)

Syntax Description **heartbeat** [**interval** *heartbeat_interval* | **retransmission-timeout** *retransmission_timeout* | **max-retransmissions** *max_retransmissions*]

interval *heartbeat_interval*

Specify the heartbeat interval in seconds. To disable, set to 0.

Must be an integer from the following: 0, 60-360.

max-retransmissions *max_retransmissions*

Specify the maximum number retries for PFCP heartbeat request.

Must be an integer in the range of 0-10.

retransmission-timeout *retransmission_timeout*

Specify the heartbeat retransmission timeout period in seconds.

Must be an integer in the range of 1-20.

Usage Guidelines Use this command to enable PFCP path management.

profile wps

Configures the Wireless Priority Service (WPS) profile parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile wps** *wps_service_name* [**arp** *arp_level_range* | **message-priority** *message_priority*]

arp *arp_level_range*

Specify the range of ARP levels (separated by comma (,) or hyphen (-)).

Must be an integer.

-Or-

Must be a string.

message-priority *message_priority*

Specify the message priority for GTP-C and UP.

Must be one of the following:

- **gtpc**
- **pcfp**

You can configure a maximum of two elements with this keyword.

wps *wps_service_name*

Specify name of the WPS service.

Must be a string.

Usage Guidelines Use this command to configure the WPS profile parameters. The CLI prompt changes to the WPS Profile Configuration mode (config-wps-<profile_name>).

profile wps dscp

Configures the DSCP marking value for N3.

Command Modes Exec > Global Configuration (config) > WPS Profile Configuration (config-wps-*profile_name*)

Syntax Description **dscp n3** *dscp_marking_value* **sxa** *cp_dscp_marking* **s5e** *cp_dscp_marking* **s11** *cp_dscp_marking*

n3 *dscp_marking_value*

Specify the UP DSCP marking value.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

s11 *cp_dscp_marking*

Specify the CP DSCP marking value.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

s5e cp_dscp_marking

Specify the CP DSCP marking value.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

sxa cp_dscp_marking

Specify the CP DSCP marking value.

Must be a string in the hex-stringdscp pattern. For information on the hex-stringdscp pattern, see the Input Pattern Types section.

Usage Guidelines Use this command to configure the DSCP marking value for N3.

quit

Exits the management session.

Command Modes Exec

Syntax Description `quit`

Usage Guidelines Use this command to exit the management session.

radius

Displays RADIUS Client information.

Command Modes Exec

Syntax Description `show radius`

Usage Guidelines Use this command to view RADIUS Client information.

radius acct-server

Displays RADIUS Accounting Server information.

Command Modes Exec

Syntax Description `show radius acct-server`

Usage Guidelines Use this command to view RADIUS Accounting Server information.

radius auth-server

Displays RADIUS Authentication Server information.

Command Modes Exec

Syntax Description `show radius auth-server`

Usage Guidelines Use this command to view RADIUS Authentication Server information.

radius-dyn-auth

Displays RADIUS Dynamic Author data.

Command Modes Exec

Syntax Description `show radius-dyn-auth`

Usage Guidelines Use this command to view the RADIUS Dynamic Author data.

radius-dyn-auth clients

Displays RADIUS Authentication Server information.

Command Modes Exec

Syntax Description `show radius auth-server`

Usage Guidelines Use this command to view RADIUS RADIUS Authentication Server information.

rcm switchover

Configures Redundancy and Configuration Manager (RCM) switchover operation.

Command Modes Exec

Syntax Description `rcm switchover source ip_address destination ip_address`

source *ip_address*

Specify the source IP address.

Must be an IP address.

destination *ip_address*

Specify the destination IP address.

Must be an IP address.

Usage Guidelines Use this command to configure RCM switchover operation.

reconcile ipam

Reconciles IPAM data with CDL records.

Command Modes Exec > Global Configuration (config)

Syntax Description **reconcile ipam**

Usage Guidelines Use this command to reconcile IPAM data with CDL records.

resource pod

Configures Pod resource parameter.

Command Modes Exec > Global Configuration (config)

Syntax Description **pod podtype** *pod_type*

podtype *pod_type*

Specify the pod type.

Usage Guidelines Use this command to configure Pod resource parameter.

resource pod cpu

Configures CPU resource request parameter.

Command Modes Exec > Global Configuration (config) > Pod Resource Configuration (config-resource-*pod_type*)

Syntax Description **cpu request** *cpu_resource_request*

request *cpu_resource_request*

Specify the CPU resource request in millicores.

Must be an integer in the range of 100-1000000.

Usage Guidelines Use this command to configure CPU resource request parameter.

resource pod labels

Configures K8 Node Affinity label configuration.

Command Modes Exec > Global Configuration (config) > Pod Resource Configuration (config-resource-*pod_type*)

Syntax Description **labels** **key** *label_key* **value** *label_value*

key *label_key*

Specify the key for the label.

Must be a string.

value *label_value*

Specify the value for the label.

Must be a string.

Usage Guidelines Use this command to configure K8 Node affinity label configuration.

resource pod memory

Configures memory resource request parameter.

Command Modes Exec > Global Configuration (config) > Pod Resource Configuration (config-resource-*pod_type*)

Syntax Description **memory request** *memory_resource_request*

request *memory_resource_request*

Specify the memory resource request in megabytes.

Must be an integer in the range of 100-200000.

Usage Guidelines Use this command to configure memory resource request parameter.

resources info

Displays resource information.

Command Modes Exec

Syntax Description **show resources** [**info**]

Usage Guidelines Use this command to view information about the configured resources.

router bgplist

Configures BGP speaker configuration.

Command Modes	Exec > Global Configuration (config)
Syntax Description	<pre>router bgp <i>bgp</i> [learnDefaultRoute { false true } loopbackBFDPort <i>bfd_local_port_number</i> loopbackPort <i>bgp_local_port_number</i>]</pre> <p>bgp <i>bgp</i> Specify the BGP. Must be an integer.</p> <p>learnDefaultRoute { false true } Specify whether to enable or disable learning default route and adding it in kernel space. Must be one of the following:</p> <ul style="list-style-type: none"> • false • true <p>Default Value: false.</p> <p>loopbackBFDPort <i>bfd_local_port_number</i> Specify the BFD local port number. Must be an integer. Default Value: 3784.</p> <p>loopbackPort <i>bgp_local_port_number</i> Specify the BGP local port number. Must be an integer. Default Value: 179.</p>

Usage Guidelines Use this command to configure the BGP speaker configuration.

router bgplist bfd

Configures BFD configuration.

Command Modes	Exec > Global Configuration (config) > Router Configuration (config-router-router)
Syntax Description	<pre>bfd { interval <i>bfd_interval</i> min_rx <i>bfd_min_rx</i> multiplier <i>bfd_interval_multiplier</i> }</pre>

interval *bfd_interval*

Specify, in microseconds, the BFD interval.

Must be an integer.

Default Value: 250000.

min_rx *bfd_min_rx*

Specify, in microseconds, the BFD minimum RX.

Must be an integer.

Default Value: 250000.

multiplier *bfd_interval_multiplier*

Specify the BFD interval multiplier.

Must be an integer.

Default Value: 3.

Usage Guidelines Use this command to configure the BFD configuration.

router bgplist interfaceList

Configures bonding interface configuration.

Command Modes Exec > Global Configuration (config) > Router Configuration (config-router-router)

Syntax Description **interface** *bgp_local_interface*

interface *bgp_local_interface*

Specify the BGP local interface.

Must be a string.

Usage Guidelines Use this command to configure the bonding interface configuration.

router bgplist interfaceList bondingInterfaces

Configures bonding interface configuration.

Command Modes Exec > Global Configuration (config) > Router Configuration (config-router-router) > Router Interface Configuration (config-router-interface)

Syntax Description **bondingInterface** *linked_bonding_interface*

bondingInterface *linked_bonding_interface*

Specify the linked bonding interface.

Must be a string.

Usage Guidelines Use this command to configure the bonding interface configuration.

router bgplist interfaceList neighbors

Configures neighbor parameters.

Command Modes Exec > Global Configuration (config) > Router Configuration (config-router-router) > Router Interface Configuration (config-router-interface)

Syntax Description **neighbor** *neighbor_ip_address* [**fail-over** *failover_type* | **remote-as** *remote_as_number*]

fail-over *failover_type*

Specify the failover type.

Must be one of the following:

- **bfd**

neighbor *neighbor_ip_address*

Specify the IP address of the neighbor.

Must be a string.

remote-as *remote_as_number*

Specify the Autonomous System (AS) number of the BGP neighbor.

Must be an integer.

Default Value: 65000.

Usage Guidelines Use this command to configure the neighbor parameters.

router bgplist policies

Configures policy parameters.

Command Modes Exec > Global Configuration (config) > Router Configuration (config-router-router)

Syntax Description **policy-name** *policy_name* [**as-path-set** *as_path_set* | **gateWay** *gateway_address* | **interface** *interface* | **ip-prefix** *ip_prefix* | **isStaticRoute** { **false** | **true** } | **mask-range** *mask_range* | **modifySourceIp** { **false** | **true** }]

as-path-set *as_path_set*

Specify the Autonomous System (AS) path set.

Must be a string.

gateWay *gateway_address*

Specify the gateway address.

Must be a string.

interface *interface*

Specify the interface to set as source ip.

Must be a string.

ip-prefix *ip_prefix*

Specify the IP prefix.

Must be a string.

isStaticRoute { *false* | *true* }

Specify whether to enable or disable adding static route into kernel space.

Must be one of the following:

- *false*
- *true*

Default Value: *false*.

mask-range *mask_range*

Specify the mask range.

Must be a string.

modifySourceIp { *false* | *true* }

Specify whether to enable or disable modifying source IP of incoming route.

Must be one of the following:

- *false*
- *true*

Default Value: *false*.

policy-name *policy_name*

Specify name of the policy.

Must be a string.

source-prefix *source_ip_prefix*

Specify the source IP prefix.

Must be a string.

Usage Guidelines Use this command to configure the policy parameters.

rpc all

Displays RPC configuration information.

Command Modes Exec

Syntax Description **show rpc [all]**

Usage Guidelines Use this command to view RPC configuration information for all RPCs.

running-status info

Displays the system's current status information.

Command Modes Exec

Syntax Description **show running-status [info]**

Usage Guidelines Use this command to view the system's current status information.

screen-length

Configures the number of rows of text that the terminal screen displays.

Command Modes Exec

Syntax Description **screen-length** *number_of_rows*

number_of_rows

Specify the number of rows that the terminal screen displays.

Must be an integer.

Usage Guidelines Use this command to set the number of rows that the terminal screen displays.

screen-width

Configures the number of columns that the terminal screen displays.

Command Modes Exec

Syntax Description **screen-width** *number_of_columns*

number_of_columns

Specify the number of columns that the terminal screen displays.

Must be an integer.

Usage Guidelines Use this command to set the number of columns that the terminal screen displays.

send

Sends messages to the terminal of a specific user or all users.

Command Modes Exec

Syntax Description **send** *user message*

user

Specify the user to whom the message must be sent.

Must be a string. Select from the possible completion options.

message

Specify the message that must be sent.

Must be a string.

Usage Guidelines Use this command to send messages to the terminal of a specific user or to all users.

sessions affinity

Displays the affinity count per instance.

Command Modes Exec

Syntax Description **show sessions affinity**

Usage Guidelines Use this command to view the affinity count per instance.

sessions commit-pending

Displays information for sessions for which the commits are in pending state.

Command Modes Exec

Syntax Description `show sessions commit-pending`

Usage Guidelines Use this command to view information for sessions that are pending commits.

show

Displays the system information.

Command Modes Exec

Syntax Description `show system_component`

system_component

Specify the component to view the information.

Must be a string. Select from the possible completion options.

Usage Guidelines Use this command to view the system information.

show bfd-neighbor

Displays BFD status of neighbors.

Command Modes Exec

Syntax Description `show bfd-neighbor [ip ip_address]`

ip ip_address

Specify the IP address of the neighbor.

Must be a string.

Usage Guidelines Use this command to view BFD status of neighbors.

show bgp-global

Displays BGP global configuration.

Command Modes Exec

Syntax Description `show bgp-global`

Usage Guidelines Use this command to view BGP global configuration.

show bgp-kernel-route

Displays BGP kernel-configured routes.

Command Modes Exec

Syntax Description `show bgp-kernel-route [application { false | true }]`

application { false | true }

Specify whether to display application added routes.

Must be one of the following:

- **false**
- **true**

Default Value: false.

Usage Guidelines Use this command to view BGP kernel-configured routes.

show bgp-neighbors

Displays BGP neighbor's status.

Command Modes Exec

Syntax Description `show bgp-neighbors [ip ip_address]`

ip ip_address

Specify the IP address of the neighbor.

Must be a string.

Usage Guidelines Use this command to view BGP neighbor's status.

show bgp-route-summary

Displays BGP route summary.

Command Modes Exec

Syntax Description `show bgp-route-summary`

Usage Guidelines Use this command to view BGP route summary.

show bgp-routes

Displays BGP routes information.

Command Modes Exec

Syntax Description `show bgp-routes`

Usage Guidelines Use this command to view BGP routes information.

show edr

Displays EDR Transaction Procedure Event fields.

Command Modes Exec

Syntax Description `show edr { [event transaction_procedure_event] [transaction-procedure transaction_procedure] }`

event *transaction_procedure_event*

Specify the transaction procedure event name/id/all.

Must be a string.

transaction-procedure *transaction_procedure*

Specify the transaction procedure name/id/all.

Must be a string.

Usage Guidelines Use this command to view EDR Transaction Procedure Event fields.

show georeplication

Displays ETCD/Cache checksum.

Command Modes Exec

Syntax Description `show georeplication checksum instance-id instance_id`

checksum

Specify checksum.

instance-id *instance_id*

Specify the instance ID for which checksum will be displayed.

Must be a string.

Usage Guidelines Use this command to view ETCD/Cache checksum.

show role

Displays current role for the specified instance.

Command Modes Exec

Syntax Description `show role instance-id instance_id`

instance-id *instance_id*

Specify the instance ID for which role must be displayed.

Usage Guidelines Use this command to view current role for the specified instance.

show subscriber

Displays subscriber information.

Command Modes Exec

Syntax Description `show subscriber { [all] [gr-instance gr_instance] [imei imei_id] [nf-service nf_service] [supi supi_id] [config_specific_options] }`

access *access_technology*

Specify the access technology.

Must be a string of 11-25 characters.

all

Specify all SUPIs or IMEIs.

amf *amf_address*

Specify the AMF address.

Must be a string of 7-39 characters.

apn *apn_name*

Specify name of the APN.

Must be a string of 1-255 characters.

auth-status *radius_auth_status*

Specify the RADIUS authentication status - authenticated or unauthenticated.

Must be a string of 13, or 15 characters.

chf *chf_address*

Specify the CHF address.

Must be a string of 7-39 characters.

connectivity *connectivity_type*

Specify the connectivity type.

Must be a string of 2 characters.

count *count*

Specify the count.

Must be one of the following:

- **count**

debug-info *debug_info*

Specify print the debug info.

Must be one of the following:

- **debug-info**

dnn *dnn_value*

Specify the DNN value.

Must be a string of 1-255 characters.

emergency { *false* | *true* }

Specify emergency session indication.

Must be one of the following:

- **false**
- **true**

gpsi *gpsi*

Specify the Generic Public Subscription Identifier (GPSI).

Must be a string of 1-255 characters.

gr-instance *gr_instance*

Specify the network function service under which to search.

gtp-peer *gtp_peer_address*

Specify address of the GTP peer.

Must be a string of 7-39 characters.

imei *imei_id*

Specify the International Mobile Equipment Identity.

Must be a string of 15-16 characters.

imsi *imsi*

Specify the International Mobile Subscriber Identifier (IMSI).

Must be a string.

ipv4-addr *ipv4_address*

Specify the IPv4 address in the format *pool_name/ipv4_address*.

Must be a string of 1-255 characters.

ipv4-pool *ipv4_pool_name*

Specify name of the IPv4 pool.

Must be a string of 1-255 characters.

ipv4-range *ipv4_address_range*

Specify the IPv4 address range in the format *pool_name/start_ip_address*.

Must be a string of 1-255 characters.

ipv6-pfx *ipv6_pfx*

Specify the IPv6 prefix in the format *pool_name/ipv6_prefix*.

Must be a string of 1-255 characters.

ipv6-pool *ipv6_pool_name*

Specify name of the IPv6 pool.

Must be a string of 1-255 characters.

ipv6-range *ipv6_prefix_range*

Specify the IPv6 prefix range in the format *pool_name/start_prefix*.

Must be a string of 1-255 characters.

msid *msid*

Specify the Mobile Subscriber Identification Number (MSID).

Must be a string of 1-255 characters.

msisdn *msisdn*

Specify the Mobile Station International Subscriber Directory Number (MSISDN).

Must be a string of 1-255 characters.

namespace *namespace*

NOTE: This keyword is deprecated, use `nf-service` instead. Specify the product namespace under which to search.

Default Value: `cisco-mobile-infra:none`.

nf-service *nf_service*

Specify the network function service under which to search.

Default Value: `cisco-mobile-infra:none`.

pcf *pcf_address*

Specify the PCF address.

Must be a string of 7-39 characters.

peerGtpuEpKey *gtpu_peer_address*

Specify address of the GTPU peer in the `upf_addr:gtpu_peer_addr` format.

Must be a string of 1-255 characters.

pei *permanent_equipment_id*

Specify the Permanent Equipment Identifier.

Must be a string of 1-255 characters.

policy *policy_type*

Specify the subscriber policy type information.

Must be one of the following:

- **local**
- **pcf**

rat *rat_type*

Specify the RAT type.

Must be a string of 2, 4, or 7 characters.

roaming-status ue_roaming_status

Specify the UE roaming status.

Must be a string of 5, 6, 10, or 11 characters.

supi supi_id

Specify the subscriber's SUPI ID.

Must be a string.

udm-sdm udm_sdm_address

Specify the UDM-SDM address.

Must be a string of 7-39 characters.

udm-sdm udm_uecm_address

Specify the UDM-UECM address.

Must be a string of 7-39 characters.

ue-type ue_type

Specify device capability - 4G-only / NR-capable.

Must be a string of 7, or 10 characters.

upf upf_address

Specify the UPF address.

Must be a string of 7-39 characters.

Usage Guidelines

Use this command to view subscriber information by SUPI, IMEI, or all.

show subscriber count-opt

Displays subscriber session count information.

Command Modes

Exec

Syntax Description

```
show subscriber count { all | access access_technology | amf amf_address | apn
apn_name | auth-status radius_auth_status | chf chf_address | connectivity
connectivity_type | dnn dnn_value | emergency { false | true } | gpsi gpsi |
gtp-peer gtp_peer_address | ipv4-addr ipv4_address | ipv4-pool ipv4_pool_name |
ipv4-range ipv4_address_range | ipv6-pfx ipv6_prefix | ipv6-pool ipv6_pool_name |
ipv6-range ipv6_prefix_range | msid msid | msisdn msisdn | pcf pcf_address |
peerGtpuEpKey gtpu_peer_address | pei permanent_equipment_id | policy policy_type |
psid pdu_session_id | rat rat_type | roaming-status ue_roaming_status | supi supi
| udm-sdm udm_sdm_address | udm-uecm udm_uecm_address | upf upf_address }
```

access *access_technology*

Specify the access technology.

Must be a string of 11-25 characters.

all

Specify all SUPIs.

amf *amf_address*

Specify the AMF address.

Must be a string of 7-39 characters.

apn *apn_name*

Specify name of the APN.

Must be a string of 1-255 characters.

auth-status *radius_auth_status*

Specify the RADIUS authentication status - authenticated or unauthenticated.

Must be a string of 13, or 15 characters.

chf *chf_address*

Specify the CHF address.

Must be a string of 7-39 characters.

connectivity *connectivity_type*

Specify the connectivity type.

Must be a string of 2 characters.

dnn *dnn_value*

Specify the DNN value.

Must be a string of 1-255 characters.

emergency { false | true }

Specify emergency session indication.

Must be one of the following:

- false
- true

gpsi *gpsi*

Specify the Generic Public Subscription Identifier (GPSI).

Must be a string.

gtp-peer *gtp_peer_address*

Specify address of the GTP peer.

Must be a string of 7-39 characters.

ipv4-addr *ipv4_address*

Specify the IPv4 address in the format *pool_name/ipv4_address*.

Must be a string of 1-255 characters.

ipv4-pool *ipv4_pool_name*

Specify name of the IPv4 pool.

Must be a string of 1-255 characters.

ipv4-range *ipv4_address_range*

Specify the IPv4 address range in the format *pool_name/start_ip_address*.

Must be a string of 1-255 characters.

ipv6-pfx *ipv6_pfx*

Specify the IPv6 prefix in the format *pool_name/ipv6_prefix*.

Must be a string of 1-255 characters.

ipv6-pool *ipv6_pool_name*

Specify name of the IPv6 pool.

Must be a string of 1-255 characters.

ipv6-range *ipv6_prefix_range*

Specify the IPv6 prefix range in the format *pool_name/start_prefix*.

Must be a string of 1-255 characters.

msid *msid*

Specify the Mobile Station Identifier (MSID).

Must be a string.

msisdn *msisdn*

Specify the Mobile Station International Subscriber Directory Number (MSISDN).

Must be a string.

pcf pcf_address

Specify the PCF address.

Must be a string of 7-39 characters.

peerGtpuEpKey gtpu_peer_address

Specify address of the GTPU peer in the *upf_addr:gtpu_peer_addr* format.

Must be a string of 1-255 characters.

pei permanent_equipment_id

Specify the Permanent Equipment Identifier.

Must be a string of 1-255 characters.

policy policy_type

Specify the subscriber policy type information.

Must be one of the following:

- local
- pcf

psid pdu_session_id

Specify the PDU Session Identifier.

Must be an integer in the range of 1-255.

rat rat_type

Specify the RAT type.

Must be a string of 2, 4, or 7 characters.

roaming-status ue_roaming_status

Specify the UE roaming status.

Must be a string of 5, 6, 10, or 11 characters.

supi supi

Specify the Subscription Permanent Identifier (SUPI), the value must include the IMSI prefix.

Must be a string.

udm-sdm udm_sdm_address

Specify the UDM-SDM address.

Must be a string of 7-39 characters.

udm-sdm udm_uecm_address

Specify the UDM-UECM address.

Must be a string of 7-39 characters.

ue-type ue_type

Specify device capability - 4G-only / NR-capable.

Must be a string of 7, or 10 characters.

upf upf_address

Specify the UPF address.

Must be a string of 7-39 characters.

Usage Guidelines

Use this command to view subscriber session count information.

show subscriber debug-opt

Configures debug option.

Command Modes

Exec

Syntax Description

debug-opt { **supi** *supi* | **msid** *msid* | **pei** *pei_imei* | **gpsi** *gpsi* | **msisdn** *msisdn* | **imsi** *imsi* }

gpsi gpsi

Specify the GPSI.

Must be a string.

imsi imsi

Specify the International Mobile Subscriber Identifier (IMSI).

Must be a string.

msid msid

Specify the Mobile Station Identifier (MSID).

Must be a string.

msisdn msisdn

Specify the Mobile Station International Subscriber Directory Number (MSISDN).

Must be a string.

pei pei_imei

Specify the Permanent Equipment Identifier (PEI)/International Mobile Equipment Identifier (IMEI).

Must be a string.

psid *psid*

Specify the PDU Session ID.

Must be an integer in the range of 1-255.

supi *supi*

Specify the Subscription Permanent Identifier (SUPI), the value must include the IMSI prefix.

Must be a string.

Usage Guidelines Use this command to configure debug option.

show subscriber gpsi-opt policy-opt

Displays policy option.

Command Modes Exec

Syntax Description **show subscriber supi** *supi_id* **policy** *policy_option*

policy *policy_option*

Specify the policy option.

Must be one of the following:

- **flow**
- **rules**

Usage Guidelines Use this command to view policy option.

show subscriber imsi-opt

Displays subscriber data based on IMSI.

Command Modes Exec

Syntax Description **show subscriber imsi-options** *imsi_option*

imsi-options *imsi_option*

Specify the IMSI option.

Must be one of the following:

- **full**

Usage Guidelines Use this command to view subscriber data based on IMSI.

show subscriber msid-opt policy-opt

Displays policy option.

Command Modes Exec

Syntax Description `show subscriber supi supi_id policy policy_option`

policy *policy_option*

Specify the policy option.

Must be one of the following:

- **flow**
- **rules**

Usage Guidelines Use this command to view policy option.

show subscriber msisdn-opt policy-opt

Displays policy option.

Command Modes Exec

Syntax Description `show subscriber supi supi_id policy policy_option`

policy *policy_option*

Specify the policy option.

Must be one of the following:

- **flow**
- **rules**

Usage Guidelines Use this command to view policy option.

show subscriber pei-opt policy-opt

Displays policy option.

Command Modes Exec

Syntax Description `show subscriber supi supi_id policy policy_option`

policy *policy_option*

Specify the policy option.

Must be one of the following:

- **flow**
- **rules**

Usage Guidelines Use this command to view policy option.

show subscriber supi-opt

Displays subscriber data.

Command Modes Exec

Syntax Description `show subscriber supi [detail_option | psid pdu_session_id]`

psid pdu_session_id

Specify the PDU Session ID.

Must be an integer in the range of 1-255.

detail_option

Specify the detail option.

Must be one of the following:

- **charging**
- **full**
- **policy**
- **summary**
- **userplane**

Usage Guidelines Use this command to view subscriber data.

show subscriber supi-opt policy-opt

Displays policy option.

Command Modes Exec

Syntax Description `show subscriber supi supi_id policy policy_option`

policy *policy_option*

Specify the policy option.

Must be one of the following:

- **flow**
- **rules**

Usage Guidelines Use this command to view policy option.

show userplane userplane

Displays userplane information.

Command Modes Exec

Syntax Description **show userplane all**

all

Specify all.

Usage Guidelines Use this command to view userplane information.

show-defaults

Displays the default configuration.

Command Modes Exec

Syntax Description **show-defaults { false | true }**

{ false | true }

Specify whether to display or hide the default values. To display, select true. Otherwise, select false.

Must be either "false" or "true".

Usage Guidelines Use this command to view the default configuration.

smiuser

Configures the Subscriber Microservices Infrastructure (SMI) user account parameters.

Command Modes Exec

Syntax Description

```
smiuser { add-group groupname group_name | add-user { username username |  
password password } | change-password { username username | current_password  
current_password | new_password new_password | confirm_password new_password |  
password_expire_days expire_days } | change-self-password { current_password  
current_password | new_password new_password | confirm_password new_password |  
password_expire_days expire_days } | delete-group groupname group_name |  
delete-user username username | unassign-user-group { groupname groupname_pam  
| username username_pam } | update-password-length length password_length }
```

username *username*

Specify the username.

Must be a string.

password *password*

Specify the user password.

Must be a string.

confirm_password *new_password*

Confirm the new password.

Must be a string.

current_password *current_password*

Specify the current password.

Must be a string.

new_password *new_password*

Specify the new password.

Must be a string.

password_expire_days *expire_days*

Specify the number of days before the password expires.

Must be an integer.

groupname *group_name*

Specify the group name.

Must be a string.

groupname *groupname_pam*

Specify the group name in PAM.

Must be a string.

username *username_pam*

Specify the user name in PAM.

Must be a string.

length *password_length*

Specify the minimum password length.

Must be an integer.

Usage Guidelines

Use this command to configure the smiuser parameters.

system

Configures the NF's system operations.

Command Modes

Exec

Syntax Description

```
system { ops-center stop | synch { start | stop } | upgrade | uuid-override
  new-uuid uuid_value }
```

ops-center stop

Stop the synching of configuration.

synch { start | stop }

Starts or stops the synching of configuration,

upgrade

Initiates the upgrade of a product.

uuid-override new-uuid *uuid_value*

Change the Universally Unique Identifier (UUID) to a new value.

Must be a string.

Usage Guidelines

Use this command to display the NF's system operations.

system-diagnostics event-trace

Configures Event Trace configuration.

Syntax Description

```
system-diagnostics event-trace event_trace_state
```

event-trace *event_trace_state*

Specify to enable or disable Event Trace configuration.

Must be one of the following:

- **disable**
- **enable**

Usage Guidelines

Use this command to enable or disable Event Trace configuration.

system-diagnostics fault

Enables system fault panic recovery while session processing.

Syntax Description

```
system-diagnostics fault { action action_on_fault | file-detail file_names_line_numbers | interval interval_duration | num max_fault_tolerance }
```

action *action_on_fault*

Specify the action to take on fault occurrence.

Must be one of the following:

- **cleanup**
- **reload**

file-detail *file_names_line_numbers*

Specify the list of file names with line number to exclude from recovery. For example, `procedures/pduim/procedure.go:1902`.

Must be a string.

You can configure a maximum of 10 elements with this keyword.

interval *interval_duration*

Specify the duration of the interval in minutes.

Must be an integer in the range of 1-3600.

num *max_fault_tolerance*

Specify the maximum number of times fault can be tolerated in an interval.

Must be an integer in the range of 0-50.

Usage Guidelines

Use this command to enable and configure system fault panic recovery while session processing.

system-diagnostics ip-validation

Configures IP address validation with CDL.

Syntax Description `ip-validation { enable | ignore-mismatch-responses }`

enable

Specify to enable new IP address validation with CDL.

ignore-mismatch-responses

Specify to ignore CDL inconsistencies during address validation.

Usage Guidelines Use this command to configure IP address validation with CDL.

system-diagnostics session-consistency

Enables and configures inconsistency checks on session data.

Syntax Description `system-diagnostics session-consistency action action_on_inconsistent_data`

action *action_on_inconsistent_data*

Specify the action to take on inconsistent data.

Must be one of the following:

- **cleanup**
- **disabled**
- **monitor**

Usage Guidelines Use this command to enable and configure inconsistency checks on session data.

terminal

Configures the type of terminal.

Command Modes Exec

Syntax Description `terminal terminal_type`

terminal_type

Specify the terminal type.

Must be one of the following:

- ansi
- generic
- linux
- vt100

- xterm

Usage Guidelines Use this command to configure the terminal type.

test dns-query

Tests FQDN resolution.

Command Modes Exec

Syntax Description `test dns-query { fqdn fqdn | num-ipv4 ipv4_count | num-ipv4v6 ipv4v6_count | num-ipv6 ipv6_count }`

fqdn fqdn

Specify the Fully Qualified Domain Name (FQDN) of the node for which DNS query has to be sent.

Must be a string of 1-255 characters.

num-ipv4 ipv4_count

Specify the number of IPv4 to be used for DNS query.

Must be an integer in the range of 1-9.

num-ipv4v6 ipv4v6_count

Specify the number of IPv4v6 to be used for DNS query.

Must be an integer in the range of 1-9.

num-ipv6 ipv6_count

Specify the number of IPv6 to be used for DNS query.

Must be an integer in the range of 1-9.

Usage Guidelines Use this command to test FQDN of the node for which dns query has to be sent.

test-radius accounting

Tests RADIUS accounting server function.

Command Modes Exec

Syntax Description `test-radius accounting { all [[client-nas ip_address] [username user_name]] | server server_ip_address [[client-nas ip_address] [port port_number] [username user_name]] | server-group [[client-nas ip_address] [username user_name]] }`

all

Specify to test all configured servers.

Must be one of the following:

- **all**

client-nas *ip_address*

Specify IP address of the client NAS.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

-Or-

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

port *server_port_number*

Specify the port number of the RADIUS server.

Must be an integer in the range of 1-65535.

server-group *server_group_name*

Specify name of the server group.

Must be a string of 1-64 characters.

server *server_ip_address*

Specify the IP address of the RADIUS server.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

-Or-

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

username *user_name*

Specify the user name.

Must be a string of 1-64 characters.

Default Value: test.

Usage Guidelines

Use this command to test RADIUS accounting server function.

test-radius authentication

Tests RADIUS authentication server function.

Command Modes Exec

Syntax Description

```
test-radius authentication { all [ [ client-nas ip_address ] [ password password ] [ username user_name ] ] | server server_ip_address [ [ client-nas ip_address ] [ password password ] [ port port_number ] [ username user_name ] ] | server-group [ [ client-nas ip_address ] [ password password ] [ username user_name ] ] }
```

all

Specify to test all configured servers.

Must be one of the following:

- all

client-nas ip_address

Specify IP address of the client NAS.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

-Or-

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

password password

Specify the password for user with authentication verified.

Must be a string of 1-64 characters.

Default Value: test.

port server_port_number

Specify the port number of the RADIUS server.

Must be an integer in the range of 1-65535.

server-group server_group_name

Specify name of the server group.

Must be a string of 1-64 characters.

server server_ip_address

Specify the IP address of the RADIUS server.

Must be a string in the ipv4-address pattern. For information on the ipv4-address pattern, see the Input Pattern Types section.

-Or-

Must be a string in the ipv6-address pattern. For information on the ipv6-address pattern, see the Input Pattern Types section.

username *user_name*

Specify the user name.

Must be a string of 1-64 characters.

Default Value: test.

Usage Guidelines Use this command to test RADIUS authentication server function.

timestamp

Configures the timestamp parameters.

Command Modes Exec

Syntax Description `timestamp { disable | enable }`

{ disable | enable }

Enable or disable the timestamp display.

Usage Guidelines Use this command to configure the timestamp.

who

Displays information on currently logged on users.

Command Modes Exec

Syntax Description `who`

Usage Guidelines Use this command to view information on currently logged on users. The command output displays the Session, User, Context, From (IP address), Protocol, Date, and Mode information.



CHAPTER 2

Input Pattern Types

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arg-type

Pattern:
`'[^*]*.*|..+'; // must not be single '*'`

Pattern:
`'*'`

This statement can be used to hide a node from some, or all, northbound interfaces. All nodes with the same value are considered a hide group and are treated the same with regards to being visible or not in a northbound interface.

A node with an hidden property is not shown in the northbound user interfaces (CLI and Web UI) unless an 'unhide' operation is performed in the user interface.

The hidden value 'full' indicates that the node must be hidden from all northbound interfaces, including programmatical interfaces such as NETCONF. The value '*' is not valid. A hide group can be unhidden only if this is explicitly allowed in the confd.conf(5) daemon configuration.

Multiple hide groups can be specified by giving this statement multiple times. The node is shown if any of the specified hide groups is given in the 'unhide' operation. If a mandatory node is hidden, a hook callback function (or similar) might be needed in order to set the element

crypt-hash

Pattern:

```
'$0$.*'
'|$1$[a-zA-Z0-9./]{1,8}$[a-zA-Z0-9./]{22}'
'|$5$(rounds=\d+)$?[a-zA-Z0-9./]{1,16}$[a-zA-Z0-9./]{43}'
'|$6$(rounds=\d+)$?[a-zA-Z0-9./]{1,16}$[a-zA-Z0-9./]{86}'
```

The **crypt-hash** type is used to store passwords using a hash function. The algorithms for applying the hash function and encoding the result are implemented in various UNIX systems as the function crypt(3).

A value of this type matches one of the forms:

- `0<clear text password>`
- `$<id>$<salt>$<password hash>`
- `$<id>$<parameter>$<salt>$<password hash>`

The '\$0\$' prefix signals that the value is clear text. When such a value is received by the server, a hash value is calculated, and the string '\$<id>\$<salt>\$' or '\$<id>\$<parameter>\$<salt>\$' is prepended to the result. This value is stored in the configuration data store.

If a value starting with '\$<id>\$', where <id> is not '0', is received, the server knows that the value already represents a hashed value, and stores it as is in the data store.

When a server needs to verify a password given by a user, it finds the stored password hash string for that user, extracts the salt, and calculates the hash with the salt and given password as input. If the calculated hash value is the same as the stored value, the password given by the client is accepted.

This type defines the following hash functions:

Id	Hash Function	Feature
1	MD5	crypt-hash-md5
5	SHA-256	crypt-hash-sha-256
6	SHA-512	crypt-hash-sha-512

The server indicates support for the different hash functions by advertising the corresponding feature.

Reference:

- IEEE Std 1003.1-2008 - crypt() function
- RFC 1321: The MD5 Message-Digest Algorithm
- FIPS.180-3.2008: Secure Hash Standard

date-and-time

Pattern:

```
'\d{4}-\d{2}-\d{2}T\d{2}:\d{2}:\d{2}(\.\d+)?'
'(Z|[\+\-]\d{2}:\d{2})'
```

The date-and-time type is a profile of the ISO 8601 standard for representation of dates and times using the Gregorian calendar. The profile is defined by the date-time production in Section 5.6 of RFC 3339. The date-and-time type is compatible with the dateTime XML schema type with the following notable exceptions:

1. The date-and-time type does not allow negative years.
2. The date-and-time time-offset -00:00 indicates an unknown time zone (see RFC 3339) while -00:00 and +00:00 and Z all represent the same time zone in dateTime.
3. The canonical format (see below) of data-and-time values differs from the canonical format used by the dateTime XML schema type, which requires all times to be in UTC using the time-offset 'Z'.

This type is not equivalent to the DateAndTime textual convention of the SMIV2 since RFC 3339 uses a different separator between full-date and full-time and provides higher resolution of time-secfrac. The canonical format for date-and-time values with a known time zone uses a numeric time zone offset that is calculated using the device's configured known offset to UTC time.

A change of the device's offset to UTC time will cause date-and-time values to change accordingly. Such changes might happen periodically in case a server follows automatically daylight saving time (DST) time zone offset changes. The canonical format for date-and-time values with an unknown time zone (usually referring to the notion of local time) uses the time-offset -00:00.

Reference:

- RFC 3339: Date and Time on the Internet: Timestamps
- RFC 2579: Textual Conventions for SMIV2
- XSD-TYPES: XML Schema Part 2: Datatypes Second Edition

domain-name

Pattern:

```
'((([a-zA-Z0-9_]([a-zA-Z0-9\-\_]){0,61})?[a-zA-Z0-9]\.)*'
'([a-zA-Z0-9_]([a-zA-Z0-9\-\_]){0,61})?[a-zA-Z0-9]\.?)'
'|\.'
```

The domain-name type represents a DNS domain name. The name must fully qualified whenever possible. Internet domain names are only loosely specified. Section 3.5 of RFC 1034 recommends a syntax (modified in Section 2.1 of RFC 1123). The Pattern above is intended to allow for current practice in domain name use, and some possible future expansion. It is designed to hold various types of domain names, including names used for A or AAAA records (host names) and other records, such as SRV records.

The Internet host names have a stricter syntax (described in RFC 952) than the DNS recommendations in RFCs 1034 and 1123, and that systems that want to store host names in schema nodes using the domain-name type are recommended to adhere to this stricter standard to ensure interoperability.

The encoding of DNS names in the DNS protocol is limited to 255 characters. Since the encoding consists of labels prefixed by a length bytes and there is a trailing NULL byte, only 253 characters can appear in the textual dotted notation.

The description clause of schema nodes using the domain-name type must describe when and how these names are resolved to IP addresses. The resolution of a domain-name value may require to query multiple DNS records. For example, A for IPv4 and AAAA for IPv6. The order of the resolution process and which DNS record takes precedence can either be defined explicitly or may depend on the configuration of the resolver.

Domain-name values use the US-ASCII encoding. Their canonical format uses lowercase US-ASCII characters. Internationalized domain names MUST be A-labels as per RFC 5890.

Reference:

- RFC 952: DoD Internet Host Table Specification
- RFC 1034: Domain Names - Concepts and Facilities
- RFC 1123: Requirements for Internet Hosts -- Application and Support
- RFC 2782: A DNS RR for specifying the location of services (DNS SRV)
- RFC 5890: Internationalized Domain Names in Applications (IDNA): Definitions and Document Framework

dotted-quad

Pattern:

```
'(([0-9]|[1-9][0-9]|1[0-9][0-9]|2[0-4][0-9]|25[0-5])\.){3}'
'([0-9]|[1-9][0-9]|1[0-9][0-9]|2[0-4][0-9]|25[0-5])'
```

An unsigned 32-bit number expressed in the dotted-quad notation, that is, four octets written as decimal numbers and separated with the '.' (full stop) character.

hex-list

Pattern:

```
'(( [0-9a-fA-F] ){2} ( : ( [0-9a-fA-F] ){2} ) * ) ?'
```

DEPRECATED: Use yang:hex-string instead. There are no plans to remove tailf:hex-list. A list of colon-separated hexa-decimal octets, for example '4F:4C:41:71'.

The statement tailf:value-length can be used to restrict the number of octets. Using the 'length' restriction limits the number of characters in the lexical representation

hex-string

Pattern:

```
' ([0-9a-fA-F] {2} (: [0-9a-fA-F] {2}) *) ? '
```

A hexadecimal string with octets represented as hex digits separated by colons. The canonical representation uses lowercase characters.

ipv4-address

Pattern:

```
' ( ([0-9] | [1-9] [0-9] | 1 [0-9] [0-9] | 2 [0-4] [0-9] | 25 [0-5]) \. ) {3} '
' ([0-9] | [1-9] [0-9] | 1 [0-9] [0-9] | 2 [0-4] [0-9] | 25 [0-5]) '
' (% [\p{N} \p{L} ]+ ) ? '
```

The ipv4-address type represents an IPv4 address in dotted-quad notation. The IPv4 address may include a zone index, separated by a % sign. The zone index is used to disambiguate identical address values. For link-local addresses, the zone index will typically be the interface index number or the name of an interface. If the zone index is not present, the default zone of the device will be used. The canonical format for the zone index is the numerical format.

ipv4-address-and-prefix-length

Pattern:

```
' ( ([0-9] | [1-9] [0-9] | 1 [0-9] [0-9] | 2 [0-4] [0-9] | 25 [0-5]) \. ) {3} '
' ([0-9] | [1-9] [0-9] | 1 [0-9] [0-9] | 2 [0-4] [0-9] | 25 [0-5]) '
' / ( ([0-9] | ([1-2] [0-9]) | (3 [0-2])) ) '
```

The ipv4-address-and-prefix-length type represents a combination of an IPv4 address and a prefix length. The prefix length is given by the number following the slash character and must be less than or equal to 32.

ipv4-address-no-zone

Pattern:

```
' [0-9\. ] * '
```

An IPv4 address is without a zone index and derived from ipv4-address that is used in situations where the zone is known from the context and hence no zone index is needed.

ipv4-prefix

Pattern:

```
' ( ([0-9] | [1-9] [0-9] | 1 [0-9] [0-9] | 2 [0-4] [0-9] | 25 [0-5]) \. ) {3} '
' ([0-9] | [1-9] [0-9] | 1 [0-9] [0-9] | 2 [0-4] [0-9] | 25 [0-5]) '
' / ( ([0-9] | ([1-2] [0-9]) | (3 [0-2])) ) '
```

The ipv4-prefix type represents an IPv4 address prefix. The prefix length is given by the number following the slash character and must be less than or equal to 32.

A prefix length value of 'n' corresponds to an IP address mask that has n contiguous 1-bits from the most significant bit (MSB) and all other bits set to 0.

The canonical format of an IPv4 prefix has all bits of the IPv4 address set to zero that are not part of the IPv4 prefix.

ipv6-address

Pattern:

```
'((:| [0-9a-fA-F]{0,4}) : ) ([0-9a-fA-F]{0,4} : ) {0,5}'
'((( [0-9a-fA-F]{0,4} : ) ? ( : | [0-9a-fA-F]{0,4} )) |)'
'((( (25 [0-5] | 2 [0-4] [0-9] | [01] ? [0-9] ? [0-9] ) \. ) {3} | Pattern:
' (25 [0-5] | 2 [0-4] [0-9] | [01] ? [0-9] ? [0-9] )))'
' (% [\p{N} \p{L} ]+ ) ?'
```

Pattern:

```
'(([^:]+) {6} ([^:]+ : [^:]+) | (. * \. . * )) |'
'((( [^:]+ ) * [^:]+ ) ? : ( ( [^:]+ ) * [^:]+ ) ? )'
' (% .+ ) ?'
```

The ipv6-address type represents an IPv6 address in full, mixed, shortened, and shortened-mixed notation. The IPv6 address may include a zone index, separated by a % sign.

The zone index is used to disambiguate identical address values. For link-local addresses, the zone index will typically be the interface index number or the name of an interface. If the zone index is not present, the default zone of the device will be used.

The canonical format of IPv6 addresses uses the textual representation defined in Section 4 of RFC 5952. The canonical format for the zone index is the numerical format as described in Section 11.2 of RFC 4007.

Reference:

- RFC 4291: IP Version 6 Addressing Architecture
- RFC 4007: IPv6 Scoped Address Architecture
- RFC 5952: A Recommendation for IPv6 Address Text Representation

ipv6-address-and-prefix-length

Pattern:

```
'((:| [0-9a-fA-F]{0,4}) : ) ([0-9a-fA-F]{0,4} : ) {0,5}'
'((( [0-9a-fA-F]{0,4} : ) ? ( : | [0-9a-fA-F]{0,4} )) |)'
'((( (25 [0-5] | 2 [0-4] [0-9] | [01] ? [0-9] ? [0-9] ) \. ) {3} |
' (25 [0-5] | 2 [0-4] [0-9] | [01] ? [0-9] ? [0-9] )))'
' ( / ( ( [0-9] ) | ( [0-9] {2} ) | ( 1 [0-1] [0-9] ) | ( 12 [0-8] ) ) ) )'
```

Pattern:

```
'(([^:]+) {6} ([^:]+ : [^:]+) | (. * \. . * )) |'
```

```
' ((([^\:]+\:)*[^\:]+)?\: (([^\:]+\:)*[^\:]+)? )'  
' (/.\+ )'
```

The `ipv6-address-and-prefix-length` type represents a combination of an IPv6 address and a prefix length. The prefix length is given by the number following the slash character and must be less than or equal to 128.

ipv6-address-no-zone

Pattern:

```
' [0-9a-fA-F:\.]* '
```

An IPv6 address without a zone index. This type, derived from `ipv6-address`, may be used in situations where the zone is known from the context and hence no zone index is needed.

Reference:

- RFC 4291: IP Version 6 Addressing Architecture
- RFC 4007: IPv6 Scoped Address Architecture
- RFC 5952: A Recommendation for IPv6 Address Text Representation

ipv6-prefix

Pattern:

```
' ((:|[0-9a-fA-F]{0,4}):) ([0-9a-fA-F]{0,4}):{0,5}'  
' ((([0-9a-fA-F]{0,4}):)?(:|[0-9a-fA-F]{0,4}))|'  
' ((25[0-5]|2[0-4][0-9]|01?[0-9]?[0-9])\.){3}' Pattern:  
' (25[0-5]|2[0-4][0-9]|01?[0-9]?[0-9]))'  
' (/((([0-9])|([0-9]{2})|(1[0-1][0-9])|(12[0-8]))))';
```

Pattern:

```
' ((([^\:]+\:){6}([^\:]+\:|(\.\*\.\.)*))|'  
' ((([^\:]+\:)*[^\:]+)?\: (([^\:]+\:)*[^\:]+)? )'  
' (/.\+ )'
```

The `ipv6-prefix` type represents an IPv6 address prefix. The prefix length is given by the number following the slash character and must be less than or equal to 128.

A prefix length value of `n` corresponds to an IP address mask that has `n` contiguous 1-bits from the most significant bit (MSB) and all other bits set to 0.

The IPv6 address should have all bits that do not belong to the prefix set to zero. The canonical format of an IPv6 prefix has all bits of the IPv6 address set to zero that are not part of the IPv6 prefix. Furthermore, the IPv6 address is represented as defined in Section 4 of RFC 5952

Reference:

- RFC 5952: A Recommendation for IPv6 Address Text Representation

mac-address

Pattern:

```
' [0-9a-fA-F] {2} ( : [0-9a-fA-F] {2} ) {5} '
```

The mac-address type represents an IEEE 802 MAC address. The canonical representation uses lowercase characters. In the value set and its semantics, this type is equivalent to the MacAddress textual convention of the SMIPv2.

Reference:

- IEEE 802: IEEE Standard for Local and Metropolitan Area Networks: Overview and Architecture
- RFC 2579: Textual Conventions for SMIPv2

object-identifier

Pattern:

```
' ( ([0-1] (\ . [1-3]? [0-9])) | (2 \ . (0 | ([1-9] \d*))) ) '
' (\ . (0 | ([1-9] \d*))) * '
```

The object-identifier type represents administratively assigned names in a registration-hierarchical-name tree. The values of this type are denoted as a sequence of numerical non-negative sub-identifier values. Each sub-identifier value MUST NOT exceed $2^{32}-1$ (4294967295). The Sub-identifiers are separated by single dots and without any intermediate whitespace.

The ASN.1 standard restricts the value space of the first sub-identifier to 0, 1, or 2. Furthermore, the value space of the second sub-identifier is restricted to the range 0 to 39 if the first sub-identifier is 0 or 1. Finally, the ASN.1 standard requires that an object identifier has always at least two sub-identifiers. The pattern captures these restrictions.

Although the number of sub-identifiers is not limited, module designers should realize that there may be implementations that stick with the SMIPv2 limit of 128 sub-identifiers.

This type is a superset of the SMIPv2 OBJECT IDENTIFIER type since it is not restricted to 128 sub-identifiers. Hence, this type SHOULD NOT be used to represent the SMIPv2 OBJECT IDENTIFIER type; the object-identifier-128 type SHOULD be used instead.

Reference:

- ISO9834-1: Information technology - Open Systems
- Interconnection - Procedures for the operation of OSI
- Registration Authorities: General procedures and top arcs of the ASN.1 Object Identifier tree

object-identifier-128

Pattern:

```
' \d* (\ . \d* ) {1,127} '
```

This type represents object-identifiers restricted to 128 sub-identifiers. In the value set and its semantics, this type is equivalent to the OBJECT IDENTIFIER type of the SMIV2.

Reference:

- RFC 2578: Structure of Management Information Version 2 (SMIV2)

octet-list

Pattern:

```
'(\d*(.\d*)*)?'
```

A list of dot-separated octets, for example '192.168.255.1.0'. The statement tailf:value-length can be used to restrict the number of octets. Using the 'length' restriction limits the number of characters in the lexical representation.

phys-address

Pattern:

```
'([0-9a-fA-F]{2}(:[0-9a-fA-F]{2})*)?'
```

Represents media- or physical-level addresses represented as a sequence octets, each octet represented by two hexadecimal numbers. Octets are separated by colons. The canonical representation uses lowercase characters. In the value set and its semantics, this type is equivalent to the PhysAddress textual convention of the SMIV2.

Reference:

- RFC 2579: Textual Conventions for SMIV2

sha-256-digest-string

Pattern:

```
'$0$.*'
'|$5$(rounds=\d+)$?[a-zA-Z0-9./]{1,16}$[a-zA-Z0-9./]{43}'
```

The sha-256-digest-string type automatically computes a SHA-256 digest for a value adhering to this type. A value of this type matches one of the forms:

- \$0\$<clear text password>
- \$5\$<salt>\$<password hash>
- \$5\$rounds=<number>\$<salt>\$<password hash>

The '\$0\$' prefix signals that this is plain text. When a plain text value is received by the server, a SHA-256 digest is calculated, and the string '\$5\$<salt>\$' is prepended to the

result, where <salt> is a random 16 character salt used to generate the digest. This value is stored in the configuration data store. The algorithm can be tuned through the /confdConfig/cryptHash/rounds parameter, which if set to a number other than the default will cause '\$5\$rounds=<number>\$<salt>\$' to be prepended instead of only '\$5\$<salt>\$'.

If a value starting with '\$5\$' is received, the server knows that the value already represents a SHA-256 digest, and stores it as is in the data store.

If a default value is specified, it must have a '\$5\$' prefix.

The digest algorithm used is the same as the SHA-256 crypt function used for encrypting passwords for various UNIX systems.

Reference:

- IEEE Std 1003.1-2008 - crypt() function FIPS.180-3.2008: Secure Hash Standard

sha-512-digest-string

Pattern:

```
'$0$.*'
'|$6$(rounds=\d+$)?[a-zA-Z0-9./]{1,16}$[a-zA-Z0-9./]{86}'
```

The sha-512-digest-string type automatically computes a SHA-512 digest for a value adhering to this type. A value of this type matches one of the forms

- \$0\$<clear text password>
- \$6\$<salt>\$<password hash>
- \$6\$rounds=<number>\$<salt>\$<password hash>

The '\$0\$' prefix signals that this is plain text. When a plain text value is received by the server, a SHA-512 digest is calculated, and the string '\$6\$<salt>\$' is prepended to the

result, where <salt> is a random 16 character salt used to generate the digest. This value is stored in the configuration data store. The algorithm can be tuned through the

/confdConfig/cryptHash/rounds parameter, which if set to a number other than the default will cause '\$6\$rounds=<number>\$<salt>\$' to be prepended instead of only '\$6\$<salt>\$'.

If a value starting with '\$6\$' is received, the server knows that the value already represents a SHA-512 digest, and stores it as is in the data store.

If a default value is specified, it must have a '\$6\$' prefix. The digest algorithm used is the same as the SHA-512 crypt function used for encrypting passwords for various UNIX systems.

Reference:

- IEEE Std 1003.1-2008 - crypt() function FIPS.180-3.2008: Secure Hash Standard

size

Pattern:

```
'S(\d+G)?(\d+M)?(\d+K)?(\d+B)?'
```

A value that represents a number of bytes. An example could be S1G8M7K956B; meaning 1GB + 8MB + 7KB + 956B = 1082138556 bytes.

The value must start with an S. Any byte magnifier can be left out, for example, S1K1B equals 1025 bytes. The order is significant though, that is S1B56G is not a valid byte size.

In ConfD, a 'size' value is represented as an uint64.

uuid

Pattern:

```
'[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-'
'[0-9a-fA-F]{4}-[0-9a-fA-F]{12}'
```

A Universally Unique IDentifier in the string representation defined in RFC 4122. The canonical representation uses lowercase characters. The following is an example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6.

Reference:

- RFC 4122: A Universally Unique Identifier (UUID) URN Namespace

yang-identifier

Pattern:

```
'[a-zA-Z_][a-zA-Z0-9\-\_\.]*'
```

Pattern:

```
'\.\.\. | [^xX] .* | [^mM] .* | \.\.\. [^1L] .*'
```

A YANG identifier string as defined by the 'identifier' rule in Section 12 of RFC 6020. An identifier must start with an alphabetic character or an underscore followed by an arbitrary sequence of alphabetic or numeric characters, underscores, hyphens, or dots. A YANG identifier MUST NOT start with any possible combination of the lowercase or uppercase character sequence 'xml'.

Reference:

- RFC 6020: YANG - A Data Modeling Language for the Network Configuration Protocol (NETCONF)

