Multi-Access Gateway – controller

Release 26.3

MAG-c CLI Reference Guide

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1 Getting started

Find general information about this guide.

1.1 About this guide

This guide provides descriptions of the Command Line Interface (CLI) commands used to configure and manage the Multi-Access Gateway – controller (MAG-c) for the BNG CUPS solution. This includes **configure**, **clear**, **monitor**, **show**, and **tools** commands and supported values and parameters for each command.

The MAG-c is based on Release 20.10 of the SR OS from which it inherits many, but not all, SR OS Release 20.10 features.

Note: This guide generically covers content for the release specified on the title page of the guide, and may also contain some content that will be released in later maintenance loads. See the applicable *MAG-c Release Notes* for information about features supported in each load of the software release.

Note: The information in this guide is intended to be used in conjunction with the SR OS software user guides. The SR OS software user guides describe SR OS service features that are supported by the MAG-c. See the *7450 ESS, 7750 SR, 7950 XRS, and VSR Documentation Suite Overview Card 20.10.R1* for specific guide titles.

Note: Configuration outputs shown in this guide are examples only; actual displays may differ depending on supported functionality and user configuration.

1.2 Conventions

This section describes the general conventions used in this guide.

1.2.1 Precautionary and information messages

The following information symbols are used in the documentation.

DANGER: Danger warns that the described activity or situation may result in serious personal injury or death. An electric shock hazard could exist. Before you begin work on this equipment, be aware of hazards involving electrical circuitry, be familiar with networking environments, and implement accident prevention procedures.

WARNING: Warning indicates that the described activity or situation may, or will, cause equipment damage, serious performance problems, or loss of data.

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Caution: Caution indicates that the described activity or situation may reduce your component or system performance.

Note: Note provides additional operational information.

Tip: Tip provides suggestions for use or best practices.

1.2.2 Options or substeps in procedures and sequential workflows

Options in a procedure or a sequential workflow are indicated by a bulleted list. In the following example, at step 1, the user must perform the described action. At step 2, the user must perform one of the listed options to complete the step.

Example: Options in a procedure

1. User must perform this step.
2. This step offers three options. User must perform one option to complete this step.
   - This is one option.
   - This is another option.
   - This is yet another option.

Substeps in a procedure or a sequential workflow are indicated by letters. In the following example, at step 1, the user must perform the described action. At step 2, the user must perform two substeps (a. and b.) to complete the step.

Example: Substeps in a procedure

1. User must perform this step.
2. User must perform all substeps to complete this action.
   a. This is one substep.
   b. This is another substep.

1.3 Command tree

The MAG-c CLI command tree is a hierarchical inverted tree. The highest level in the tree is the root and below the root are the major command groups. The major command groups include, for example, the **admin**, **clear**, **configure**, **debug**, **show**, and **tools** command trees. See Navigating between trees and command descriptions for more information.

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1.4 Search and navigation aids

Searching for CLI commands

Use the following search tips and best practices to easily find information about a specific command using a search function:

- Enter the command name in the search input field.
- To optimize your search, specify one or more levels of the contextual path before the command name.

  Note:
  The context section in each command description shows the full path to the command.

- Do not include variables in the search phrase.

For example, to search for the **configure li target source** command, entering **"target source"** is more efficient than **"source"** and limits the number of search results. Using **"target <name> source"** does not return any results.

Caution: Using a combination of hyphenated terms with other terms within the same quoted search phrase (for example, searching for "bng-charging chf chf-profile") may produce inaccurate search results in WebHelp.

Navigating between trees and command descriptions

As described in Command tree, this guide provides hierarchically organized CLI command trees to configure and manage the MAG-c. You can jump between a CLI command in the command tree and the corresponding command description as follows:

- In a CLI command tree, click the hyperlinked command to jump to the corresponding description.
- In a CLI command description, click [Tree] in the command context section to go to the tree.

The following figures show the links between the command tree and command description for the **default-ipv4-signaling-method** command.

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Figure 1: Link to command description

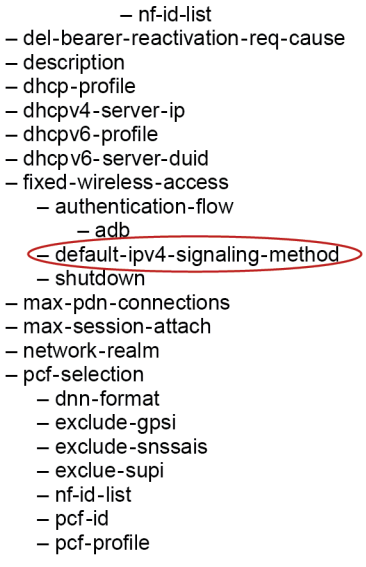

Figure 2: Link to CLI tree

default-ipv4-signaling-method

Syntax

default-ipv4-signaling-method *signaling-method*

Context

[Tree] configure mobile-gateway pdn apn fixed-wireless-access default-ipv4-signaling-method

Description

This command configures whether to signal an allocated IPv4 address to the FWA RG using NAS or DHCP (deferred allocation) messaging. This value is used if no other method is provided during session setup; for example, by the ADB, RADIUS, or PCO.

Default

default-ipv4-signaling-method nas

Parameters

signaling-method

Specifies the method to signal allocated IPv4 addresses.

Values: nas | dhcp

Default: nas

sw1383

1.5 Command descriptions

Command descriptions in this guide appear in the order in which they are found in the command tree. The following figure shows an example of the fields of the command description.

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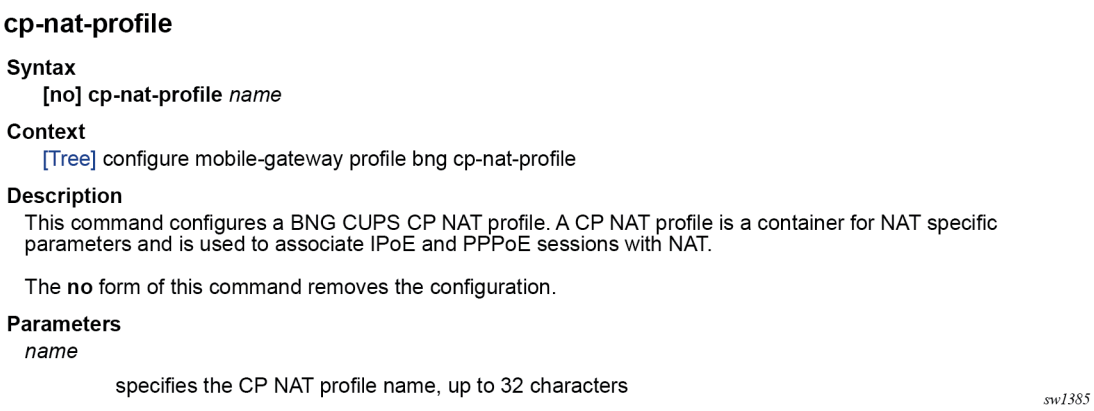
Figure 3: Command description example



cp-nat-profile

Syntax
[no] cp-nat-profile *name*

Context
[Tree] configure mobile-gateway profile bng cp-nat-profile

Description
This command configures a BNG CUPS CP NAT profile. A CP NAT profile is a container for NAT specific parameters and is used to associate IPoE and PPPoE sessions with NAT.

The **no** form of this command removes the configuration.

Parameters
name

specifies the CP NAT profile name, up to 32 characters

sw1385

The following table describes the fields that may be shown for a command. Not all fields are applicable for all commands.

Table 1: Command description fields

Field	Description
Command Name	Name of the command
Syntax	Command syntax required to execute the command. See CLI command syntax for information about syntax symbols.
Context	Complete contextual path to perform the command
Description	Description of the command functionality and any restrictions
Default	Command default value
Parameters	Descriptions of command parameters
Values	Values allowed for the parameter
Default	Parameter default value

1.6 CLI command syntax

The following table describes command syntax symbols used in this CLI reference guide.

Table 2: Command syntax symbols

Symbol	Description
|	A vertical line indicates that only one of the parameters within the brackets or braces can be selected.

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Symbol	Description
[ ]	Brackets indicate optional parameters.
{ }	Braces indicate that one of the parameters must be selected.
[{ }]	Braces within square brackets indicate that the parameters are optional, but if one is selected, the information within the braces is required.
Bold	**Bold** indicates commands and keywords.
Italic	*Italics* indicates that you must enter text for the parameter.

1.7 CLI contexts

Use the CLI to access, configure and manage the MAG-c.

Enter CLI commands at the command line prompt. Your system administrator sets the permissions that control access to specific CLI commands. Entering a CLI command makes navigation possible from one command context (or level) to another.

When you initially enter a CLI session, you are in the ROOT context. Navigate to another level by entering the name of successively lower contexts. For example, use the following command at the ROOT context (command prompt #) to navigate to the **config** context.

```
A:MAG-c# configure
A:MAG-c>config#
```

The active context displays at the command prompt.

In a specific CLI context, enter commands at that context level by entering the text. It is also possible to include a command in a lower context, as long as you format the command with the correct command and parameter syntax. The following examples show two methods to navigate to a call trace level.

Example: Method 1

```
A:MAG-c# configure mobile-gateway profile call-insight
A:MAG-c>config>mobile>profile>call-insight#
```

Example: Method 2

```
A:MAG-c>config# mobile-gateway
A:MAG-c>config>mobile# profile
A:MAG-c>config>mobile>profile# call-insight
A:MAG-c>config>mobile>profile>call-insight#
```

When the syntax is incorrect, the CLI returns the following error message:

```
A:MAG-c>config# mobile
Error: Bad command.
```


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2 isa command reference

2.1 isa hierarchy descriptions

This section provides the following isa hierarchy descriptions:

- clear isa command hierarchy
- show isa command hierarchy

2.1.1 clear isa command hierarchy

```
clear
  – isa
      – ip-reas-stats
```

2.1.2 show isa command hierarchy

```
show
  – isa
      – ip-reas-stats
```

2.2 isa command descriptions

This section provides the following isa command descriptions:

- clear isa command descriptions
- show isa command descriptions

2.2.1 clear isa command descriptions

2.2.1.1 ip-reas-stats

Syntax

ip-reas-stats *port-name* {**ipv4** | **ipv6**}

ip-reas-stats all

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Context

[Tree] clear isa ip-reas-stats

Description

This command clears the IP reassembly port statistics.

Parameters

port-name

Specifies the port name.

Values: *port-id* [:*context-val*] where

- *port-id*

  Specifies the configured port ID.

  Values: *slot*/*mda*/*port* or lag-*id* where

  id – 1 to 200

- *context-val* – 1 to 31

all

Keyword to clear all IP reassembly port statistics.

ipv4 | ipv6

Keyword to specify the IP address type.

2.2.2 show isa command descriptions

2.2.2.1 ip-reas-stats

Syntax

ip-reas-stats [*port-name*] [**ipv4** | **ipv6**]

Context

[Tree] show isa ip-reas-stats

Description

This command displays the reassembly packet statistics.

Parameters

port-name

Specifies the port name.

Values: *port-id* [:*context-val*] where

- *port-id*

  Specifies the configured port ID.

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Values: *slot*/*mda*/*port* or lag-*id* where

id – 1 to 200

- *context-val* – 1 to 31

ipv4 | ipv6

Keyword to specify the IP address type.

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3 li command reference

3.1 li hierarchy descriptions

This section provides the following Lawful Interception hierarchy descriptions:

- configure li command hierarchy
- show li command hierarchy

3.1.1 configure li command hierarchy

```
configure
  – li
      – mobile-gateway
          – 3gpp-5g-release
          – 3gpp-release
          – 5g-iri-ip-id
          – client-tls-profile
          – custom-correlation-id-format
          – df-peer
          – fan-out
          – include-rai
          – iri
              – gw-function-iri-mode
              – iri-per-mb-request
              – ne-id
              – te-id
              – x2-iri-ice-type
          – li-x1
              – admf-peer
              – alpn
              – li-x1-keep-alive-time-p2
              – li-x1-local-interface
              – sni
          – li-x2
              – li-x2-keep-alive-time-p1
              – li-x2-keep-alive-time-p2
          – local-interface
          – nf-id-value
          – num-conn-retries
          – operator-id
          – server-tls-profile
          – target
          – tls
          – x2-iri-cache-size
          – x2-iri-qos
          – x2-keep-alive-time
      – pfcp-li-shared-key
      – target
          – description
          – source
```


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3.1.2 show li command hierarchy

```
show
  – li
      – mobile-gateway
          – df-peer
          – summary
          – target
```

3.2 li command descriptions

This section provides the following Lawful Interception command descriptions:

- configure li command descriptions
- show li command descriptions

3.2.1 configure li command descriptions

3.2.1.1 mobile-gateway

Syntax

mobile-gateway

Context

[Tree] configure li mobile-gateway

Description

Commands in this context configure lawful intercept (LI) functionality for the MAG-c.

3.2.1.2 3gpp-5g-release

Syntax

3gpp-5g-release *release*

Context

[Tree] configure li mobile-gateway 3gpp-5g-release

Description

This command configures the 3GPP release option used for the 5G LI interfaces.

The **no** form of this command reverts to the default (base release).

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Parameters

release

Specifies the 3GPP release.

Values: rel-base | rel-16

Default: rel-base (Release 15)

3.2.1.3 3gpp-release

Syntax

3gpp-release *release*

Context

[Tree] configure li mobile-gateway 3gpp-release

Description

This command configures the 3GPP release option used for LI interfaces.

The **no** form of this command reverts to the default (base release).

Parameters

release

Specifies the 3GPP release.

Values: rel-base | rel-13

Default: rel-base (Release 11)

3.2.1.4 5g-iri-ip-id

Syntax

5g-iri-ip-id address *ip-address* | *ipv6-address*

5g-iri-ip-id auto

Context

[Tree] configure li mobile-gateway 5g-iri-ip-id

Description

This command configures the interception product identifier (IP ID) of the 5G intercept-related information (IRI).

Default

5g-iri-ip-id auto

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Parameters

ip-address | *ipv6-address*

Specifies the IP address as 5G IRI IP ID.

Values:

- ip-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

auto

Keyword to automatically generate the 5G IRI IP ID.

3.2.1.5 client-tls-profile

Syntax

client-tls-profile *tls-profile-name*

no client-tls-profile

Context

[Tree] configure li mobile-gateway client-tls-profile

Description

This command configures a default client TLS profile on the MAG-c. When the TLS profile is configured, the MAG-c tries to establish a TCP connection with the lawful intercept gateway (LIG) over TLS for the 5G LI X2 interface. The MAG-c supports strict TLS-only mode for the 5G LI X2 interface. Both the MAG-c and the LIG must support TLS.

The **no** form of this command removes the configuration.

Default

no client-tls-profile

Parameters

tls-profile-name

Specifies the TLS profile name, up to 32 characters.

3.2.1.6 custom-correlation-id-format

Syntax

custom-correlation-id-format {**enable** | **disable**}

no custom-correlation-id-format

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Context

[Tree] configure li mobile-gateway custom-correlation-id-format

Description

This command facilitates sending the correlation ID with four octets charging ID (without including the gateway IP address). The correlation ID is included in IRI as well as in CC messages, so that the LIG can correlate IRI and CC messages.

The **no** form of this command reverts to default (disable).

Parameters

enable

Keyword to send the correlation ID with four octets charging identifier.

disable

Keyword to not send the correlation ID with four octets charging identifier.

Default: disable

3.2.1.7 df-peer

Syntax

df-peer *df-peer-id* **df2-addr** *ip-address* **df2-port** *port* [**df2-tls-profile** *profile-name*]

no df-peer *df-peer-id*

Context

[Tree] configure li mobile-gateway df-peer

Description

This command configures the DF peer of an LI gateway as DF2 (X2) only. It supports the following configuration options:

- DF2 IP address and port
- DF2 TLS profile

The **no** form of this command removes the DF peer information from the configuration.

Parameters

def-peer-id

Specifies the DF peer ID.

Values: 1 to 254

ip-address

Specifies the DF peer IP address where the X2 is sent.

Values:

- IPv4 address – a.b.c.d

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- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

port

Specifies the DF port number (TCP/UDP port) where the X2 is sent.

Values: 1 to 65535

Default: 0

profile-name

Specifies the DF profile name, up to 32 characters.

Note:

- The DF peers can use the same or different TLS client profiles.
- To use a TLS profile, the TLS protocol must be enabled (using the **tls** command).
- The TLS client profiles must be in the administratively disabled (**no shutdown**) state.

3.2.1.8 fan-out

Syntax

[**no**] **fan-out**

Context

[Tree] configure li mobile-gateway fan-out

Description

This command enables IRI and IRI+CC fan-out functionality for LI on the mobile gateway. Each target activation must be uniquely identified by the lawful interception ID (LIID) specified using the **target** command. A maximum of 10 target activations are supported for a UE. There could be, for example, 5 activations using IMSI, 3 activations using MSISDN, and 2 activations using IMEI. A maximum of 7 activations are supported using the same target type (for example, IMSI). Each activation must be deactivated separately using the same LIID used at the time of activation.

The **no** form of this command reverts to the default.

Default

no fan-out

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3.2.1.9 include-rai

Syntax

[**no**] **include-rai**

Context

[Tree] configure li mobile-gateway include-rai

Description

This command supports the inclusion of the Routing Area Identifier (RAI) from the message level along with the ULI received from the SGSN, within the Location of the Target Information Element that is sent in the IRI messages to the LIG.

The **no** form of this command reverts to the default.

Default

no include-rai

3.2.1.10 iri

Syntax

iri

Context

[Tree] configure li mobile-gateway iri

Description

Commands in this context configure LI IRI settings.

3.2.1.11 gw-function-iri-mode

Syntax

[**no**] **gw-function-iri-mode**

Context

[Tree] configure li mobile-gateway iri gw-function-iri-mode

Description

This command controls the IRI mode of generating events for a combined 4G SGW/PGW session on the MAG-c. For a combined session, by default, only MAG-c IRI events are generated. When this command is enabled, separate events are generated for the combined session from both the SGW and the PGW function.

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The **no** form of this command reverts to the default (only PGW events are generated for the combined SGW/PGW session).

Default

no gw-function-iri-mode

3.2.1.12 iri-per-mb-request

Syntax

[**no**] **iri-per-mb-request**

Context

[Tree] configure li mobile-gateway iri iri-per-mb-request

Description

This command enables the additional MBReq event on a MAG-c acting as the SGW.

The **no** form of this command reverts to the default.

Default

no iri-per-mb-request

3.2.1.13 ne-id

Syntax

ne-id address *ip-address* | *ipv6-address*

ne-id s5

Context

[Tree] configure li mobile-gateway iri ne-id

Description

This command configures the network element identifier (NEID).

Default

ne-id s5

Parameters

ip-address **|** *ipv6-address*

Specifies the IP address as NEID.

Values:

- ip-address – a.b.c.d

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- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

s5

Keyword to use the IP address of the S5 interface.

3.2.1.14 te-id

Syntax

[**no**] **te-id**

Context

[Tree] configure li mobile-gateway iri te-id

Description

This command enables the population of the tunnel endpoint identifier (TEID) (S5/S8-U PGW F-TEID: TEID + IP address) information element (IE) in a bearer activation IRI event from the SGW or PGW. This is an operator-custom IE.

The **no** form of this command reverts to the default (disabled).

Default

no te-id

3.2.1.15 x2-iri-ice-type

Syntax

[**no**]**x2-iri-ice-type**

Context

[Tree] configure li mobile-gateway iri x2-iri-ice-type

Description

This command enables inclusion of the ICE-Type in GTP signaling-related IRI messages sent by the mobile gateway. Applicable gateway types include SGW, PGW, and combined SGW/PGW.

The **no** form of this command reverts to the default (ICE-Type is not included in GTP signaling

related IRI messages).

Default

no x2-iri-ice-type

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3.2.1.16 li-x1

Syntax

li-x1

Context

[Tree] configure li mobile-gateway li-x1

Description

Commands in this context configure LI_X1 interface settings.

3.2.1.17 admf-peer

Syntax

admf-peer *df-peer-id* **admf-addr** *admf-peer-address* [**x1-port** *x1-port-num*]

no admf-peer *df-peer-id*

Context

[Tree] configure li mobile-gateway li-x1 admf-peer

Description

This command configures the administration function (ADMF) peer IP address, and optionally a port if other than the default value of 443 is used.

The **no** form of this command removes the specified ADMF peer.

Parameters

df-peer-id

Specifies the peer ID.

Values: 1 to 254

admf-peer-address

Specifies the peer IP address.

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D

x1-port-num

Specifies the port number.

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Values: 1 to 65535

Default: 443

3.2.1.18 alpn

Syntax

alpn {**enable** | **disable**}

Context

[Tree] configure li mobile-gateway li-x1 alpn

Description

This command enables or disables the Application Layer Protocol Negotiation (ALPN) extension handling for TLS over the LI_X1 interface.

Default

alpn enable

3.2.1.19 li-x1-keep-alive-time-p2

Syntax

li-x1-keep-alive-time-p2 *x1-time-p2-value*

no li-x1-keep-alive-time-p2

Context

[Tree] configure li mobile-gateway li-x1 li-x1-keep-alive-time-p2

Description

This command specifies the keep-alive time for the LI_X1 interface. If the timer is set to zero, the keep-alive mechanism is disabled.

The **no** form of this command reverts to the default.

Default

li-x1-keep-alive-time-p2 0

Parameters

x1-time-p2-value

Specifies the keep-alive time in seconds.

Values: 0 | 3600 to 86400; 0 disables the keep-alive mechanism.

Default: 0

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3.2.1.20 li-x1-local-interface

Syntax

li-x1-local-interface *ip-address* [**router** *router-instance*] [**local-port** *port-num*]

no li-x1-local-interface

Context

[Tree] configure li mobile-gateway li-x1 li-x1-local-interface

Description

This command configures the IP address for the LI_X1 local end point.

Default

no li-x1-local-interface

Parameters

ip-address

Specifies the IP address.

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

router-instance

Specifies the router instance, up to 32 characters.

Default: base

port-num

Specifies the port number.

Values: 1 to 65535

Default: 443

3.2.1.21 sni

Syntax

sni {**enable** | **disable**}

Context

[Tree] configure li mobile-gateway li-x1 sni

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Description

This command enables or disables the Service Name Indication (SNI) extension handling for TLS over the LI_X1 interface.

The **no** form of this command reverts to default.

Default

sni enable

3.2.1.22 li-x2

Syntax

li-x2

Context

[Tree] configure li mobile-gateway li-x2

Description

Commands in this context configure LI_X2 interface settings.

3.2.1.23 li-x2-keep-alive-time-p1

Syntax

li-x2-keep-alive-time-p1 *x2-time-p1-value*

no li-x2-keep-alive-time-p1

Context

[Tree] configure li mobile-gateway li-x2 li-x2-keep-alive-time-p1

Description

This command specifies the keep-alive time for the LI_X2 interface on the MAG-c acting as the SMF. The POI sends a keepalive PDU at least every*x2-time-p1-value* seconds (the default is 60 seconds). If the POI does not receive a keep-alive Acknowledgment PDU within the number of seconds specified for *x2-time-p2-value*, it disconnects the connection and attempts to reconnect to the MDF while reporting an error through the X1 interface as defined in ETSI TS 103 221-1. The default **x2-time-p2-value** is 180 seconds and it can be modified using the **li-x2-keep-alive-time-p2** command.

The **no** form of this command reverts to the default. If the timer is set to 0 value, the keep-alive mechanism is disabled.

Parameters

x2-time-p1-value

Specifies the keep-alive time, in seconds.

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Values: 0 to 300

Default: 60

3.2.1.24 li-x2-keep-alive-time-p2

Syntax

li-x2-keep-alive-time-p2 *x2-time-p2-value*

no li-x2-keep-alive-time-p2

Context

[Tree] configure li mobile-gateway li-x2 li-x2-keep-alive-time-p2

Description

This command specifies the keep-alive time for the LI_X2 interface on the SMF. If the POI does not receive a keep-alive Acknowledgment PDU within the number of seconds specified for *x2-time-p2-value* (the default is 180 seconds), it disconnects the connection and attempts to reconnect to the MDF while reporting an error through the X1 interface as defined in ETSI TS 103 221-1.

The **no** form of this command reverts to the default. If the timer is set to 0 value, the keep-alive mechanism is disabled.

Parameters

x2-time-p2-value

Specifies the keep-alive time, in seconds.

Values: 0 to 1800

Default: 180

3.2.1.25 local-interface

Syntax

local-interface *ip-address* [**router** *router-instance*] [**override-x2-interface** *x2-ip-address* [**x2-router** *x2-router-instance*]]

no local-interface

Context

[Tree] configure li mobile-gateway local-interface

Description

This command configures the source IP address used by the xGW/GGSN for the LI interface. Specifying the **override-x2-interface** option enables each X2 interface to use a different VPRN context. When the **override-x2-interface** option is not specified, the X2 interfaces use the same IP address and VPRN context.

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The **no** form of this command reverts to the default.

Default

no local-interface

Parameters

ip-address

Specifies the source IP address.

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

router-instance

Specifies the router instance, up to 32 characters.

x2-ip-address

Specifies the source X2 IP address.

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

x2-router-instance

Specifies the X2 router instance, up to 32 characters.

3.2.1.26 nf-id-value

Syntax

nf-id-value {**uuid** | **ip-addr** | **ip-addr-hex-string**}

no nf-id-value

Context

[Tree] configure li mobile-gateway nf-id-value

Description

This command specifies the NF identifier choice of **uuid** or **ip-addr** to use for IRI and CC messages over the LI_X1, LI_X2 and LI_X3 interfaces. The **ip-addr** option specifies to use the configured local

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source IP address for the LI_X1, LI_X2 and LI_X3 interfaces as the NF identifier in IRI and CC messages respectively.

The **no** form of this command reverts to the default (uuid).

Default

no nf-id-value

Parameters

uuid

Keyword to use the UUID as the NF identifier in IRI and CC messages.

ip-addr

Keyword to use the local source IP address configured for the LI_X1, LI_X2 and the LI_X3 interfaces as the NF identifiers in the IRI and CC messages respectively.

Default: disable

ip-addr-hex-string

Keyword to use the local source IP address for the LI_X1, LI_X2 and the LI_X3 interfaces, encoded as a hex string (individual digits and the character '.' are converted to the hex form) as the NF identifiers for the IRI and CC messages respectively.

Default: **uuid**

3.2.1.27 num-conn-retries

Syntax

num-conn-retries *num-of-retries*

no num-conn-retries

Context

[Tree] configure li mobile-gateway num-conn-retries

Description

This command is used to specify the number of (TCP) connection retries to the LIG server, before it is deemed to be down.

The **no** form of this command reverts to the default.

Default

num-conn-retries 3

Parameters

num-of-retries

Specifies the number of retries.

Values: 1 to 10

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Default: 3

3.2.1.28 operator-id

Syntax

operator-id *id-string*

no operator-id

Context

[Tree] configure li mobile-gateway operator-id

Description

This command configures the operator ID for the deployment. The configured value is used to populate the operator-identifier field of the Network-Identifier IE.

The **no** form of this command reverts to the default

Default

operator-id oprId

Parameters

id-string

Specifies the operator ID, up to 5 characters.

3.2.1.29 server-tls-profile

Syntax

server-tls-profile *tls-profile-name*

no server-tls-profile

Context

[Tree] configure li mobile-gateway server-tls-profile

Description

This command configures the default server TLS profile for the MAG-c lawful intercept X1 interface.

The **no** form of this command removes the server TLS profile configuration.

Default

no server-tls-profile

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Parameters

tls-profile-name

Specifies the TLS profile name, up to 32 characters.

3.2.1.30 target

Syntax

target *target-type* **id** *target-value* **intercept** *intercept* **peer** *df-peer-id* [**liid** *liid-string*]

no target *target-type* **id** *target-value* [**liid** *liid-string*]

Context

[Tree] configure li mobile-gateway target

Description

This command configures the LI target peer.

The **no** form of this command removes the specified LI target peer.

Parameters

target-type

Specifies the LI target type.

Values: imsi | msisdn

target-value

Specifies the LI target value.

Values: imsi | msisdn – up to 16 digits

intercept

Specifies that the interception is for IRI only.

Values: iri

df-peer-id

Specifies the peer ID.

Values: 1 to 255

liid-string

Specifies the lawful intercept ID (LIID), up to 25 characters.

3.2.1.31 tls

Syntax

[**no**] **tls**

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Context

[Tree] configure li mobile-gateway tls

Description

This command enables the TLS protocol in the LI X2 and X3 interfaces. To enable the TLS protocol, make sure that following conditions apply:

- a valid client TLS profile is configured and administratively enabled (not shutdown) in all DF peers
- the X3 interface is using TCP as the transport option

The **no** form of this command reverts to the default.

Default

no tls

3.2.1.32 x2-iri-cache-size

Syntax

x2-iri-cache-size *cache-size*

no x2-iri-cache-size

Context

[Tree] configure li mobile-gateway x2-iri-cache-size

Description

This command is used to specify the size of the IRI buffer cache. (IRI messages buffered when connectivity to the LIG is down). Setting the cache size to a value of 0 disables buffering.

The **no** form of this command reverts to the default.

3.2.1.33 x2-iri-qos

Syntax

x2-iri-qos dscp {*dscp-value* | *dscp-name*}

no x2-iri-qos

Context

[Tree] configure li mobile-gateway x2-iri-qos

Description

This command specifies the DSCP to be set for interception related information (IRI) messages sent to a lawful interception gateway (LIG).

The **no** form of this command reverts to the default.

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Parameters

dscp-value

Specifies the value of the DSCP to be set for IRI.

Values: 0 to 63

dscp-name

Specifies the name of the DSCP to be set for IRI.

Values: none | be | ef | cp1 | cp2 | cp3 | cp4 | cp5 | cp6 | cp7 | cp9 | cs1 | cs2 | cs3 | cs4 | cs5 | nc1 | nc2 | af11 | af12 | af13 | af21 | af22 | af23 | af31 | af32 | af33 | af41 | af42 | af43 | cp11 | cp13 | cp15 | cp17 | cp19 | cp21 | cp23 | cp25 | cp27 | cp29 | cp31 | cp33 | cp35 | cp37 | cp39 | cp41 | cp42 | cp43 | cp44 | cp45 | cp47 | cp49 | cp50 | cp51 | cp52 | cp53 | cp54 | cp55 | cp57 | cp58 | cp59 | cp60 | cp61 | cp62 | cp63

Default: af41

3.2.1.34 x2-keep-alive-time

Syntax

x2-keep-alive-time *keep-alive-time*

no x2-keep-alive-time

Context

[Tree] configure li mobile-gateway x2-keep-alive-time

Description

This command configures the keep-alive time for the X2 interface. An LI message including a keep-alive parameter is sent to the LIG when no LI message has been sent for the configured amount of time (for example, five minutes), indicating to the LIG that the LI connection is still up.

The **no** form of this command reverts to the default. A value of 0 disables the keep-alive mechanism.

Parameters

keep-alive-time

Specifies the keep-alive time in minutes.

Values: 0 to 5

Default: 0

3.2.1.35 pfcp-li-shared-key

Syntax

pfcp-li-shared-key *key-value*

pfcp-li-shared-key *key-value* **hash2**

no pfcp-li-shared-key

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Context

[Tree] configure li pfcp-li-shared-key

Description

This command configures the shared key used between the MAG-c and the UP over the Sx/N4 interface. The PFCP IEs are sent from the MAG-c to the SR OS UPs. This is used to encrypt the LI container IE at the MAG-c, and decrypt the LI container IE at the UP.

The **no** form of this command reverts to the default.

Default

no pfcp-li-shared-key

Parameters

key-value

Specifies the value of the shared key for the Sx/N4 interface, up to 128 characters.

hash2

Keyword to specify hash2.

3.2.1.36 target

Syntax

target *name*

no target

Context

[Tree] configure li target

Description

This command configures an LI target name. This name only serves as an alias for the LI target.

The **no** form of this command removes the LI target configuration.

Parameters

name

Specifies the target name, up to 32 characters.

3.2.1.37 description

Syntax

description *description-string*

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Context

[Tree] configure li target description

Description

This command configures a description for the LI target.

Parameters

description-string

Specifies the target description, up to 80 characters.

3.2.1.38 source

Syntax

no source *id*

source *id* **imsi** *imsi-number* [**ingress**] [**egress**] [**fc** *fc-name* [*fc-name*… (up to 8 max)]] **intercept-id** *intercept-id* **session-id** *session-id* [**mirror-destination** *service-name*]

source *id* **subscriber** *name* [**ingress**] [**egress**] [**fc** *fc-name* [*fc-name*...(up to 8 max)]] **intercept-id** *intercept-id* **session-id** *session-id* **mirror-destination** *service-name*

source *id* **msisdn** *msisdn-number* [**ingress**] [**egress**] [**fc** *fc-name* [*fc-name*… (up to 8 max)]] **intercept-id** *intercept-id* **session-id** *session-id* [**mirror-destination** *service-name*]

Context

[Tree] configure li target source

Description

This command configures activation and deactivation of subscriber LI. The MAG-c supports 4G, 5G, and BNG subscriber LI.

The **no** form of this command removes the configuration of the source ID.

Parameters

id

Specifies a target source ID, or a name up to 64 characters; for example, if the target has 4 IMSIs. The *imsi-number* and *id* parameters are mutually exclusive. If you are performing LI on a wireline (BNG) subscriber, use the **subscriber** keyword.

Value: 1 to 4

imsi-number

Specifies an IMSI or SUPI number. The *imsi-number* and the *id* parameters are mutually exclusive. If you perform LI on a 4G or 5G wireless subscriber, use the **imsi** keyword.

Values: 10 to 15

name

Specifies the subscriber name, up to 64 characters.

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ingress
Keyword to specify the ingress source.

egress
Keyword to specify the egress source.

fc-name
Specifies the FC type.
Values: **be** | **l2** | **af** | **l1** | **h2** | **ef** | **h1** | **nc**

intercept-id
Specifies the intercept ID.
Values: 1 to 1073741823

session-id
Specifies the session ID.
Values: 1 to 4294967295

service-name
Specifies the service name, up to 64 characters.

msisdn-number
Specifies the Mobile Station International Subscriber Directory Number (MSISDN).
Values: 9 to 15

3.2.2 show li command descriptions

3.2.2.1 mobile-gateway

Syntax

mobile-gateway

Context

[Tree] show li mobile-gateway

Description

Commands in this context display LI information.

3.2.2.2 df-peer

Syntax

df-peer ip-addr *ip-address* | *ipv6-address*
df-peer [*df-peer-id*]

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Context

[Tree] show li mobile-gateway df-peer

Description

This command displays only information about the 4G delivery function (DF) peer.

Parameters

ip-address | *ipv6-address*

Specifies the DF peer IP address.

Values:

- ip-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

df-peer-id

Specifies the DF peer ID.

Values: 1 to 254

3.2.2.3 summary

Syntax

summary

Context

[Tree] show li mobile-gateway summary

Description

This command displays a summary of the LI information.

3.2.2.4 target

Syntax

target [*target-type*] [**id** *target-value*] [**liid** *liid-string*]

target *target-type* **id** *target-value* **detail**

target *target-type* **id** *target-value* **stats**

Context

[Tree] show li mobile-gateway target

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Description

This command displays only information about the 4G LI target type and value.

Parameters

target-type

Keyword that specifies the target type.

Values: **imsi** | **imei** | **msisdn** | **mac** | **nai**

target-value

Specifies the target value.

Values:

- **imsi** | **imei** | **msisdn**
  up to 16 digits
- **mac** – xx:xx:xx:xx:xx:xx or xx-xx-xx-xx-xx-xx
- **nai** – username@realm
  up to 253 characters

detail

Keyword to display detailed information for the LI target context.

liid-string

Specifies the LI ID string for the target, up to 24 characters.

stats

Keyword to display statistics for the LI target context.

Output

The following output examples display configuration and statistics information for LI targets.

- LI target information
- LI target information for a specified IMSI
- LI target information for a specified MSISDN
- LI target information for a specified IMSI ID and LI ID
- LI target information for a specified MSISDN ID and LI ID
- LI target statistics for a specified IMSI ID
- LI target statistics for a specified MSISDN ID
- LI target detailed statistics for a specified IMSI ID
- LI target detailed statistics for a specified MSISDN ID

Output example: LI target information

```
# show li mobile-gateway target
===============================================================================
LI Target Information
===============================================================================
Target id (imsi)       : 206010000000004
Intercept type         : iri            Df peer           : 6
Li ID                  : 40
```


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```
Sec Df Peer            : 0              HA Df peer         : 0
------------------------------------------------------------------------------
Target id (msisdn)     : 8801812300005
Intercept type         : iri            Df peer            : 6
Li ID                  : 200
Sec Df Peer            : 0              HA Df peer         : 0
------------------------------------------------------------------------------
Number of targets : 2
==============================================================================
```

Output example: LI target information for a specified IMSI

```
# show li mobile-gateway target imsi id 206010000000004
==============================================================================
LI Target Information
==============================================================================



Target id (imsi)       : 206010000000004
Intercept type         : iri            Df peer            : 6
Intercept id           : 40
Sec Df Peer            : 0              HA Df peer         : 0
------------------------------------------------------------------------------
Number of targets : 1
==============================================================================
```

Output example: LI target information for a specified MSISDN

```
# show li mobile-gateway target msisdn id 8801812300005
==============================================================================
LI Target Information
==============================================================================
Target id (msisdn)     : 8801812300005
Intercept type         : iri            Df peer            : 6
Li ID                  : 200
Sec Df Peer            : 0              HA Df peer         : 0
------------------------------------------------------------------------------
Number of targets : 1
==============================================================================
```

Output example: LI target information for a specified IMSI ID and LI ID

```
# show li mobile-gateway target imsi id 206010000000004 liid 40
==============================================================================
LI Target Information
==============================================================================
Target id (imsi)       : 206010000000004
Intercept type         : iri            Df peer            : 6
Li ID                  : 40
Sec Df Peer            : 0              HA Df peer         : 0
------------------------------------------------------------------------------
Number of targets : 1
==============================================================================
```

Output example: LI target information for a specified MSISDN ID and LI ID

```
# show li mobile-gateway target msisdn id 8801812300005 liid 200
==============================================================================
LI Target Information
```


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```
================================================================================
Target id (msisdn)     : 8801812300005
Intercept type         : iri            Df peer            : 6
Li ID                  : 200
Sec Df Peer            : 0              HA Df peer         : 0
--------------------------------------------------------------------------------
Number of targets : 1
================================================================================
```

Output example: LI target statistics for a specified IMSI ID

```
# show li mobile-gateway target imsi id 206010000000004 stats
================================================================================
LI Target Information
================================================================================
Target id (imsi)       : 206010000000004
Intercept type         : iri            Df peer            : 6
Li ID                  : 40
Sec Df Peer            : 0              HA Df peer         : 0
--------------------------------------------------------------------------------
Start of Interception with active bearer               : 1
Number of targets : 1
================================================================================
```

Output example: LI target statistics for a specified MSISDN ID

```
# show li mobile-gateway target msisdn id 8801812300005 stats
================================================================================
LI Target Information
================================================================================
Target id (msisdn)     : 8801812300005
Intercept type         : iri            Df peer            : 6
Li ID                  : 200
Sec Df Peer            : 0              HA Df peer         : 0
--------------------------------------------------------------------------------
Number of targets : 1
================================================================================
```

Output example: LI target detailed statistics for a specified IMSI ID

```
# show li mobile-gateway target imsi id 206010000000004 detail
================================================================================
LI Target Information
================================================================================
Target id (imsi)       : 206010000000004
Intercept type         : iri            Df peer            : 6
Li ID                  : 40
Sec Df Peer            : 0              HA Df peer         : 0
--------------------------------------------------------------------------------
Number of targets : 1
--------------------------------------------------------------------------------
IMSI                   : 206010000000004
IMEI                   : 358505010000040
MSISDN                 : 8801812300004
UE State               : connected      Failure Reason     : noError
Attach Time            : 2024/06/17 19:02:38
ULI Type               : taiAndEcgi
ULI Time               : N/A
ULI                    : 206-01-4-00015b7
================================================================================
```


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Output example: LI target detailed statistics for a specified MSISDN ID

```
# show li mobile-gateway target msisdn id 8801812300005 detail
================================================================================
LI Target Information
================================================================================
Target id (msisdn)     : 8801812300005
Intercept type         : iri            Df peer            : 6
Li ID                  : 200
Sec Df Peer            : 0              HA Df peer         : 0
--------------------------------------------------------------------------------
Number of targets : 1
--------------------------------------------------------------------------------
IMSI                   : 206010000000005
IMEI                   : 358505010000050
MSISDN                 : 8801812300005
UE State               : connected      Failure Reason     : noError
Attach Time            : 2024/06/17 20:35:30
ULI Type               : taiAndEcgi
ULI Time               : N/A
ULI                    : 206-01-5-00015b8
================================================================================
```


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4 mobile-gateway command reference

4.1 mobile-gateway hierarchy descriptions

This section provides the following mobile-gateway hierarchy descriptions:

- clear mobile-gateway command hierarchy
- configure mobile-gateway pdn command hierarchy
- configure mobile-gateway profile amf-profile command hierarchy
- configure mobile-gateway profile authentication-database command hierarchy
- configure mobile-gateway profile bng command hierarchy
- configure mobile-gateway profile call-insight command hierarchy
- configure mobile-gateway profile charging command hierarchy
- configure mobile-gateway profile cloud-db command hierarchy
- configure mobile-gateway profile dns-profile command hierarchy
- configure mobile-gateway profile gtp command hierarchy
- configure mobile-gateway profile http2 command hierarchy
- configure mobile-gateway profile list command hierarchy
- configure mobile-gateway profile n1-profile command hierarchy
- configure mobile-gateway profile node-selection command hierarchy
- configure mobile-gateway profile pcf-profile command hierarchy
- configure mobile-gateway profile pcmd command hierarchy
- configure mobile-gateway profile pfcp command hierarchy
- configure mobile-gateway profile policy-options command hierarchy
- configure mobile-gateway profile priority-mapping command hierarchy
- configure mobile-gateway profile priority-profile command hierarchy
- configure mobile-gateway profile qfi-mapping-profile command hierarchy
- configure mobile-gateway profile qos-5g-profile command hierarchy
- configure mobile-gateway profile qos-profile command hierarchy
- configure mobile-gateway profile radius-group command hierarchy
- configure mobile-gateway profile radius command hierarchy
- configure mobile-gateway profile sbi-error-mapping-profile command hierarchy
- configure mobile-gateway profile udm-sdm-profile command hierarchy
- configure mobile-gateway profile udm-uecm-profile command hierarchy
- configure mobile-gateway system command hierarchy

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- configure mobile-gateway target command hierarchy
- debug mobile-gateway command hierarchy
- show mobile-gateway command hierarchy
- tools mobile-gateway command hierarchy

4.1.1 clear mobile-gateway command hierarchy

```
clear
  – mobile-gateway
      – bng
          – error-history
          – session
          – session-lockout
          – wpp
              – statistics
      – pdn
          – bearer-context
              – apn
              – imei
              – imsi
              – msisdn
              – target-profile
              – ue-location-tac
              – up-group
              – up-peer
          – call-flow-stats
          – charging
          – load-overload-control
          – nrf-client-cache
          – path-mgmt-stats
          – ref-point-stats
          – service-stats
              – nf-type
          – statistics
```

4.1.2 configure mobile-gateway pdn command hierarchy

```
configure
  – mobile-gateway
      – pdn
          – aggregate-statistics-collection
              – per-up
                  – per-apn
                      – per-qos-identifier
                      – per-radio-access-type
                  – per-slice
                      – per-qos-identifier
          – amf-set Place holder
              – enable-amf-set Place holder
          – apn
              – address-assignment-defaults
                  – local-dynamic
                      – ipv4-pool
                      – ipv6-na-pool
```


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```
                        - ipv6-pd-pool
                        - ipv6-slaac-pool
                    - unmanaged
                        - ipv4-pool
                        - ipv6-na-pool
                        - ipv6-pd-pool
                        - ipv6-slaac-pool
                - charging
                    - nchf
                        - chf-selection
                            - nf-id-list
                - del-bearer-reactivation-req-cause
                - description
                - dhcp-profile
                - dhcpv4-server-ip
                - dhcpv6-profile
                - dhcpv6-server-duid
                - fixed-wireless-access
                    - authentication-flow
                        - adb
                    - default-ipv4-signaling-method
                    - shutdown
                - max-pdn-connections
                - max-session-attach
                - network-realm
                - pcf-selection
                    - dnn-format
                    - exclude-gpsi
                    - exclude-snssais
                    - exclude-supi
                    - nf-id-list
                    - pcf-id
                    - pcf-profile
                    - preferred-locality
                - pdn-type
                - pdn-type-preferred-ipv6
                - pfcp-translate-tx
                - qci-policy
                - qfi-mapping-profile
                - realm-loopback-address
                - shutdown
                - slices
                    - default-slice
                    - slice-list
                - static-predefined-pcc
                    - default-policy-rule-base
                - udm-options
                    - dnn-format
            - bng
                - radius-coa
                    - ignore-unknown-attributes
                    - interface
                    - python-policy
                    - secret
                - static-session
                    - c-vlan
                    - description
                    - dot1q-etype
                    - l2-access-id
                    - mac
                    - qinq-etype
                    - s-vlan
                    - shutdown
                    - up
```


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```
                - up-group
                    - c-tag-range
                    - description
                    - fsg-mode
                    - fsg-profile
                    - gtp-u-endpoints
                        - realm
                            - ipv4-range
                            - ipv6-prefix
                    - l2-access-id
                    - s-tag-range
                    - shutdown
                    - site
                        - inter-site-failover
                            - backup-up
                            - failed-up-threshold
                            - pool-overrides
                                - local-dynamic
                                    - ipv4-pool
                                    - ipv6-na-pool
                                    - ipv6-pd-pool
                                    - ipv6-slaac-pool
                        - up
                    - up
                        - anti-affinity-label
                        - c-tag-range
                        - drain
                        - l2-access-id
                        - preferred
                        - s-tag-range
                - wpp
                    - interface
            - call-procedure-retry
            - cdbx
                - cloud-db-profile
                - interface
                - mss
            - dns-client
                - dns-interface
                - dns-profile
            - epc-node
            - failure-handling-alarm-threshold
            - home-plmn-list
            - instance-type
            - kpi-kci
                - accounting-policy
                    - collect-stats
            - load-control
                - enable-gtp-load-control
                - enable-sbi-load-reporting
                - load-change-trigger
                - nth-message
            - local-address-assignment
                - network-realm
                    - description
                    - pool
                        - dedicated
                        - description
                        - hold-time
                        - ipv4
                            - default-gateway
                            - dns
                                - primary-dns
                                - secondary-dns
```


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```
                        - micro-net-length
                        - prefix
                            - drain
                            - exclude-addresses
                        - subnet-allocation
                            - length
                            - variable
                    - ipv6
                        - dns
                            - primary-dns
                            - secondary-dns
                        - na
                            - micro-net-length
                            - prefix
                                - drain
                                - exclude-addresses
                        - pd
                            - delegated-prefix
                                - length
                                - variable
                            - micro-net
                            - prefix
                                - drain
                                - exclude-prefixes
                        - slaac
                            - micro-net-length
                            - prefix
                                - drain
                                - exclude-prefixes
                    - minimum-free
            - multiple-sessions-per-apn-per-ue
            - nf-profile-attributes
                - capacity
                - exclude-ip-endpoints
                - fqdn
                - locality
                - nf-instance-id
                - pgw-fqdn
                - priority
                - tai-list
            - overload-control
                - enable-gtp-overload-control
                - enable-sbi-overload-control
                - local-throttling
                    - critical
                        - throttling-percent
                    - local-overload-throttling
                    - major
                        - throttling-percent
                    - minor
                        - throttling-percent
                    - throttling-alarms
                - overload-reduction
                    - critical
                    - major
                    - minor
                - sbi-overload-threshold
                - sbi-retry-after-timer
                - thresholds
                    - critical
                    - major
                    - minor
                - validity-time
            - pcmd
```


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```
            – pfcp-load-control
                – enable-pfcp-load-control
            – pfcp-node-id-type
            – priority-service
                – priority-mapping
            – qfi-mapping-profile
            – radius
                – radius-accounting-on-off
                    – messages-sent
            – s11
                – interface
                    – gtp-c
                – signaling
                    – gtp-c
                        – ddn-damp-timer
                        – ddn-throttling-arp-threshold
                        – profile
                        – restoration-time
                        – ue-inactivity-timer
            – s5
                – interface
                    – gtp-c
                – signaling
                    – gtp-c
                        – profile
            – sba-client-services
                – addressing-priority
                – amf-client
                    – namf-comm
                        – amf-profile
                        – fqdn
                        – http2-profile
                        – interface
                        – n1-profile
                        – nf-id-list
                – chf-client
                    – nchf-convergedcharging
                        – api-version
                        – fqdn
                        – http2-profile
                        – interface
                – converged-interface-support
                    – pdu-session-id-base
                – fqdn
                – http2-profile
                – nrf-client
                    – nnrf-disc
                        – blocklist-duration
                        – chf-selection-options
                            – exclude-gpsi
                            – exclude-supi
                            – preferred-locality
                        – exclude-snssais
                        – fqdn
                        – http2-profile
                        – interface
                        – nf-id-list
                        – nrf-cache-interval
                        – suppress-discovery
                        – udm-selection-options
                            – exclude-supi
                            – preferred-locality
                        – use-locality
                    – nnrf-nfm
```


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```
                        - blocklist-duration
                        - fqdn
                        - heartbeat-nrf-blocklist
                        - http2-profile
                        - interface
                        - nf-id-list
                        - nfm-nrf-blocklist
                - pcf-client
                    - npcf-smpolicycontrol
                        - fqdn
                        - http2-profile
                        - interface
                        - mode
                        - nf-id-list
                        - pcf-profile
                - scp-client
                    - scp-service
                        - http2-profile
                        - interface
                        - nf-id-list
                        - scp-domain
                - udm-client
                    - nudm-sdm
                        - fqdn
                        - http2-profile
                        - implied-single-stack-pdu-session-types
                        - interface
                        - mode
                        - nf-id-list
                        - udm-sdm-profile
                        - unsubscribe-mode
                    - nudm-uecm
                        - fqdn
                        - http2-profile
                        - interface
                        - mode
                        - nf-id-list
                        - udm-uecm-profile
            - sba-server-services
                - fqdn
                - http2-profile
                - nsmf-pdusession
                    - allowed-nf-domains-list
                    - allowed-plmns
                    - allowed-slices
                    - api-prefix
                    - fqdn
                    - http2-profile
                    - interface
                    - n3-interface-realm
                    - s5-ref-point
            - sba-service-realm
                - client-service
                - server-service
            - serving-node-for-combo-sessions
            - session-deletion-rate
            - shutdown
            - signaling
                - gtp-c
                    - profile
            - slices
                - slice-instance-list
                - slice-list
            - suspend
```


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```
            – sx-n4
                – enforced-pfcp-association-list
                – interface
                    – ibcp
                    – pfcp
                – pfcp-association-list
                – signaling
                    – ibcp
                        – bng-entry-point
                        – ip-dscp
                        – ip-ttl
                        – triggers
                    – pfcp
                        – profile
            – up-peer-list
            – up-selection
                – pgw-u-client-profile
```

4.1.3 configure mobile-gateway profile amf-profile command hierarchy

```
configure
  – mobile-gateway
      – profile
          – amf-profile
              – fh-session-no-response
              – http-status-code
              – retry-count
              – transaction-timer
```

4.1.4 configure mobile-gateway profile authentication-database command hierarchy

```
configure
  – mobile-gateway
      – profile
          – authentication-database
              – description
              – entry
                  – access-loop-encapsulation
                      – actual-rate-down
                  – action
                  – address-assignment
                      – delegated-prefix-length
                      – dhcp-relay
                          – ipv4
                              – gi-address
                              – options
                                  – request-dhcp-profile
                                  – response-dhcp-profile
                              – pool
                              – router
                              – server
                          – ipv6
                              – link-address
                              – options
                                  – request-dhcp6-profile
                              – pool
```


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```
                        - router
                        - server
                        - source-ip-address
                - initial-ip-handling
                    - data-trigger
                        - ipv6-address-assignment-type
                        - source-ip
                - lifetimes
                    - dhcpv6-rebind
                    - dhcpv6-renew
                    - preferred
                    - valid
                - local-dynamic
                    - ipv4-pool
                    - ipv6-na-pool
                    - ipv6-pd-pool
                    - ipv6-slaac-pool
                - managed-routes
                    - route-entry
                        - metric
                        - preference
                        - tag
                - pd-as-framed-route
                - unmanaged
                    - ipv4-address
                    - ipv4-pool
                    - ipv6-na-address
                    - ipv6-na-pool
                    - ipv6-pd-pool
                    - ipv6-pd-prefix
                    - ipv6-slaac-pool
                    - ipv6-slaac-prefix
                - unmatching-prefix
            - apn
            - charging
                - bng-charging-profile
                - cp-volume-tracking
                    - downstream
                    - total
                    - upstream
                - detailed-statistics
                - statistics-collection-interval
            - cp-nat-profile
            - description
            - dhcp-profile
            - dhcpv6-profile
            - dynamic-policy
            - fixed-wireless-access
                - address-hold-time
                - default-qos-profiles
                    - authorized-4g
                    - authorized-5g
                    - subscribed-5g
                - ipv4-link-mtu
                - ipv4-signaling-method
                - prefer-up
                - up-group
            - http-redirect
                - url
            - interface
                - group-interface-template
                - link-local-address
                - sap-template
            - ip-anti-spoof
```


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```
                    - l2tp
                        - group
                    - match
                        - apn
                        - cell-id-list
                        - charging-characteristics
                        - circuit-id
                        - client-id
                        - imei-tac
                        - imsi
                        - imsi-mcc
                        - imsi-mnc
                        - l2-access-id
                        - mac
                        - pdn-type
                        - remote-id
                        - s-nssai
                            - sd
                            - sst
                        - source-ip-prefix
                        - tai
                            - mcc
                            - mnc
                            - tac
                        - tai-list
                        - up-group
                        - up-ip
                        - up-node-id
                        - username
                        - username-domain
                        - vendor-class
                        - vlan
                            - c-vlan
                            - s-vlan
                    - pfcp
                        - include-attributes
                            - acct-session-id
                    - pppoe
                        - pado-delay
                    - ra-profile
                    - server-identifiers
                        - pcscf-ipv4-address
                        - pcscf-ipv6-address
                    - session-timeout
                    - shutdown
                    - subscriber-mgmt
                        - sla-profile
                        - sub-profile
                    - wpp
                        - initial-profiles
                            - sla-profile
                            - sub-profile
                        - portal-group
                        - restore-disconnected
                        - shutdown
                        - wpp-radius-authentication
                - match
                    - apn-format
                    - optional
                    - string-mask
                        - prefix
                        - suffix
                - shutdown
```


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4.1.5 configure mobile-gateway profile bng command hierarchy

```
configure
  – mobile-gateway
      – profile
          – bng
              – cp-nat-profile
                  – description
                  – nat-access-mode
                  – nat-pool
                      – description
                      – laa-pool
                      – mode
                          – port-forwarding-range
                          – port-limits
                              – forwarding
                          – port-reservation
                          – subscriber-limit
                      – up-nat-policy
              – dhcp-profile
                  – description
                  – options
                      – option
                      – relay-agent-options
                          – action
                          – circuit-id
                          – remote-id
              – dhcpv6-profile
                  – description
                  – options
                      – option
                      – relay-agent-options
                          – interface-id
                          – remote-id
              – entry-point
                  – description
                  – entry
                      – description
                      – ipoe
                          – allow-data-trigger
                          – authentication-flow
                              – adb
                          – ipoe-profile
                      – match
                          – l2-access-id
                          – up-group
                          – up-ip
                          – up-node-id
                          – vlan
                              – c-vlan
                              – s-vlan
                      – multiple-sessions-per-mac
                      – pppoe
                          – authentication-flow
                              – padi-adb
                              – pap-chap-adb
                          – pppoe-profile
                          – session-id
                              – allocation-scope
                              – random
                      – python-policy
```


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```
                    - session-limits
                        - per-l2-access-id
                        - per-l2-circuit
                        - per-up
                    - session-lockout-profile
                    - shutdown
                    - subscriber-identification
                        - multi-session-key
                            - c-vlan
                            - circuit-id
                                - string-mask
                                    - prefix
                                    - suffix
                            - l2-access-id
                            - mac
                            - remote-id
                                - string-mask
                                    - prefix
                                    - suffix
                            - s-vlan
                        - session-limit
                - match
                    - optional
                    - string-mask
                        - prefix
                        - suffix
                - shutdown
            - fsg-profile
                - active-standby-selection
                    - active-change-without-failure
                    - failure-lockout
                    - hold-off-on-degradation
                    - hold-off-on-recovery
                - auto-revert-rebalance
                - default-standby-mode
                - description
                - health-calculation
                    - aggregation-mode
                    - failure-threshold
                    - include-l2-access-ids
                    - network-realm
                - mac-prefix
                - upf-fsg-template
            - ipoe-profile
                - description
                - dot1p
                - dscp
                - require-chaddr-same-as-l2
            - l2tp-group
                - avp-hiding
                - challenge
                - description
                - destruct-timeout
                - hello-interval
                - idle-timeout
                - local-name
                - max-retries-established
                - max-retries-non-established
                - password
                - receive-window-size
                - selection-algorithm
                - session-limit
                - tunnel
                    - avp-hiding
```


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```
                        - challenge
                        - description
                        - destruct-timeout
                        - hello-interval
                        - idle-timeout
                        - local-address
                        - local-name
                        - max-retries-established
                        - max-retries-non-established
                        - password
                        - preference
                        - receive-window-size
                        - remote-address
                        - remote-name
                        - session-limit
                        - shutdown
                        - use-df-bit
                    - use-df-bit
                - pppoe-profile
                    - authentication
                        - chap-challenge-length
                        - method
                    - description
                    - discovery
                        - ac-name
                        - generate-ac-cookie
                    - dot1p-value
                    - lcp
                        - keep-alive
                            - ignore-magic-numbers
                            - interval
                            - tries
                        - max-mtu
                        - mru
                        - renegotiation
                        - require-max-payload-tag
                    - padi-removes-existing-session
                - ra-profile
                    - advertisement-interval
                        - max
                        - min
                    - description
                    - force-unicast-mac
                    - options
                        - hop-limit
                        - mtu
                        - on-link
                        - other-configuration
                        - reachable-time
                        - retransmit-timer
                        - router-lifetime
                - radius-authentication-profile
                    - apn-format
                    - description
                    - ignore-unknown-attributes
                    - include-attribute
                        - access-loop-options
                        - acct-multi-session-id
                        - acct-session-id
                        - called-station-id
                        - calling-station-id
                        - circuit-id
                        - dhcp-options
                        - dhcp-vendor-class-id
```


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```
                        - dhcp6-options
                        - gprs-negotiated-qos-profile
                        - imeisv
                        - imsi
                        - ipoe-hostname
                        - mac-address
                        - nas-identifier
                        - nas-port-id
                        - nas-port-type
                        - pppoe-service-name
                        - rat-type
                        - remote-id
                        - session-s-nssai
                        - supported-features
                        - up-group
                        - up-info
                        - user-location-info
                    - password
                    - radius-group
                    - user-name-format
                        - ascii-converted-circuit-remote-id
                        - domain-operation
                        - fixed-wireless-access
                            - format
                        - ipoe
                            - format
                            - mac-format
                        - pppoe
                            - padi
                                - format
                                - mac-format
                - session-lockout-profile
                    - attempt-window
                    - block
                    - description
                    - failed-attempts
                - wpp
                    - portal
                        - ack-auth-retry-count
                        - address
                        - description
                        - ntf-logout-retry-count
                        - retry-interval
                        - router
                        - secret
                        - shutdown
                        - source-address
                        - version
                    - portal-group
                        - description
                        - portal
                        - realm
                        - shutdown
```

4.1.6 configure mobile-gateway profile call-insight command hierarchy

```
configure
  - mobile-gateway
      - profile
          - call-insight
```


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```
                - all-ues
                    - description
                    - events
                    - format
                    - live-output
                    - path-management
                    - ref-point
                    - sba-service
                    - size-limit
                    - time-limit
                - ue
                    - debug-output
                    - description
                    - events
                    - format
                    - live-output
                    - ref-point
                    - sba-service
                    - size-limit
                    - time-limit
```

4.1.7 configure mobile-gateway profile charging command hierarchy

```
configure
  - mobile-gateway
      - profile
          - charging
              - bng-charging
                  - chf
                      - chf-profile
                      - chf-selection
                          - fh-fallback
                              - chf-profile
                              - nf-id-list
                          - nf-id-list
                      - default-charging-method
                      - dnn-format
                      - rating-group
                          - description
                      - session-charging
                          - final-unit-policy-rules
                              - redirect
                          - rating-group
                      - shutdown
                      - subscriber-identifier-format
                  - description
                  - radius
                      - interim-update-interval
                      - radius-group
                      - session
                          - apn-format
                          - include-attribute
                              - access-loop-options
                              - acct-authentic
                              - acct-delay-time
                              - acct-triggered-reason
                              - address-information
                              - aggregate-statistics
                              - called-station-id
                              - calling-station-id
```


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```
                                - circuit-id
                                - detailed-statistics
                                - dhcp-vendor-class-id
                                - framed-protocol
                                - imeisv
                                - imsi
                                - lac-tunnel-info
                                - mac-address
                                - nas-identifier
                                - nas-ip-address
                                - nas-port-id
                                - nas-port-type
                                - nat-port-range
                                - rat-type
                                - remote-id
                                - service-type
                                - session-s-nssai
                                - sla-profile
                                - static-port-forward
                                - subscriber-id
                                - subscriber-profile
                                - up-group
                                - up-info
                                - up-subscriber-id
                                - user-location-info
                                - user-name
                            - shutdown
                            - update-triggers
                                - active-upf-change
                                - address-state-change
                                - periodic
                                - user-location-change
                - ccfh-profile
                    - cc-failure-handling
                    - disable-cc-session-failover
                    - fallback-session-continue-timer
                    - fallback-volume-limit
                    - fh-session-continue-timer
                    - fh-volume-limit
                    - nchf-cause-code
                    - nchf-http-code
                    - session-restore-retry-timer
                - chf-profile
                    - ccfh-profile
                    - description
                    - sbi-srvc-operation
                        - retry-count
                        - transaction-timer
```

4.1.8 configure mobile-gateway profile cloud-db command hierarchy

```
configure
  - mobile-gateway
      - profile
          - cloud-db
              - description
              - server
                  - shutdown
```


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4.1.9 configure mobile-gateway profile dns-profile command hierarchy

```
configure
  – mobile-gateway
      – profile
          – dns-profile
              – ip-dscp
              – ip-ttl
              – message-retransmit
              – primary-dns
              – secondary-dns
              – tertiary-dns
```

4.1.10 configure mobile-gateway profile gtp command hierarchy

```
configure
  – mobile-gateway
      – profile
          – gtp
              – description
              – gtpv2-session-rejection-cause
                  – apn-shutdown
                  – gw-suspend
                  – sx-connection-failure
              – ip-dscp
              – ip-ttl
              – keep-alive
              – message-retransmit
```

4.1.11 configure mobile-gateway profile http2 command hierarchy

```
configure
  – mobile-gateway
      – profile
          – http2
              – connection-timer
              – fail-num-retries
              – fail-retry-interval
              – ip-dscp
              – ping-period
              – python-policy
              – request-timeout
```

4.1.12 configure mobile-gateway profile list command hierarchy

```
configure
  – mobile-gateway
      – profile
```


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```
            – list
                – cell-id-list
                    – description
                    – plmn
                        – description
                        – eci
                            – description
                        – nci
                            – description
                – nf-id-list
                    – nf-prof-id
                        – api-prefix
                        – enable
                        – fqdn
                        – nf-priority
                        – prioritized-address-list
                        – uuid
                – plmn
                    – mcc
                – prioritized-ip-address-list
                    – address
                – slice-instance-list
                    – slice-instance
                – slice-list
                    – slice
                        – slice-instances
                – tai-list
                    – tai
```

4.1.13 configure mobile-gateway profile n1-profile command hierarchy

```
configure
  – mobile-gateway
      – profile
          – n1-profile
              – cause-code
                  – apn-shutdown
                      – 5gsm-cause-code
                      – application-error-code
                      – http-status-code
                  – gw-suspend
                      – 5gsm-cause-code
                      – application-error-code
                      – http-status-code
              – n1-t3591
              – n1-t3592
```

4.1.14 configure mobile-gateway profile node-selection command hierarchy

```
configure
  – mobile-gateway
      – profile
          – node-selection
              – abort
              – begin
              – client-profile
```


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```
                    - default-action
                        - set-target-profile
                    - description
                    - entry
                        - action
                            - set-target-profile
                        - description
                        - match
                            - apn
                            - cell-id-list
                            - tai-list
                - commit
                - diff
                - group-label
                    - description
                - target-profile
                    - description
                    - entry
                        - description
                        - match
                            - apn
                            - group-label
                        - threshold
```

4.1.15 configure mobile-gateway profile pcf-profile command hierarchy

```
configure
  - mobile-gateway
      - profile
          - pcf-profile
              - ap-action
              - fh-session-no-response
              - fh-time-limit
              - fh-volume-limit
              - npcf-error-mapping-profile
              - sbi-srvc-operation
                  - http-status-code
                  - http-status-code-3xx
                  - http-status-code-4xx
                  - http-status-code-5xx
                  - retry-count
                  - transaction-timer
              - supported-features
                  - policy-decision-error-handling
                  - resp-based-session-rel
                  - session-rule-error-handling
                  - unlimited-multi-ipv6-prefix
```

4.1.16 configure mobile-gateway profile pcmd command hierarchy

```
configure
  - mobile-gateway
      - profile
          - pcmd
              - data-report
                  - generation
```


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```
                - description
                - destination
                - heartbeat
                - session-report
                    - verbosity
```

4.1.17 configure mobile-gateway profile pfcp command hierarchy

```
configure
  - mobile-gateway
      - profile
          - pfcp
              - pfcp-association-peer-list
                  - description
                  - node-id
                      - bfd-enable
                  - pfcp-peer
                      - bfd-enable
              - pfcp-profile
                  - association-retry-timer
                  - audit-ip-dscp
                  - description
                  - heart-beat
                  - ip-dscp
                  - ip-ttl
                  - message-retransmit
                  - path-restoration-time
              - pfcp-translate-profile
                  - description
                  - field
              - up-peer-list
                  - description
                  - peer
                      - apn
                      - group-label
                      - upf-id
                      - upf-selection
```

4.1.18 configure mobile-gateway profile policy-options command hierarchy

```
configure
  - mobile-gateway
      - profile
          - policy-options
              - abort
              - action-rule-unit
                  - app-profile-name
              - begin
              - commit
              - diff
              - policy-rule
              - policy-rule-base
                  - aa-adv-functions
                      - app-profile-name
                  - policy-rule
              - policy-rule-unit
```


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```
                    - description
                    - flow-description
                        - direction
                        - match
                            - local-port
                            - protocol
                            - remote-ip
                            - remote-port
                            - tos-tc
                    - flow-gate-status
                    - qos
                        - down-link
                        - up-link
                - qci-policy
                    - description
                    - qci
                        - dscp
                        - dscp-preserve
```

4.1.19 configure mobile-gateway profile priority-mapping command hierarchy

```
configure
  - mobile-gateway
      - profile
          - priority-mapping
              - arp
                  - priority
              - description
              - gtp-rx-message-priority
                  - priority
              - sbi-rx-message-priority
                  - priority
```

4.1.20 configure mobile-gateway profile priority-profile command hierarchy

```
configure
  - mobile-gateway
      - profile
          - priority-profile
              - description
              - priority
                  - egress
                      - gtp-dscp
                      - gtp-tx-message-priority
                      - pfcp-dscp
                      - pfcp-priority-level
                      - sbi-tx-message-priority
```

4.1.21 configure mobile-gateway profile qfi-mapping-profile command hierarchy

```
configure
```


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```
  – mobile-gateway
      – profile
          – qfi-mapping-profile
              – 5qi-as-qfi
```

4.1.22 configure mobile-gateway profile qos-5g-profile command hierarchy

```
configure
  – mobile-gateway
      – profile
          – qos-5g-profile
              – 5qi
              – arp
              – dl-ambr
              – ul-ambr
```

4.1.23 configure mobile-gateway profile qos-profile command hierarchy

```
configure
  – mobile-gateway
      – profile
          – qos-profile
              – arp
              – dl-ambr
              – qci
              – ul-ambr
```

4.1.24 configure mobile-gateway profile radius-group command hierarchy

```
configure
  – mobile-gateway
      – profile
          – radius-group
              – accounting-buffer
                  – interim-update
                  – lifetime
                  – start
              – acct-server-port
              – auth-server-port
              – description
              – interface
              – interim-update-interval
              – peer
                  – acct-server-port
                  – auth-server-port
                  – failover-threshold
                  – failure-detection-time
                  – priority
                  – radius-profile
                  – secret
                  – shutdown
```


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```
                - python-policy
                - radius-profile
                - secret
                - server-type
                - transaction-based-load-balancing
```

4.1.25 configure mobile-gateway profile radius command hierarchy

```
configure
  - mobile-gateway
      - profile
          - radius
              - acct-retry-count
              - acct-retry-timeout
              - auth-probe-interval
              - auth-retry-count
              - auth-retry-timeout
              - deadtime
              - description
              - max-peer-reselections
```

4.1.26 configure mobile-gateway profile sbi-error-mapping-profile command hierarchy

```
configure
  - mobile-gateway
      - profile
          - sbi-error-mapping-profile
              - http-to-5gsm
              - http-to-gtp
```

4.1.27 configure mobile-gateway profile udm-sdm-profile command hierarchy

```
configure
  - mobile-gateway
      - profile
          - udm-sdm-profile
              - create-subscription
                  - fh-session-no-response
                  - http-status-code
                  - retry-count
                  - transaction-timer
              - get-sm-subscription-data
                  - fh-session-no-response
                  - http-status-code
                  - retry-count
                  - transaction-timer
              - unsubscribe
                  - retry-count
                  - transaction-timer
```


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4.1.28 configure mobile-gateway profile udm-uecm-profile command hierarchy

```
configure
  – mobile-gateway
      – profile
          – udm-uecm-profile
              – deregister-smf
                  – retry-count
                  – transaction-timer
              – register-smf
                  – fh-session-no-response
                  – http-status-code
                  – retry-count
                  – transaction-timer
```

4.1.29 configure mobile-gateway system command hierarchy

```
configure
  – mobile-gateway
      – system
          – bng
              – queries
                  – session
                      – acct-multi-session-id
                      – acct-session-id
                      – apn
                      – app-profile
                      – c-vlan
                      – circuit-id
                      – client-user-name
                      – client-user-name-domain
                      – data-triggered
                      – description
                      – eps-bearer-id
                      – fate-sharing-group-id
                      – fh-active-chf
                      – fh-active-pcf
                      – fh-active-udm-sdm
                      – fh-active-udm-uecm
                      – imei
                      – imsi
                      – ip
                          – address-stacks
                              – ipv4
                              – ipv6-na
                              – ipv6-pd
                              – ipv6-slaac
                          – prefix
                      – l2-access-id
                      – mac-address
                      – msisdn
                      – n1-pdu-session-id
                      – nat-profile
                      – network-realm
                      – output-options
                          – charging
```


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```
                        - count
                        - nat
                    - pfcp
                        - local-seid
                        - remote-seid
                    - rat-type
                    - remote-id
                    - s-nssai
                        - sd
                        - sst
                    - s-vlan
                    - standby-state
                    - subscriber-name
                    - up-ip
                    - user-access-type
                    - wpp-portal-group
                - subscriber
                    - acct-session-id
                    - apn
                    - description
                    - fate-sharing-group-id
                    - l2-access-id
                    - network-realm
                    - output-options
                        - charging
                        - count
                        - nat
                    - subscriber-id
                    - subscriber-name
                    - up-ip
        - call-insight
            - location
                - disable
                - limit
                - primary
            - max-files-number
        - group
            - protect-active-delay
            - shutdown
        - resource-pool
            - card
            - protect-active-delay
        - thresholds
            - system-mg-ism
                - interval
                - shutdown
```

4.1.30 configure mobile-gateway target command hierarchy

```
configure
  - mobile-gateway
```

4.1.31 debug mobile-gateway command hierarchy

```
debug
  - mobile-gateway
```


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```
        – call-insight
            – all-ues
            – bng
            – ue
            – ue-mask
```

4.1.32 show mobile-gateway command hierarchy

```
show
  – mobile-gateway
      – bng
          – charging
              – radius
                  – buffering
          – nat
              – histogram
                  – extended-port-blocks-per-ip
                  – port-blocks
          – queries
              – session
          – session
              – charging
                  – aggregate-stats
                  – detailed-stats
              – nat
                  – port-forwarding-entries
              – summary
          – session-lockout
          – subscriber
          – wpp
              – statistics
      – call-insight
          – all-ues
          – bng
          – files
          – ue
          – ue-mask
      – connections
      – mg-vm
          – cpu
          – memory-pools
      – pdn
          – apn
              – fh-stats
              – pfcp
          – bng
              – fsg
              – static-session
              – up
              – up-group
          – call-flow-stats
          – clear-status
          – load-overload-control
              – gtp-local-load
              – gtp-local-overload
              – gtp-peer-overload
              – sbi-local-overload
              – sbi-local-reporting
              – sbi-peer-congestion
              – summary
```


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```
            - local-address-assignment
                - pool
                    - prefix
                        - micro-net
                            - nat-members
                        - micro-nets
                            - nat
                                - extended-port-blocks
                    - prefixes
                - pools
            - path-mgmt-stats
            - pcmd-stats
            - pdn-context
                - cp-seid
                - def-pfcp-u-sessions
                - gpsi
                - pei
                - supi
                - ue-ip
                - up-seid
            - pdu-session
            - priority-service
            - qos-flow
            - ref-point-peers
            - ref-point-stats
            - remote-nf
            - service-stats
                - nf-type
            - static-predefined-pcc
            - statistics
            - ue-context
                - def-pfcp-u-sessions
        - profile
            - amf-profile
            - authentication-database
            - bng
                - cp-nat-profile
                - entry-point
            - call-insight
                - all-ues
                - ue
            - charging
                - bng-charging
                - ccfh-profile
                - chf-profile
            - cloud-db
            - dns-profile
            - gtp
            - http2
            - list
                - cell-id-list
                - nf-id-list
                - plmn-list
                - prioritized-ip-address-list
                - slice-instance-list
                - slice-list
                - tai-list
            - n1-profile
            - node-selection
                - client-profile
                - group-label
                - target-profile
            - pcf-profile
            - pcmd
```


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```
            – pfcp
                – pfcp-association-peer-list
                – pfcp-profile
                – pfcp-translate-profile
                – up-peer-list
            – policy-options
                – action-rule-unit
                – qci-policy
            – qfi-mapping-profile
            – qos-5g-profile
            – qos-profile
            – radius
            – radius-group
            – sbi-error-mapping-profile
            – udm-sdm-profile
            – udm-uecm-profile
        – system
```

4.1.33 tools mobile-gateway command hierarchy

```
tools
  – dump
      – mobile-gateway
          – bng
              – error-history
              – local-address-assignment
                  – address-status
          – nf-profile
          – pfcp-audit
```

4.2 mobile-gateway command descriptions

This section provides the following mobile-gateway command descriptions:

- clear mobile-gateway command descriptions
- configure mobile-gateway pdn command descriptions
- configure mobile-gateway profile amf-profile command descriptions
- configure mobile-gateway profile authentication-database command descriptions
- configure mobile-gateway profile bng command descriptions
- configure mobile-gateway profile call-insight command descriptions
- configure mobile-gateway profile charging command descriptions
- configure mobile-gateway profile cloud-db command descriptions
- configure mobile-gateway profile dns-profile command descriptions
- configure mobile-gateway profile gtp command descriptions
- configure mobile-gateway profile http2 command descriptions
- configure mobile-gateway profile list command descriptions
- configure mobile-gateway profile n1-profile command descriptions

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- configure mobile-gateway profile node-selection command descriptions
- configure mobile-gateway profile pcf-profile command descriptions
- configure mobile-gateway profile pcmd command descriptions
- configure mobile-gateway profile pfcp command descriptions
- configure mobile-gateway profile policy-options command descriptions
- configure mobile-gateway profile priority-mapping command descriptions
- configure mobile-gateway profile priority-profile command descriptions
- configure mobile-gateway profile qfi-mapping-profile command descriptions
- configure mobile-gateway profile qos-5g-profile command descriptions
- configure mobile-gateway profile qos-profile command descriptions
- configure mobile-gateway profile radius-group command descriptions
- configure mobile-gateway profile radius command descriptions
- configure mobile-gateway profile sbi-error-mapping-profile command descriptions
- configure mobile-gateway profile udm-sdm-profile command descriptions
- configure mobile-gateway profile udm-uecm-profile command descriptions
- configure mobile-gateway system command descriptions
- configure mobile-gateway command descriptions
- debug mobile-gateway command descriptions
- show mobile-gateway command descriptions
- tools mobile-gateway command descriptions

4.2.1 clear mobile-gateway command descriptions

4.2.1.1 mobile-gateway

Syntax

mobile-gateway

Context

[Tree] clear mobile-gateway

Description

Commands in this context clear BNG and PDN gateway-related information.

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4.2.1.2 bng

Syntax

bng

Context

[Tree] clear mobile-gateway bng

Description

Commands in this context clear BNG-related information.

4.2.1.3 error-history

Syntax

error-history

Context

[Tree] clear mobile-gateway bng error-history

Description

This command clears the BNG error history.

4.2.1.4 session

Syntax

session [**subscriber-name** *name*] [**force**] [**confirm**] [**l2-access-id** *string-64*] [**c-vlan** *tag*] [**s-vlan** *tag*] [**mac** *ieee-address*] [**up-ip** *ipv4-address* | *ipv6-address*] [**up-group** *name*] [**ppp-username** *username*]

session [**force**] [**confirm**] **ip-prefix** *ip-prefix/ip-prefix-length* **network-realm** *realm-name* [**rate** *limit*]

session cancel

Context

[Tree] clear mobile-gateway bng session

Description

This command clears the BNG CUPS sessions that match the specified filters. By default, the user is prompted to confirm the deletion and the sessions are removed gracefully.

This command aborts when the number of sessions to remove exceeds 1000, except when the **ip-prefix** filter or the **force** keyword is specified.

The following applies when the **ip-prefix** filter is specified:

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- A session is removed if it is part of the specified network realm and the IP address of the session matches the specified prefix.
- There is no limit on the number of sessions that can be removed.
- Optionally, the **rate** parameter specifies a limit for the rate at which sessions are removed.
- The following session types are not supported:
  - L2TP LAC
  - NAT, where the specified prefix is the NAT outside prefix

The **clear** command initiates an asynchronous process that removes the sessions in the background. The **session cancel** command aborts the running process.

The MAG-c sends the following messages to delete a session gracefully:

- PFCP Session Deletion Request to the BNG-UP
- Accounting Request Stop to the accounting server
- PADT to a PPPoE client
- LCP Terminate Request to a PPPoE client

Parameters

subscriber-name *name*

Specifies the subscriber name filter, up to 128 characters.

force

Keyword to specify session deletion without synchronization with any external server or the client.

Note: Without the **force** keyword, the number of sessions that can be deleted gracefully is limited to 1000. With the **force** keyword, the number of sessions that can be deleted is unlimited.

confirm

Keyword to skip the CLI prompt for user confirmation.

l2-access-id *string-64*

Specifies the Layer 2 access ID filter, up to 64 characters.

c-vlan *tag*

Specifies the customer VLAN (inner VLAN) filter.

Values: 1 to 4095

s-vlan *tag*

Specifies the service VLAN (outer VLAN) filter.

Values: 1 to 4095

mac *ieee-address*

Specifies the MAC address filter.

Values: xx:xx:xx:xx:xx:xx | xx-xx-xx-xx-xx-xx, cannot be all zeros

up-ip *ipv4-address* **|** *ipv6-address*

Specifies the UP IP address filter.

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Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

up-group *name*

Specifies the UP group name, up to 32 characters.

ppp-username *username*

Specifies the PPP username, up to 253 characters.

ip-prefix

Specifies the IP address prefix.

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

prefix-length

Specifies the IP prefix length.

Values:

- IPv4: 0 to 32
- IPv6: 0 to 128

network-realm *realm-name*

Specifies the network realm name, up to 80 characters.

rate *limit*

Specifies a limit for the rate at which sessions are removed.

Values: 1 to 10000

cancel

Keyword to abort the ongoing **clear** command.

4.2.1.5 session-lockout

Syntax

session-lockout [**l2-access-id** *string-64*] [**c-vlan** *tag*] [**s-vlan** *tag*] [**mac** *ieee-address*] [**up-ip** *ipv4-address* | *ipv6-address*] [**up-group** *name*]

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Context

[Tree] clear mobile-gateway bng session-lockout

Description

This command clears the locked-out state of the specified sessions. Add any optional parameter to filter specific sets of sessions.

Parameters

string-64

Specifies the Layer 2 access ID filter, up to 64 characters.

c-vlan *tag*

Specifies the customer VLAN (inner VLAN) filter.

Values: 1 to 4096

s-vlan *tag*

Specifies the service VLAN (outer VLAN) filter.

Values: 1 to 4096

ieee-address

Specifies the MAC address filter.

Values: xx:xx:xx:xx:xx:xx or xx-xx-xx-xx-xx-xx, cannot be all zeros

ipv4-address **|** *ipv6-address*

specifies the UP IP address filter

Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

name

Specifies the UP group name, up to 32 characters.

4.2.1.6 wpp

Syntax

wpp

Context

[Tree] clear mobile-gateway bng wpp

Description

Commands in this context clear WPP statistics.

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4.2.1.7 statistics

Syntax

statistics portal *name*

statistics portal-group *name*

Context

[Tree] clear mobile-gateway bng wpp statistics

Description

This command clears the statistics of the specified WPP portal or portal group.

Parameters

name

Specifies the WPP portal name.

portal-group *name*

Specifies the WPP portal group name.

4.2.1.8 pdn

Syntax

pdn *gw-id*

Context

[Tree] clear mobile-gateway pdn

Description

This command clears PDN gateway related information.

Parameters

gw-id

Specifies the gateway ID.

Values: 1 to 8

4.2.1.9 bearer-context

Syntax

bearer-context [**session-deletion-rate** *session-deletion-rate*] [**connectivity-state** *state*] [**up-alternate-profile-in-use**]

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bearer-context [**session-deletion-rate** *session-deletion-rate*] **connected-time-gt** *connected-time-gt* [**connectivity-state** *state*]

bearer-context [**session-deletion-rate** *session-deletion-rate*] **connected-time-leq** *connected-time-leq* [**connectivity-state** *state*]

Context

[Tree] clear mobile-gateway pdn bearer-context

Description

This command clears FWA sessions.

Commands in this context configure filters that are matched against the whole UE. If they match, all UE sessions are deleted.

A subsequent **clear** command is not accepted while another one is still ongoing, except in the following cases when:

- the intent is to increase or decrease the deletion rate
- the intent is to clear all sessions for the same entity (gateway or APN) specified at the ongoing deletion

Progress of an ongoing **clear** command can be checked using the following command.

```
show mobile-gateway pdn clear-status
```

The following subcommands can be combined with the filters specified in the base command:

```
clear mobile-gateway pdn bearer-context apn
clear mobile-gateway pdn bearer-context imei
clear mobile-gateway pdn bearer-context imsi
clear mobile-gateway pdn bearer-context msisdn
clear mobile-gateway pdn bearer-context ue-location
clear mobile-gateway pdn bearer-context up-peer
clear mobile-gateway pdn bearer-context up-group
```

Note:

- The parameters of the base command must be specified before any parameters of the subcommands.
- When this command is used without filters, all FWA sessions on the MAG-c are cleared. Before this, the user must enable the following command to place the MAG-c in a suspend state, which ensures no new sessions are set up while existing sessions are being cleared.

  ```
  configure mobile-gateway pdn suspend
  ```

Parameters

session-deletion-rate

Specifies the maximum deletion rate of sessions, per second, for this command execution. When not configured, the MAG-c applies the value that is configured using the following command.

```
configure mobile-gateway pdn session-deletion-rate
```


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Note: The *session-deletion-rate* parameter is ignored when the **local-only** parameter of specific subcommands is also provisioned.

Values: 2 to 2048

state

Specifies that only sessions in the specified connectivity state are cleared.

Values: active | idle

up-alternate-profile-in-use

Keyword to clear only sessions that use the alternative profiles signaled by the FWA-UP.

connected-time-gt

Specifies that only sessions connected longer than the specified connected time in seconds are cleared.

Values: 1 to 2592000

connected-time-leq

Specifies that only sessions connected for less than or equal to the specified connected time in seconds are cleared.

Values: 1 to 2592000

4.2.1.10 apn

Syntax

apn *name* [**local-only**]

Context

[Tree] clear mobile-gateway pdn bearer-context apn

Description

This command extends the base `clear mobile-gateway pdn bearer-context` command to clear FWA sessions belonging to a specific APN.

Note: The specified APN must be shut down first to prevent new sessions from being set up for this APN while existing sessions are cleared.

Parameters

name

Specifies the APN name, up to 80 characters.

local-only

Keyword to specify internal cleanup only, without signaling the deletion to any peer node, including the UPF.

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4.2.1.11 imei

Syntax

imei *imei* [**apn** *name*] [**local-only**] [**bearer** *bearer-id*]

imei *imei* [**apn** *name*] [**cause-reactivation-req**]

Context

[Tree] clear mobile-gateway pdn bearer-context imei

Description

This command extends the base `clear mobile-gateway pdn bearer-context` command to clear FWA sessions with the specified IMEI.

Parameters

imei

Specifies an IMEI, up to 16 digits.

name

Specifies the APN name, up to 80 characters.

local-only

Keyword to specify internal cleanup only, without signaling the deletion to any peer node, including the UPF.

bearer-id

Specifies the EPS bearer ID of the specific UE.

Values: 5 to 15

cause-reactivation-req

Keyword to set the Request Cause of the release signaling to 8 (Reactivation Requested) in GTPv2. In a 5G deployment, keyword to make the SMF send the 5GSM cause value #39 (reactivation requested) in the PDU SESSION RELEASE COMMAND message.

4.2.1.12 imsi

Syntax

imsi *imsi* [**apn** *name*] [**local-only**] [**bearer** *bearer-id*]

imsi *imsi* [**apn** *name*] [**cause-reactivation-req**]

Context

[Tree] clear mobile-gateway pdn bearer-context imsi

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Description

This command extends the base `clear mobile-gateway pdn bearer-context` command to clear FWA sessions with the specified IMSI.

Parameters

imsi

Specifies the IMSI, up to 15 digits.

name

Specifies the APN name, up to 80 characters.

local-only

Keyword to specify internal cleanup only, without signaling the deletion to any peer node, including the UPF.

bearer-id

Specifies the EPS bearer ID of the specific UE.

Values: 5 to 15

cause-reactivation-req

Keyword to set the Request Cause of the release signaling to 8 (Reactivation Requested) in GTPv2. In a 5G deployment, keyword to make the SMF send the 5GSM cause value #39 (reactivation requested) in the PDU SESSION RELEASE COMMAND message.

4.2.1.13 msisdn

Syntax

msisdn *msisdn* [**apn** *name*] [**local-only**] [**bearer** *bearer-id*]

msisdn *msisdn* [**apn** *name*] [**cause-reactivation-req**]

Context

[Tree] clear mobile-gateway pdn bearer-context msisdn

Description

This command extends the base `clear mobile-gateway pdn bearer-context` command to clear FWA sessions with the specified MSISDN.

Parameters

msisdn

Specifies the MSISDN, up to 15 digits.

name

Specifies the APN name, up to 80 characters.

local-only

Keyword to specify internal cleanup only, without signaling the deletion to any peer node, including the UPF.

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bearer-id

Specifies the EPS bearer ID of the specific UE.

Values: 5 to 15

cause-reactivation-req

Keyword to set the Request Cause of the release signaling to 8 (Reactivation Requested) in GTPv2. In a 5G deployment, keyword to make the SMF send the 5GSM cause value #39 (reactivation requested) in the PDU SESSION RELEASE COMMAND message.

4.2.1.14 target-profile

Syntax

target-profile *profile-name* **action** *action* [**up-peer** *ipv4-address* | *ipv6-address*] [**percentage** *percentage*]

Context

[Tree] clear mobile-gateway pdn bearer-context target-profile

Description

This command extends the base `clear mobile-gateway pdn bearer-context` command to clear FWA sessions associated with the specified target profile.

Parameters

profile-name

Specifies an existing target profile name, up to 32 characters, that is previously configured using the following command.

```
configure mobile-gateway profile node-selection target-profile
```

action

Specifies the action.

Values:

- rebalance – keyword to only clear sessions if the UPF is in the primary list of the target profile (highest-priority UPF)
- revert – keyword to only clear sessions if the UPF is in the backup list of the target profile (lower-priority UPF)

ipv4-address **|** *ipv6-address*

Specifies the UPF peer address. If this optional parameter is not specified, the MAG-c clears the relevant sessions on all UPFs in the entries of the target profile.

Note: Nokia strongly recommends configuring the IP address of the UPF on which the revert or rebalance action must be performed.

Values:

- ipv4-address – a.b.c.d

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- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D

percentage

Specifies the percentage of sessions to clear. If this optional parameter is specified, only the configured percentage of all sessions that match the specified target profile and the optional UPF peer address are cleared.

4.2.1.15 ue-location-tac

Syntax

ue-location-tac *tracking-area-code* [**tai-mcc** *mcc value*] [**tai-mnc** *mnc value*]

ue-location-tac *tracking-area-code* **apn** *apn* [**tai-mcc** *mcc value*] [**tai-mnc** *mnc value*]

Context

[Tree] clear mobile-gateway pdn bearer-context ue-location-tac

Description

This command extends the base `clear mobile-gateway pdn bearer-context` command to clear FWA sessions with the specified tracking area code (TAC) and optionally the mobile country code (MCC) and the mobile network code (MNC). Use TAC, MCC, and MNC together to clear the sessions based on the full tracking area identity (TAI) associated with the sessions.

Parameters

tracking-area-code

Specifies the TAC.

Values: 4 or 6 digit hexadecimal number

apn

Specifies the APN name, up to 80 characters.

mcc value

Specifies the MCC value.

Values: 000 to 999 (three-digit number)

mnc value

Specifies the MNC value.

Values: 00 to 999 (two- or three-digit number)

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4.2.1.16 up-group

Syntax

up-group *name* **target-site** *target-site name* **action** *action* [**max-difference** *percentage*] [**up** *ip-addr* | *fqdn*]

Context

[Tree] clear mobile-gateway pdn bearer-context up-group

Description

This command extends the base `clear mobile-gateway pdn bearer-context` command to clear FWA sessions for the specified UP group.

Parameters

name

Specifies the name of the UP group, up to 32 characters.

target-site name

Specifies the name of the target site, up to 32 characters.

action

Specifies the action.

Values:

- rebalance – keyword to clear sessions from the highest loaded FSG for as long as the load between the lowest-loaded BNG-UP and the highest-loaded BNG-UP in the site is more than the percentage specified for **max-difference**.
- revert – keyword to clear sessions that are installed on a backup site.
- clear-lingering-fsgs – keyword to clear sessions from lingering FSGs. Lingering FSGs are FSGs linked to a deleted BNG-UP.
- cancel-rebalance – keyword to cancel the ongoing rebalance action on this group and site.

percentage

Specifies the maximum difference in percentage points between the lowest-loaded BNG-UP and the highest-loaded BNG-UP before the site is considered to be balanced.

Values: 2 to 10

Default: 5

ip-addr

Specifies the IP address of the BNG-UP.

Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

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x – [0..FFFF]H

d – [0..255]D

fqdn

Specifies the fully qualified domain name (FQDN) of the BNG-UP, up to 77 characters.

4.2.1.17 up-peer

Syntax

up-peer *ipv4-address* | *ipv6-address* **apn** *apn* [**ipv4-prefix** *ipv4-address*/*mask* | **ipv6-prefix** *ipv6-address*/*prefix-length*] [**cancel**]

Context

[Tree] clear mobile-gateway pdn bearer-context up-peer

Description

This command extends the base `clear mobile-gateway pdn bearer-context` command to clear FWA sessions active on the specified UPF.

Parameters

ipv4-address **|** *ipv6-address*

Specifies the IP address.

Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

apn

Specifies the APN name, up to 80 characters.

ipv4-address/*mask*

Specifies the IPv4 address and mask.

Values:

- ipv4-address – a.b.c.d (host bits must be 0)
- mask – 9 to 30

ipv6-address/*prefix-length*

Specifies the IPv6 address and prefix length.

Values:

- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

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x – [0..FFFF]H

d – [0..255]D

- prefix-length – 41 to 56

cancel

Keyword to cancel an ongoing **clear** command.

4.2.1.18 call-flow-stats

Syntax

call-flow-stats [**group** *group-number* | **card** *slot-number*]

Context

[Tree] clear mobile-gateway pdn call-flow-stats

Description

This command clears call flow statistics.

Parameters

group-number

Specifies the group number.

Values: 1 to 15

slot-number

Specifies the card slot number.

Values: 1 to 20 | A | B

4.2.1.19 charging

Syntax

charging imsi *string* **open-partial**

Context

[Tree] clear mobile-gateway pdn charging

Description

This command fetches the latest statistics from the UPF and subsequently resets charging statistics on the SMF. If a CHF charging session is enabled, an immediate usage report for these statistics is generated using the MANAGEMENT_INTERVENTION trigger.

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Parameters

string

Specifies the IMSI, up to 15 digits.

open-partial

Keyword to send an update to the charging peer.

4.2.1.20 load-overload-control

Syntax

load-overload-control gtp-local-overload

load-overload-control gtp-peer-overload

Context

[Tree] clear mobile-gateway pdn load-overload-control

Description

This command clears the specified overload statistics.

Parameters

gtp-local-overload

Keyword that clears the local overload control information of the node.

gtp-peer-overload

Keyword that clears the GTP-C overload information received from the peering node.

4.2.1.21 nrf-client-cache

Syntax

nrf-client-cache [**nf-type** {**pcf** | **udm** | **amf** | **chf**}]

Context

[Tree] clear mobile-gateway pdn nrf-client-cache

Description

This command clears the NRF cache.

Parameters

nf-type

Specifies the discovery target NF type for which the cache entries are cleared.

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4.2.1.22 path-mgmt-stats

Syntax

path-mgmt-stats {**s11** | **sx-n4**} [**peer** *ip-address* [**port** *port*]]

path-mgmt-stats { **n9**} [**ref-point** *ref-point-name*] [**peer** *ip-address* [**port** *port*]]

Context

[Tree] clear mobile-gateway pdn path-mgmt-stats

Description

This command clears path management statistics.

Parameters

s11 | sx-n4 | n9

Specifies the reference point type.

ref-point-name

Specifies the reference point name.

ip-address

Specifies an existing peer IP address.

Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

fqdn

Specifies the fully qualified domain name, up to 255 characters.

port

Specifies a port ID.

Values: 1 to 65535

4.2.1.23 ref-point-stats

Syntax

ref-point-stats { **s11** | **sx-n4**} [**peer** *ip-address* [**port** *port*]] [**group** *group-number* | **card** *slot-number*]

ref-point-stats {**radius**} [**radius-group** *radius-group* [**peer** *ip-address*]] [**group** *group-number* | **card** *slot-number*]

ref-point-stats [**ref-point** *ref-point-name*] [**peer** *ip-address* [**port** *port*]] [**group** *group-number* | **card** *slot-number*]

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ref-point-stats {**cdbx**} [**vm** *vm-id*] [**peer** *ip-address*]

ref-point-stats {**ibcp**} [**card** *slot-number*]

Context

[Tree] clear mobile-gateway pdn ref-point-stats

Description

This command clears reference point statistics.

Parameters

s11 sx-n4

Specifies the reference point type.

ip-address

Specifies an existing peer IP address or FQDN

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

fqdn

Specifies the fully qualified domain name, up to 255 characters.

port

Specifies a port ID.

Values: 1 to 65535

group-number

Specifies the group number.

Values: 1 to 8

slot-number

Specifies the card slot number.

1 to 10 | A | B

ref-point-name

Specifies the reference point name.

radius

Keyword to clear the RADIUS statistics.

radius-group

Specifies the RADIUS group.

cdbx

Keyword to clear the CDBX statistics.

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ibcp

Keyword to clear the BNG IBCP statistics.

4.2.1.24 service-stats

Syntax

service-stats

Context

[Tree] clear mobile-gateway pdn service-stats

Description

This command clears the statistics for Service Based Interfaces (SBIs).

4.2.1.25 nf-type

Syntax

nf-type *nf-type* [**service-realm** *service-realm-name*] [**service-name** *service-name*] [**service-instance** *service-instance*] [**remote-nf-id** *uuid*] [**remote-nf-ip** *ip-address* | *fqdn*] [**group** *group-id*]

Context

[Tree] clear mobile-gateway pdn service-stats nf-type

Description

This command clears the SBI statistics for the specified NF type.

Parameters

nf-type

Specifies the NF type. Should match one of the following values.

Values: amf | nrf | pcf | udm | chf | smf | scp

service-realm-name

Specifies the service realm name, up to 32 characters.

service-name

Specifies the service name. Should match one of the following values.

Values: nsmf-pdusession | namf-comm | nnrf-nfm | nnrf-disc | npcf-smpolicycontrol | nudm-sdm | nudm-uecm | nchf-convergedcharging | scp

service-instance

Specifies the service instance name, up to 32 characters.

uuid

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ip-address

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

fqdn

Specifies the fully qualified domain name, up to 255 characters.

group-id

Specifies the VM group ID, with 0 specifying the OAM VM.

Values: 0 to 15

4.2.1.26 statistics

Syntax

statistics attach-failure-statistics group *group-number*

statistics [**group** *group-number*] **ga-buffered-cdrs**

Context

[Tree] clear mobile-gateway pdn statistics

Description

This command clears statistics for each card.

Parameters

group-number

Specifies the group number.

Values: 1 to 15

attach-failure-statistics

Keyword to clear attach failure statistics.

ga-buffered-cdrs

Keyword to clear Ga buffered CDR files.

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4.2.2 configure mobile-gateway pdn command descriptions

4.2.2.1 pdn

Syntax

[**no**] **pdn** *gw-id*

Context

[Tree] configure mobile-gateway pdn

Description

This command configures a generic Packet Data Network (PDN) gateway instance.

The **no** form of this command removes the gateway instance from the configuration.

Parameters

gw-id

Specifies the gateway ID.

Values: 1

4.2.2.2 aggregate-statistics-collection

Syntax

aggregate-statistics-collection

Context

[Tree] configure mobile-gateway pdn aggregate-statistics-collection

Description

Commands in this context enable the collection of aggregate statistics based on charging statistics. See "Aggregate statistics collection" in the *MAG-c Control Plane Function Guide* for more information about the scopes.

4.2.2.3 per-up

Syntax

per-up

Context

[Tree] configure mobile-gateway pdn aggregate-statistics-collection per-up

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Description

Commands in this context enable the collection of aggregate statistics per UP.

4.2.2.4 per-apn

Syntax

per-apn

Context

[Tree] configure mobile-gateway pdn aggregate-statistics-collection per-up per-apn

Description

Commands in this context enable the collection of aggregate statistics per APN for each UP.

4.2.2.5 per-qos-identifier

Syntax

[**no**] **per-qos-identifier**

Context

[Tree] configure mobile-gateway pdn aggregate-statistics-collection per-up per-apn per-qos-identifier

Description

This command enables the collection of aggregate statistics per 5QI or QCI for each APN in a UP, combining the 5QI and QCI statistics into a single aggregate for both 4G and 5G.

The **no** form of this command disables the collection on this level.

Default

no per-qos-identifier

4.2.2.6 per-radio-access-type

Syntax

[**no**] **per-radio-access-type**

Context

[Tree] configure mobile-gateway pdn aggregate-statistics-collection per-up per-apn per-radio-access-type

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Description

This command enables the collection of aggregate statistics per RAT for each APN in a UP.

The **no** form of this command disables the collection on this level.

Default

no per-radio-access-type

4.2.2.7 per-slice

Syntax

per-slice

Context

[Tree] configure mobile-gateway pdn aggregate-statistics-collection per-up per-slice

Description

Commands in this context enable the collection of aggregate statistics per slice for each UP.

4.2.2.8 per-qos-identifier

Syntax

[**no**] **per-qos-identifier**

Context

[Tree] configure mobile-gateway pdn aggregate-statistics-collection per-up per-slice per-qos-identifier

Description

This command enables the collection of aggregate statistics per 5QI or QCI for each slice in a UP, combining the 5QI and QCI statistics into a single aggregate for both 4G and 5G.

The **no** form of this command disables the collection on this level.

Default

no per-qos-identifier

4.2.2.9 amf-set

Syntax

amf-set

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Context

[Tree] configure mobile-gateway pdn amf-set

Description

Commands in this context configure AMF set support for the specified PDN gateway instance.

4.2.2.10 enable-amf-set

Syntax

[**no**] **enable-amf-set**

Context

[Tree] configure mobile-gateway pdn amf-set enable-amf-set

Description

This command enables AMF set support to allow relocation of sessions to an alternate AMF instance during failure of the active AMF. It also supports session offloading for maintenance and session rebalancing within an AMF set.

The **no** form of this command disables AMF set support.

Note:
This command requires a PDN shutdown. Changes without PDN shutdown are rejected by the CLI.

Default

no enable-amf-set

4.2.2.11 apn

Syntax

apn *apn-name*

no apn *apn-name*

Context

[Tree] configure mobile-gateway pdn apn

Description

This command configures an Access Point Name (APN). Each APN represents a service provided by a service provider. APNs can be classified as consumer APNs such as Internet, IMS, and Walled Garden and corporate APNs.

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Note: New APNs can be added without PDN shutdown. To delete an APN from the configuration, follow this procedure:

- shutdown the APN
- clear all sessions from the APN
- delete the APN

Parameters

apn-name

Specifies an APN name, up to 80 characters.

4.2.2.12 address-assignment-defaults

Syntax

address-assignment-defaults

Context

[Tree] configure mobile-gateway pdn apn address-assignment-defaults

Description

Commands in this context configure defaults for the APN when using ODSA. ODSA is configured under the following context.

```
configure mobile-gateway pdn local-address-assignment
```

4.2.2.13 local-dynamic

Syntax

local-dynamic

Context

[Tree] configure mobile-gateway pdn apn address-assignment-defaults local-dynamic

Description

Commands in this context configure the default pool for locally assigned IP addresses.

4.2.2.14 ipv4-pool

Syntax

ipv4-pool *pool-name*

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no ipv4-pool

Context

[Tree] configure mobile-gateway pdn apn address-assignment-defaults local-dynamic ipv4-pool

Description

This command specifies the name of the IPv4 pool to be used for the local address assignment if no address pool is explicitly returned during authentication.

Default

no ipv4-pool

Parameters

pool-name

Specifies the pool name, up to 32 characters.

4.2.2.15 ipv6-na-pool

Syntax

ipv6-na-pool *pool-name*

no ipv6-na-pool

Context

[Tree] configure mobile-gateway pdn apn address-assignment-defaults local-dynamic ipv6-na-pool

Description

This command configures the IPv6 NA pool name for AAA or local address assignment if no pool is explicitly returned during session authentication.

The **no** form of this command removes the configuration.

Default

no ipv6-na-pool

Parameters

pool-name

Specifies the pool name, up to 32 characters.

4.2.2.16 ipv6-pd-pool

Syntax

ipv6-pd-pool *pool-name*

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no ipv6-pd-pool

Context

[Tree] configure mobile-gateway pdn apn address-assignment-defaults local-dynamic ipv6-pd-pool

Description

This command configures the IPv6 PD pool name for AAA or local address assignment if no pool is explicitly returned during session authentication.

The **no** form of this command removes the configuration.

Default

no ipv6-pd-pool

Parameters

pool-name

Specifies the pool name, up to 32 characters.

4.2.2.17 ipv6-slaac-pool

Syntax

ipv6-slaac-pool *pool-name*

no ipv6-slaac-pool

Context

[Tree] configure mobile-gateway pdn apn address-assignment-defaults local-dynamic ipv6-slaac-pool

Description

This command configures the IPv6 SLAAC pool name for AAA or local address assignment if no pool is explicitly returned during session authentication.

The **no** form of this command removes the configuration.

Default

no ipv6-slaac-pool

Parameters

pool-name

Specifies the pool name, up to 32 characters.

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4.2.2.18 unmanaged

Syntax

unmanaged

Context

[Tree] configure mobile-gateway pdn apn address-assignment-defaults unmanaged

Description

Commands in this context configure the default pool for AAA assigned IP addresses.

4.2.2.19 ipv4-pool

Syntax

ipv4-pool *pool-name*

no ipv4-pool

Context

[Tree] configure mobile-gateway pdn apn address-assignment-defaults unmanaged ipv4-pool

Description

This command specifies the name of the IPv4 pool to be used for the local address assignment if no address pool is explicitly returned during authentication.

Default

no ipv4-pool

Parameters

pool-name

Specifies the pool name, up to 32 characters.

4.2.2.20 ipv6-na-pool

Syntax

ipv6-na-pool *pool-name*

no ipv6-na-pool

Context

[Tree] configure mobile-gateway pdn apn address-assignment-defaults unmanaged ipv6-na-pool

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Description

This command configures the IPv6 NA pool name for AAA or local address assignment if no pool is explicitly returned during session authentication.

The **no** form of this command removes the configuration.

Default

no ipv6-na-pool

Parameters

pool-name

Specifies the pool name, up to 32 characters.

4.2.2.21 ipv6-pd-pool

Syntax

ipv6-pd-pool *pool-name*

no ipv6-pd-pool

Context

[Tree] configure mobile-gateway pdn apn address-assignment-defaults unmanaged ipv6-pd-pool

Description

This command configures the IPv6 PD pool name for AAA or local address assignment if no pool is explicitly returned during session authentication.

The **no** form of this command removes the configuration.

Default

no ipv6-pd-pool

Parameters

pool-name

Specifies the pool name, up to 32 characters.

4.2.2.22 ipv6-slaac-pool

Syntax

ipv6-slaac-pool *pool-name*

no ipv6-slaac-pool

Context

[Tree] configure mobile-gateway pdn apn address-assignment-defaults unmanaged ipv6-slaac-pool

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Description

This command configures the IPv6 SLAAC pool name for AAA or local address assignment if no pool is explicitly returned during session authentication.

The **no** form of this command removes the configuration.

Default

no ipv6-slaac-pool

Parameters

pool-name

Specifies the pool name, up to 32 characters.

4.2.2.23 charging

Syntax

charging

Context

[Tree] configure mobile-gateway pdn apn charging

Description

Commands in this context configure charging options specific to this APN.

4.2.2.24 nchf

Syntax

nchf

Context

[Tree] configure mobile-gateway pdn apn charging nchf

Description

Commands in this context configure charging control function (CHF) charging options.

4.2.2.25 chf-selection

Syntax

chf-selection

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Context

[Tree] configure mobile-gateway pdn apn charging nchf chf-selection

Description

Commands in this context configure CHF selection options.

4.2.2.26 nf-id-list

Syntax

nf-id-list *list-name*

no nf-id-list

Context

[Tree] configure mobile-gateway pdn apn charging nchf chf-selection nf-id-list

Description

This command specifies an NF ID list for the CHF selection. This list is only used if the following conditions are met:

- The PCF does not provide the CHF peers.
- No **nf-id-list** is configured in the following context.

```
configure mobile-gateway profile charging bng-charging chf chf-selection
```

In the preceding conditions, this command is only used in the following cases:

- network resource function (NRF) based CHF discovery only returns a list of NF instances without IP/FQDN. In this case, the returned NF instance IDs must be present in the NF ID list.
- NRF-based discovery fails. For example, it returns an empty list or it times out.
- NRF-based discovery is disabled.

The **no** form of this command removes the NF ID list from the configuration. If no other CHF selection methods are provisioned, the CHF selection fails.

Default

no nf-id-list

Parameters

list-name

Specifies the NF ID list name, up to 32 characters. Refers to a list configured using the following command.

```
configure mobile-gateway profile list nf-id-list
```


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4.2.2.27 del-bearer-reactivation-req-cause

Syntax

del-bearer-reactivation-req-cause {[**fh-session-continue**] [**session-timeout**] [**pdn-connection-clear**] [**all**]}

no del-bearer-reactivation-req-cause

Context

[Tree] configure mobile-gateway pdn apn del-bearer-reactivation-req-cause

Description

This command forces the Cause code in Delete Bearer messages to be set to Reactivation Request (value #8) for the specified deletion scenarios.

The **no** form of this command indicates that no Cause code is signaled for these scenarios.

Default

no del-bearer-reactivation-req-cause

Parameters

fh-session-continue

Keyword to include a re-activation request in the Delete Bearer Request that is sent to the UE, when a CCFH session continue timer expires.

session-timeout

Keyword to trigger a deletion by a session timeout.

pdn-connection-clear

Keyword to trigger a deletion by executing an explicit clear command, or when removing a session after a session audit.

all

Keyword to enable the reactivation Cause code for all listed deletion scenarios.

4.2.2.28 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway pdn apn description

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Description

This command associates a text string with a configuration context to help identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Default

no description

Parameters

description-string

Specifies the description. Allowed values are any string up to 80 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.2.29 dhcp-profile

Syntax

dhcp-profile *name*

no dhcp-profile

Context

[Tree] configure mobile-gateway pdn apn dhcp-profile

Description

This command configures the DHCPv4 profile for the session.

The **no** form of this command removes the configuration.

Parameters

name

Specifies the DHCPv4 profile name, up to 32 characters.

4.2.2.30 dhcpv4-server-ip

Syntax

dhcpv4-server-ip *ip-address*

no dhcpv4-server-ip

Context

[Tree] configure mobile-gateway pdn apn dhcpv4-server-ip

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Description

This command configures the DHCP Server IP address when the MAG-c generates DHCP packets. If not configured, the MAG-c uses the default gateway IP of the session as the DHCP Server IP instead.

The **no** form of this command removes the configuration.

Default

no dhcpv4-server-ip

Parameters

ip-address

Specifies the IP address.

Values: a.b.c.d

4.2.2.31 dhcpv6-profile

Syntax

dhcpv6-profile *profile-name*

no dhcpv6-profile

Context

[Tree] configure mobile-gateway pdn apn dhcpv6-profile

Description

This command configures the DHCPv6 profile to use for DHCPv6 messages sent in the context of this session. This profile is used if no profile is provided during session authentication.

The **no** form of this command removes the configuration.

Parameters

profile-name

Specifies the DHCPv6 profile name, up to 32 characters.

4.2.2.32 dhcpv6-server-duid

Syntax

dhcpv6-server-duid hex *hex-string*

dhcpv6-server-duid ascii *ascii-string*

dhcpv6-server-duid system-name

dhcpv6-server-duid link-local

no dhcpv6-server-duid

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Context

[Tree] configure mobile-gateway pdn apn dhcpv6-server-duid

Description

This command configures the value included in the server ID option in DHCPv6 messages.

The **no** form of this command reverts to the default.

Parameters

hex-string

Specifies the hexadecimal value.

Values: 0x0 to 0xFFFFFFFF...(max 116 hex nibbles)

ascii-string

Specifies the ASCII string, up to 58 characters.

system-name

Keyword to use the system name.

link-local

Keyword to use the BNG link-local address of the session.

4.2.2.33 fixed-wireless-access

Syntax

fixed-wireless-access

Context

[Tree] configure mobile-gateway pdn apn fixed-wireless-access

Description

Commands in this context configure functionality related to FWA sessions.

4.2.2.34 authentication-flow

Syntax

authentication-flow

Context

[Tree] configure mobile-gateway pdn apn fixed-wireless-access authentication-flow

Description

This command configures the ADB-based authentication flow to set up FWA sessions.

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4.2.2.35 adb

Syntax

adb *adb-name* [*adb-name*...(up to 3 max)]

no adb

Context

[Tree] configure mobile-gateway pdn apn fixed-wireless-access authentication-flow adb

Description

This command configures an ordered list of ADBs to authenticate FWA sessions.

The **no** form of this command removes the configuration.

Default

no adb

Parameters

adb-name

Specifies the ADB name, up to 32 characters; up to three ADB names can be specified.

4.2.2.36 default-ipv4-signaling-method

Syntax

default-ipv4-signaling-method *signaling-method*

Context

[Tree] configure mobile-gateway pdn apn fixed-wireless-access default-ipv4-signaling-method

Description

This command configures whether to signal an allocated IPv4 address to the FWA RG using NAS or DHCP (deferred allocation) messaging. This value is used if no other method is provided during session setup; for example, by the ADB, RADIUS, or PCO.

Default

default-ipv4-signaling-method nas

Parameters

signaling-method

Specifies the method to signal allocated IPv4 addresses.

Values: nas | dhcp

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4.2.2.37 shutdown

Syntax

[no] shutdown

Context

[Tree] configure mobile-gateway pdn apn fixed-wireless-access shutdown

Description

This command administratively disables the entity. When disabled, an entity does not change, reset, or remove any configuration settings or statistics. Many entities must be explicitly enabled using the **no shutdown** command.

The operational state of the entity is disabled as well as the operational state of any entities contained within. Many objects must be shut down before they may be deleted.

4.2.2.38 max-pdn-connections

Syntax

max-pdn-connections *max-pdn-connections* [**alarm** | **enforce**]

no max-pdn-connections

Context

[Tree] configure mobile-gateway pdn apn max-pdn-connections

Description

This command configures the maximum number of PDN connections for this APN on the MAG-c, and enables or disables alarms to be sent when the maximum PDN connections are reached or configures send alarms and to not accept any new FWA connections when the *max-pdn-connections* value has been reached. When the configured maximum number is reached, an alarm event is raised at the end of the pulling interval.

The **no** form of this command disables and removes the maximum connection limit and disables sending alarm even when the *max-pdn-connections* value is reached.

Parameters

max-pdn-connections

Specifies the maximum number of FWA connections.

Values: 1 to 20000000

Default: 0

alarm

Keyword to send an alarm even when *max-pdn-connections* has been reached.

Default: alarm

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enforce

Keyword to send an alarm and not accept any new FWA connections when *max-pdn-connections* has been reached.

4.2.2.39 max-session-attach

Syntax

max-session-attach *max-attach-limit* [**alarm**] [**include-emergency**]

no max-session-attach

Context

[Tree] configure mobile-gateway pdn apn max-session-attach

Description

This command configures the threshold of the maximum number of GTP-based attach requests per second. The limit is applied to the new FWA session attach requests received. When this command is enabled, the **alarm** keyword specifies to raise an alarm when the maximum number of attaches is reached.

The **no** form of this command reverts to the default (no limit is applied to the number of attach requests).

Parameters

max-attach-limit

Specifies the maximum number of attach requests per second.

Values: 0 to 100000

Default: 0

alarm

Keyword to raise an alarm when the maximum number of attach requests per second is reached.

Default: disabled

include-emergency

Keyword to include the emergency attach requests to the threshold.

Default: disabled

4.2.2.40 network-realm

Syntax

network-realm *name*

no network-realm

Context

[Tree] configure mobile-gateway pdn apn network-realm

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Description

This command specifies the network-realm with which address pools used for local address assignment are associated. The **network-realm** command is configured in the following context.

```
configure mobile-gateway pdn local-address-assignment
```

The **network-realm** is also the network identifier that is sent to the UP using the Network Instance IE in PFCP.

Parameters

name

Specifies the name of the associated network realm, up to 80 characters.

Note: Only the following characters are permitted:

- alphabetic characters (A-Z and a-z)
- digits (0-9)
- hyphen (-)
- dot (.)

4.2.2.41 pcf-selection

Syntax

pcf-selection

Context

[Tree] configure mobile-gateway pdn apn pcf-selection

Description

Commands in this context configure PCF selection options.

4.2.2.42 dnn-format

Syntax

dnn-format *form*

Context

[Tree] configure mobile-gateway pdn apn pcf-selection dnn-format

Description

This command configures the DNN format used when sending the DNN to PCF.

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Default

dnn-format selected

Parameters

form

Specifies the DNN format.

Values:

- real – specifies use of the real, unmodified DNN as signaled during the FWA session setup, including the OI if it is present
- real-ni-only – specifies use of the real DNN as signaled during the FWA session setup, but without the OI if it is present
- selected – specifies use of the selected DNN as is (returned after initial authentication); if no selected DNN is available, the system falls back to the real-ni-only option.

4.2.2.43 exclude-gpsi

Syntax

exclude-gpsi

no exclude-gpsi

Context

[Tree] configure mobile-gateway pdn apn pcf-selection exclude-gpsi

Description

This command configures whether GPSI is used in the query criteria when the MAG-c discovers the PCF using the NRF.

The **no** form of this command configures the use of GPSI in the query criteria.

Default

no exclude-gpsi

4.2.2.44 exclude-snssais

Syntax

exclude-snssais {**enable** | **disable** | **inherit**}

no exclude-snssais

Context

[Tree] configure mobile-gateway pdn apn pcf-selection exclude-snssais

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Description

This command configures whether S-NSSAIs are used in the query criteria when the MAG-c discovers the PCF using the NRF.

The **no** form of this command reverts to the default.

Default

exclude-snssais inherit

Parameters

enable

Keyword to use S-NSSAIs in the query criteria.

disable

Keyword to not use S-NSSAIs in the query criteria.

inherit

Keyword to inherit the configuration specified under **configure mobile-gateway pdn 1 sba-client-services nrf-client nnrf-disc exclude-snssais**.

4.2.2.45 exclude-supi

Syntax

exclude-supi

no exclude-supi

Context

[Tree] configure mobile-gateway pdn apn pcf-selection exclude-supi

Description

This command configures whether SUPI is used in the query criteria when the MAG-c discovers the PCF using the NRF.

The **no** form of this command configures that SUPI is used in the query criteria.

Default

no exclude-supi

4.2.2.46 nf-id-list

Syntax

nf-id-list *list-name*

no nf-id-list

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Context

[Tree] configure mobile-gateway pdn apn pcf-selection nf-id-list

Description

This command specifies an NF ID list for PCF selection. This list is used in the following cases:

- NRF-based discovery only returns a list of NF Instances without IP/FQDN, in which case the specified NF Instance IDs must be present in the NF ID list.
- NRF-based discovery fails (for example returns an empty list or times out).
- NRF-based discovery is disabled.

This NF ID list takes precedence over any list configured using the following command.

```
configure mobile-gateway pdn sba-client-services pcf-client npcf-smpolicycontrol nf-id-list
```

The **no** form of this command removes the NF ID list from the configuration.

Default

no nf-id-list

Parameters

list-name

Specifies the NF ID list name, up to 32 characters. Refers to a list configured using the **configure mobile-gateway profile list nf-id-list** command.

4.2.2.47 pcf-id

Syntax

no pcf-id

pcf-id {**use-as-target** | **ignore**}

Context

[Tree] configure mobile-gateway pdn apn pcf-selection pcf-id

Description

This command configures whether the PCF NF Instance ID received from the Access and Mobility Management Function (AMF) is used in the target-nf-instance-id query parameter when the MAG-c discovers the PCF using the NRF.

The **no** form of this command reverts to the default

Default

pcf-id use-as-target

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Parameters

use-as-target

Keyword to use the NF Instance ID in the target-nf-instance-id query parameter.

ignore

Keyword to not use the NF Instance ID when generating the query.

4.2.2.48 pcf-profile

Syntax

no pcf-profile

no pcf-profile *profile-name*

Context

[Tree] configure mobile-gateway pdn apn pcf-selection pcf-profile

Description

This command configures the PCF profile that is used to communicate with the PCF.

The **no** form of this command removes the PCF profile from the configuration and default settings are used thereafter.

Default

no pcf-profile

Parameters

profile-name

Specifies the PCF profile name, up to 32 characters. Refers to a profile configured using the **configure mobile-gateway profile pcf-profile** command.

4.2.2.49 preferred-locality

Syntax

preferred-locality *string*

no preferred-locality

Context

[Tree] configure mobile-gateway pdn apn pcf-selection preferred-locality

Description

This command configures the locality that the SMF uses for the preferred-locality query parameter in the PCF discovery request toward the NRF. The locality can be a geographical description, data-center location, and so on.

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The **no** form of this command removes the configuration, and the inclusion of the preferred-locality query parameter depends on the value of the `configure mobile-gateway pdn sba-client-services nrf-client nnrf-disc use-locality` and **configure mobile-gateway pdnnf-profile-attributes locality** commands.

Default

no preferred-locality

Parameters

string

Specifies the preferred locality for PFC discovery, up to 64 characters.

4.2.2.50 pdn-type

Syntax

pdn-type {**ipv4** | **ipv6** | **ipv4v6**} [{**ipv4** | **ipv6** | **ipv4v6**}**...**(up to 4 max)]

no pdn-type

Context

[Tree] configure mobile-gateway pdn apn pdn-type

Description

This command specifies the Packet Data Network (PDN) type for 4G sessions and the similar Protocol Data Unit (PDU) type for 5G sessions. If the MAG-c receives a Session Creation Request for an **ipv4** or **ipv6** PDN/PDU type that is not in the specified list, it rejects the session. If the MAG-c receives a request for an **ipv4v6** PDN/PDU type that is not in the specified list, it is downgraded to IPv4 or IPv6 if either of those is configured. If both **ipv4** and **ipv6** are configured, **ipv4** is chosen unless the **pdn-type-preferred-ipv6** command is configured.

The **no** form of this command reverts to the default.

Default

pdn-type ipv4 ipv6 ipv4v6

Parameters

ipv4

Keyword to specify that IPv4 FWA sessions are supported by this APN.

ipv6

Keyword to specify that IPv6 FWA sessions are supported by this APN.

ipv4v6

Keyword to specify that IPv4v6 FWA sessions are supported by this APN.

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4.2.2.51 pdn-type-preferred-ipv6

Syntax

[**no**] **pdn-type-preferred-ipv6**

Context

[Tree] configure mobile-gateway pdn apn pdn-type-preferred-ipv6

Description

This command enables to fall back to the **ipv6** PDN/PDU type when the client requested **ipv4v6** but only **ipv4** and **ipv6** PDN/PDU types are allowed. See the following command for more information.

```
configure mobile-gateway pdn apn pdn-type
```

The **no** form of this command enables a fall back to the **ipv4** PDN/PDU type.

Default

no pdn-type-preferred-ipv6

4.2.2.52 pfcp-translate-tx

Syntax

pfcp-translate-tx *profile-name*

no pfcp-translate-tx

Context

[Tree] configure mobile-gateway pdn apn pfcp-translate-tx

Description

This command associates a PFCP message translation function profile with an APN for sending selective subscriber information values in the PFCP IEs.

The **no** form of this command removes the configuration.

Parameters

profile-name

Specifies an existing PFCP message translation profile name, up to 32 characters, previously configured using the following command.

```
configure mobile-gateway profile pfcp pfcp-translate-profile
```


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4.2.2.53 qci-policy

Syntax

qci-policy {*qci-policy-name* | **uplink** *qci-policy-name* [**downlink** *qci-policy-name*] | **downlink** *qci-policy-name* [**uplink** *qci-policy-name*]}

no qci-policy

Context

[Tree] configure mobile-gateway pdn apn qci-policy

Description

This command configures the QCI policy for the uplink or downlink direction, or both. This policy is used to map QCI/5QI and ARP values to other QoS parameters, such as DSCP.

The **no** form of this command removes the policy name from the configuration.

Note: This command requires an APN shutdown.

Default

no qci-policy

Parameters

qci-policy-name

Specifies the QCI policy name, up to 32 characters. The QCI policy is configured using the following command.

```
configure mobile-gateway profile policy-options qci-policy
```

4.2.2.54 qfi-mapping-profile

Syntax

qfi-mapping-profile *profile-name*

no qfi-mapping-profile

Context

[Tree] configure mobile-gateway pdn apn qfi-mapping-profile

Description

This command configures an optional QoS flow binding profile. The QoS parameters specified within the profile are used for QoS flow binding. When this optional profile is not configured here or on PDN level, the QFI is generated dynamically in the range 1 to 64 using 5QI/ARP as key.

The **no** form of this command removes the profile name from the configuration.

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Default

no qfi-mapping-profile

Parameters

profile-name

Specifies the QFI mapping profile name, up to 32 characters. The QFI mapping profile is configured using the following command.

```
configure mobile-gateway profile qfi-mapping-profile
```

4.2.2.55 realm-loopback-address

Syntax

realm-loopback-address *ip-address*

no realm-loopback-address

Context

[Tree] configure mobile-gateway pdn apn realm-loopback-address

Description

This command configures the IPv4 loopback address used as the BNG address in the IPCP negotiation for PPPoE sessions with **unmatching-prefix** enabled. See the following command for more information about enabling **unmatching-prefix**.

```
configure mobile-gateway profile authentication-database entry address-assignment unmatching-
prefix
```

Parameters

ip-address

Specifies the IPv4 address.

Values: a.b.c.d

4.2.2.56 shutdown

Syntax

[**no**] **shutdown**

Context

[Tree] configure mobile-gateway pdn apn shutdown

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Description

This command administratively disables the entity. When disabled, an entity does not change, reset, or remove any configuration settings or statistics. Many entities must be explicitly enabled using the **no shutdown** command.

The operational state of the entity is disabled as well as the operational state of any entities contained within. Many objects must be shut down before they may be deleted.

Note: The shutdown command at the APN level only affects new sessions, meaning that operational state of APN related to existing sessions remains up while the administrative state is down.

4.2.2.57 slices

Syntax

slices

Context

[Tree] configure mobile-gateway pdn apn slices

Description

Commands in this context configure a slice list that the MAG-c supports for this DNN/APN and signals to the NRF when registering itself. Additionally a default slice can be provisioned that is used for sessions that are not associated with a slice.

4.2.2.58 default-slice

Syntax

default-slice *slice-name*

no default-slice

Context

[Tree] configure mobile-gateway pdn apn slices default-slice

Description

This command configures the default slice of this APN/DNN. When the MAG-c, acting as combined PGW-C/SMF, cannot retrieve the UE subscribed S-NSSAIs from the UDM, the SMF uses the locally configured default S-NSSAI for this APN/DNN. The *slice-name* must also be configured in a slice list that is applied in either of the following contexts:

```
configure mobile-gateway pdn slices slice-list
configure mobile-gateway pdn apn slices slice-list
```

When the default slice is not configured, no fallback is used and session setup fails.

The **no** form of this comment removes the default slice.

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Default

no default-slice

Parameters

slice-name

Specifies the name of the slice, up to 32 characters.

4.2.2.59 slice-list

Syntax

slice-list *list-name*

no slice-list

Context

[Tree] configure mobile-gateway pdn apn slices slice-list

Description

This command configures the list of slices or a single slice for this APN/DNN, which marks the APN as specific to this slice list. The APN is included under the configured slices during registration to the NRF.

The **no** form of this command removes the configuration, and the slice-list configured at the PDN level applies to this APN.

Default

no slice-list

Parameters

list-name

Specifies the name of the slice list, up to 32 characters. The slice list is configured using the following command.

```
configure mobile-gateway profile list slice-list
```

4.2.2.60 static-predefined-pcc

Syntax

static-predefined-pcc

Context

[Tree] configure mobile-gateway pdn apn static-predefined-pcc

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Description

Commands in this context configure static policy parameters for PDN.

4.2.2.61 default-policy-rule-base

Syntax

[**no**] **default-policy-rule-base** *base-policy-name*

Context

[Tree] configure mobile-gateway pdn apn static-predefined-pcc default-policy-rule-base

Description

This command configures default policy rule bases for the APN. This configuration is used when the PCRF is not in use or during fallback to assume positive (AP).

The **no** form of this command removes the specified policy rule base from the APN.

Parameters

base-policy-name

Specifies the name of the policy rule base, up to 64 characters.

4.2.2.62 udm-options

Syntax

udm-options

Context

[Tree] configure mobile-gateway pdn apn udm-options

Description

Commands in this context enable APN/DNN-specific behavior when communicating with the UDM. Note that for the get operation of the Nudm_SubscriberDataManagement, this only uses configuration under the DNN signaled in session setup messages and not configuration under the selected DNN, as this operation is called before an alternative DNN can be selected.

4.2.2.63 dnn-format

Syntax

dnn-format *form*

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Context

[Tree] configure mobile-gateway pdn apn udm-options dnn-format

Description

This command configures the DNN format that is used when sending the DNN to the UDM.

Default

dnn-format real

Parameters

form

Specifies the DNN format.

Values: real | real-ni-only

- real – specifies to use the real, unmodified DNN as signaled during the FWA session setup, including the OI if it is present
- real-ni-only – specifies to use the real DNN as signaled during the FWA session setup, but without the OI if it is present

4.2.2.64 bng

Syntax

bng

Context

[Tree] configure mobile-gateway pdn bng

Description

Commands in this context configure BNG PDN parameters.

4.2.2.65 radius-coa

Syntax

radius-coa

Context

[Tree] configure mobile-gateway pdn bng radius-coa

Description

Commands in this context configure RADIUS COA parameters for BNG.

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4.2.2.66 ignore-unknown-attributes

Syntax

[**no**] **ignore-unknown-attributes**

Context

[Tree] configure mobile-gateway pdn bng radius-coa ignore-unknown-attributes

Description

This command enables the system to ignore unknown attributes in RADIUS CoA/DM request messages.

The **no** form of this command causes the system to fail RADIUS CoA/DM if the request contains unknown attributes.

4.2.2.67 interface

Syntax

[**no**] **interface router** *router-instance* **name** *interface-name*

Context

[Tree] configure mobile-gateway pdn bng radius-coa interface

Description

This command configures a local interface to use for communication with an external database.

The **no** form of this command removes the local interface association.

Parameters

router-instance

Specifies the router instance, up to 32 characters.

interface-name

Specifies an interface name, up to 32 characters.

4.2.2.68 python-policy

Syntax

python-policy *name*

no python-policy

Context

[Tree] configure mobile-gateway pdn bng radius-coa python-policy

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Description

This command specifies the Python policy used to modify a RADIUS CoA message sent or received by a RADIUS CoA client.

Parameters

name

Specifies the name of a configured Python policy, up to 32 characters.

4.2.2.69 secret

Syntax

secret *secret* [**hash** | **hash2**]

no secret

Context

[Tree] configure mobile-gateway pdn bng radius-coa secret

Description

This command specifies the RADIUS shared secret for a CoA/DM message

Parameters

secret

Specifies the hash1 key or the hash2 key, up to 64 characters.

hash | hash2

Specifies if the secret key is entered in an encrypted form. If the hash parameter is not used, the key is assumed to be in a non-encrypted, clear text form. For security, all keys are stored in an encrypted format.

4.2.2.70 static-session

Syntax

[**no**] **static-session** *name*

Context

[Tree] configure mobile-gateway pdn bng static-session

Description

This command configures a static session.

The **no** form of this command removes the specified static session.

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Parameters

name

Specifies the session name, up to 64 characters.

4.2.2.71 c-vlan

Syntax

c-vlan *tag*

no c-vlan

Context

[Tree] configure mobile-gateway pdn bng static-session c-vlan

Description

This command configures the C-VLAN tag.

Parameters

tag

Specifies the C-VLAN tag.

Values: 1 to 4094

4.2.2.72 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway pdn bng static-session description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Default

no description

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Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.2.73 dot1q-etype

Syntax

dot1q-etype *hex-value*

Context

[Tree] configure mobile-gateway pdn bng static-session dot1q-etype

Description

This command configures the ethertype for dot1q-encapsulated IBCP traffic.

Default

dot1q-etype 0x8100

Parameters

hex-value

Specifies the ethertype.

Values: 0x0600 to 0xffff

Default: 0x8100

4.2.2.74 l2-access-id

Syntax

l2-access-id *string*

no l2-access-id

Context

[Tree] configure mobile-gateway pdn bng static-session l2-access-id

Description

This command configures the Layer 2 access ID.

Parameters

string

Specifies the Layer 2 access ID, up to 64 characters.

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4.2.2.75 mac

Syntax

mac *ieee-address*

no mac

Context

[Tree] configure mobile-gateway pdn bng static-session mac

Description

This command configures the MAC address.

Parameters

ieee-address

Specifies the MAC address.

Values: xx:xx:xx:xx:xx:xx or xx-xx-xx-xx-xx-xx

4.2.2.76 qinq-etype

Syntax

qinq-etype *hex-value*

Context

[Tree] configure mobile-gateway pdn bng static-session qinq-etype

Description

This command configures the ethertype for qinq-encapsulated IBCP traffic.

Default

qinq-etype 0x8100

Parameters

hex-value

Specifies the ethertype.

Values: 0x0600 to 0xffff

Default: 0x8100

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4.2.2.77 s-vlan

Syntax

s-vlan *tag*

no s-vlan

Context

[Tree] configure mobile-gateway pdn bng static-session s-vlan

Description

This command configures the S-VLAN tag.

Parameters

tag

Specifies the S-VLAN tag.

Values: 1 to 4094

4.2.2.78 shutdown

Syntax

[**no**] **shutdown**

Context

[Tree] configure mobile-gateway pdn bng static-session shutdown

Description

This command administratively disables the entity. When disabled, an entity does not change, reset, or remove any configuration settings or statistics. Many entities must be explicitly enabled using the **no shutdown** command.

The operational state of the entity is disabled as well as the operational state of any entities contained within. Many objects must be shut down before they may be deleted.

4.2.2.79 up

Syntax

up group *name*

up id *ip-addr* | *fqdn* **l2-access-id-mac** *ieee-address*

no up

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Context

[Tree] configure mobile-gateway pdn bng static-session up

Description

This command configures the identification of the UP by UP group or ID.

Parameters

name

Specifies the UP group name, up to 32 characters.

ip-addr | *fqdn*

Specifies the UP ID.

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D
- fqdn – fully qualified domain name, up to 255 characters.

ieee-address

Specifies the MAC address.

Values: xx:xx:xx:xx:xx:xx or xx-xx-xx-xx-xx-xx

4.2.2.80 up-group

Syntax

[no] up-group *name*

Context

[Tree] configure mobile-gateway pdn bng up-group

Description

This command configures a group of BNG-UPs that share a common aggregation network. Sessions can be moved between the BNG-UPs of a UP group; for example, to provide BNG-UP resiliency.

The **no** form of this command removes the specified UP group.

Default

no up-group

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Parameters

name

Specifies the name of the UP group, up to 32 characters.

4.2.2.81 c-tag-range

Syntax

c-tag-range start *from* **end** *to*

no c-tag-range

Context

[Tree] configure mobile-gateway pdn bng up-group c-tag-range

Description

This command configures the default C-tag range for the UP group. See "BNG-UP resiliency" in the *MAG-c Control Plane Function Guide* for more information about the use cases for defining a C-tag range.

When a value of 0 is included in the range, sessions without a C-tag are included in the UP group and a per-BNG-UP override of the C-tag range is not possible.

Explicitly configuring a 0 to 4094 range does not make a functional difference. However, if a 0 to 4094 range is configured, a per-BNG-UP override is not allowed. If no range is configured, a per-BNG-UP override is allowed if each configured BNG-UP has an override (there is no default fallback).

The **no** form of this command removes the configuration.

Default

no c-tag-range

Parameters

from

Specifies the starting C-tag.

Values: 0 to 4094

to

Specifies the ending C-tag, greater than or equal to the starting C-tag.

Values: 0 to 4094

4.2.2.82 description

Syntax

description *description-string*

no description

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Context

[Tree] configure mobile-gateway pdn bng up-group description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Default

no description

Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.2.83 fsg-mode

Syntax

fsg-mode [*single* | *mesh-per-site*]

no fsg-mode

Context

[Tree] configure mobile-gateway pdn bng up-group fsg-mode

Description

This command configures the type of fate sharing groups (FSG) that are created for the UP group.

The **no** form of this command reverts to the default.

Default

single

Parameters

single

Specifies the single FSG creation type, which creates a single FSG per UP group.

mesh-per-site

Specifies the mesh-per-site FSG creation type, which creates a mesh of FSGs for each site configured in the UP group.

Note: The *mesh-per-site* option and any Layer 2 access ID or VLAN range configuration are mutually exclusive.

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4.2.2.84 fsg-profile

Syntax

fsg-profile *name*

no fsg-profile

Context

[Tree] configure mobile-gateway pdn bng up-group fsg-profile

Description

This command references an FSG profile created in the following context.

```
configure mobile-gateway profile bng
```

The **no** form of this command removes the configuration.

Default

no fsg-profile

Parameters

name

Specifies the FSG profile name, up to 32 characters.

4.2.2.85 gtp-u-endpoints

Syntax

gtp-u-endpoints

Context

[Tree] configure mobile-gateway pdn bng up-group gtp-u-endpoints

Description

Commands in this context configure the pools of IPv4 or IPv6 addresses, or both, from which to select GTP-u IP endpoints.

4.2.2.86 realm

Syntax

realm *realm*

no realm *realm*

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Context

[Tree] configure mobile-gateway pdn bng up-group gtp-u-endpoints realm

Description

This command configures up to two names of the realms where the GTP-u endpoints are to be installed on the UPF.

The **no** form of this command removes the specified realm.

Parameters

realm

Specifies the realm name, up to 32 characters.

Note: The realm name should match the provisioned N3, S1-u, and S5-u realms in the following contexts, respectively.

```
configure mobile-gateway pdn sba-server-services nsmf-pdusession
 n3-interface-realmthe configure mobile-gateway pdn s11 interface
 gtp-c interface-realm
configure mobile-gateway pdn s5 interface gtp-c interface-realm
```

4.2.2.87 ipv4-range

Syntax

ipv4-range *start-ip-address end-ip-address*

no ipv4-range *start-ip-address end-ip-address*

Context

[Tree] configure mobile-gateway pdn bng up-group gtp-u-endpoints realm ipv4-range

Description

This command configures up to eight IPv4 address ranges from where to generate the GTP-u endpoint addresses.

The **no** form of this command removes the specified IPv4 range.

Parameters

start-ip-address

Specifies the start of the IPv4 address range, up to 64 addresses.

Values: a.b.c.d

end-ip-address

Specifies the end of the IPv4 address range, up to 64 addresses.

Values: a.b.c.d

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4.2.2.88 ipv6-prefix

Syntax

ipv6-prefix [*ipv6-prefix* / *length*]

no ipv6-prefix

Context

[Tree] configure mobile-gateway pdn bng up-group gtp-u-endpoints realm ipv6-prefix

Description

This command configures an IPv6 prefix from where to generate the GTP-u endpoint addresses.

The **no** form of this command removes the configuration.

Parameters

ipv6-prefix

Specifies the IPv6 prefix.

Values: x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
where

x – [0..FFFF]H

d – [0..255]D

length

Specifies the length of the IPv6 prefix.

Value: 64 to 112

4.2.2.89 l2-access-id

Syntax

l2-access-id *id [id...(up to 32 max)]*

no l2-access-id

Context

[Tree] configure mobile-gateway pdn bng up-group l2-access-id

Description

This command configures the Layer 2 access IDs that interconnect the BNG-UPs. More than one Layer 2 access ID can be configured to indicate that all configured Layer 2 access IDs are present on all BNG-UPs. The MAG-c does not assume that the Layer 2 access IDs are interconnected. For example, the MAG-c never moves sessions from Layer 2 access ID "alpha" to Layer 2 access ID "beta" or the other way around;

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sessions are only moved from "alpha" on one BNG-UP to "alpha" on another BNG-UP if the following is configured.

```
l2-access-id alpha beta
```

This command to configure the Layer 2 access IDs at the UP group level and the following command to configure the Layer 2 access IDs at the BNG-UP level are mutually exclusive.

```
configure mobile-gateway pdn bng up-group up l2-access-id
```

The **no** form of this command removes the configuration.

Default

no l2-access-id

Parameters

id [id...(up to 32 max)]

Specifies the Layer 2 access ID, up to 64 characters, as provisioned on the BNG-UP and learned on the MAG-c through IBCP.

4.2.2.90 s-tag-range

Syntax

s-tag-range start *from* **end** *to*

no s-tag-range

Context

[Tree] configure mobile-gateway pdn bng up-group s-tag-range

Description

This command configures the default S-tag range for the UP group. See "BNG-UP resiliency" in the MAG-c Control Plane Function Guide for more information about the use cases for defining an S-tag range.

When a value of 0 is included in the range, sessions without an S-tag are included in the UP group and a per-BNG-UP override of the S-tag range is not possible.

Explicitly configuring a 0 to 4094 range does not make a functional difference. However, if a 0 to 4094 range is configured, a per-BNG-UP override is not allowed. If no range is configured, a per-BNG-UP override is allowed if each configured BNG-UP has an override (there is no default fallback).

The **no** form of this command removes the configuration.

Default

no s-tag-range

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Parameters

from

Specifies the starting S-tag.

Values: 0 to 4094

to

Specifies the ending S-tag, greater than or equal to the starting S-tag.

Values: 0 to 4094

4.2.2.91 shutdown

Syntax

[no] shutdown

Context

[Tree] configure mobile-gateway pdn bng up-group shutdown

Description

This command administratively disables the entity. When disabled, an entity does not change, reset, or remove any configuration settings or statistics.

The operational state of the entity is disabled, as well as the operational state of any entities contained within. Most objects must be shut down before they may be deleted.

The **no** form of this command enables the entity. Most entities must be explicitly enabled using the **no** form of this command.

Default

shutdown

4.2.2.92 site

Syntax

site *site-name*

no site *site-name*

Context

[Tree] configure mobile-gateway pdn bng up-group site

Description

This command configures a site that groups a set of BNG-UPs.

The **no** form of this command removes the site.

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Parameters

site-name

Specifies the site name, up to 32 characters.

4.2.2.93 inter-site-failover

Syntax

inter-site-failover

Context

[Tree] configure mobile-gateway pdn bng up-group site inter-site-failover

Description

Commands in this context configure the behavior in case of inter-site failure.

4.2.2.94 backup-up

Syntax

backup-up [*ip-addr* | *fqdn*]

no backup-up [*ip-addr* | *fqdn*]

Context

[Tree] configure mobile-gateway pdn bng up-group site inter-site-failover backup-up

Description

This command configures a list of backup BNG-UPs to be used for new sessions in case the main assigned site fails according to the configuration of the following command.

```
configure mobile-gateway profile bng fsg-profile health-calculation failure-threshold
```

The **no** form of this command removes the specified backup BNG-UP from the list.

If no explicit backup BNG-UPs are configured, all BNG-UPs from all other sites are considered backup BNG-UPs.

Parameters

ip-addr

Specifies the node ID of the BNG-UP as an IP address.

Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

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x – [0..FFFF]H

d – [0..255]D

fqdn

Specifies the node ID of the BNG-UP as a fully qualified domain name (FQDN), up to 77 characters.

4.2.2.95 failed-up-threshold

Syntax

failed-up-threshold *failed-up-threshold*

no failed-up-threshold

Context

[Tree] configure mobile-gateway pdn bng up-group site inter-site-failover failed-up-threshold

Description

This command configures the number of BNG-UPs that have to fail before the site is considered to have failed and any sessions are to be assigned to BNG-UPs in other sites. A BNG-UP is declared as failed based on the configuration of the following command.

```
configure mobile-gateway profile bng fsg-profile health-calculation failure-threshold
```

When the number of failed BNG-UPs in a site is equal to or bigger than the configured threshold, the site is considered as failed.

The **no** form of this command indicates that all BNG-UPs have to fail before the site is considered as failed.

Default

no failed-up-threshold

Parameters

failed-up-threshold

Specifies the number of BNG-UPs.

Values: 1 to 8

4.2.2.96 pool-overrides

Syntax

pool-overrides *network-realm*

no pool-overrides *network-realm*

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Context

[Tree] configure mobile-gateway pdn bng up-group site inter-site-failover pool-overrides

Description

This command configures the pool overrides to be used when a session fails over on the specified network realm. This overrides any pool received during authentication.

The **no** form of this command removes the configuration in the specified network realm.

Parameters

network-realm

Specifies the name of the network realm, up to 80 characters.

4.2.2.97 local-dynamic

Syntax

local-dynamic

Context

[Tree] configure mobile-gateway pdn bng up-group site inter-site-failover pool-overrides local-dynamic

Description

This command configures the pool names to be used for local address assignment if a session fails over on the site. This overrides any pool received during authentication.

4.2.2.98 ipv4-pool

Syntax

ipv4-pool *pool-name*

no ipv4-pool

Context

[Tree] configure mobile-gateway pdn bng up-group site inter-site-failover pool-overrides local-dynamic ipv4-pool

Description

This command configures the IPv4 pool name for local address assignment to be used if a session fails over on the site. This overrides any pool received during authentication.

The **no** form of this command removes the pool name. In this case, a failed over session keeps using the pool assigned during authentication.

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Parameters

pool-name

Specifies the name of the pool, up to 32 characters.

4.2.2.99 ipv6-na-pool

Syntax

ipv6-na-pool *pool-name*

no ipv6-na-pool

Context

[Tree] configure mobile-gateway pdn bng up-group site inter-site-failover pool-overrides local-dynamic ipv6-na-pool

Description

This command configures the IPv6 NA pool name for local address assignment to be used if a session fails over on the site. This overrides any pool received during authentication.

The **no** form of this command removes the pool name. In this case, a failed over session keeps using the pool assigned during authentication.

Parameters

pool-name

Specifies the name of the pool, up to 32 characters.

4.2.2.100 ipv6-pd-pool

Syntax

ipv6-pd-pool *pool-name*

no ipv6-pd-pool

Context

[Tree] configure mobile-gateway pdn bng up-group site inter-site-failover pool-overrides local-dynamic ipv6-pd-pool

Description

This command configures the IPv6 DHCPv6 PD pool name for local address assignment to be used if a session fails over on the site. This overrides any pool received during authentication.

The **no** form of this command removes the pool name. In this case, a failed over session keeps using the pool assigned during authentication.

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Parameters

pool-name

Specifies the name of the pool, up to 32 characters.

4.2.2.101 ipv6-slaac-pool

Syntax

ipv6-slaac-pool *pool-name*

no ipv6-slaac-pool

Context

[Tree] configure mobile-gateway pdn bng up-group site inter-site-failover pool-overrides local-dynamic ipv6-slaac-pool

Description

This command configures the IPv6 SLAAC pool name for local address assignment to be used if a session fails over on the site. This overrides any pool received during authentication.

The **no** form of this command removes the pool name. In this case, a failed over session keeps using the pool assigned during authentication.

Parameters

pool-name

Specifies the name of the pool, up to 32 characters.

4.2.2.102 up

Syntax

up [*ip-addr* | *fqdn*]

no up [*ip-addr* | *fqdn*]

Context

[Tree] configure mobile-gateway pdn bng up-group site up

Description

This command indicates this BNG-UP belongs to this site.

The no form of this command removes the BNG-UP from the site.

Parameters

ip-addr

Specifies the IP address of the BNG-UP.

Values:

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- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D

fqdn

Specifies the fully qualified domain name (FQDN) of the BNG-UP, up to 77 characters.

4.2.2.103 up

Syntax

[no] up *ip-addr* | *fqdn*

Context

[Tree] configure mobile-gateway pdn bng up-group up

Description

This command configures a UP that is part of the UP group.

Parameters

ip-addr

Specifies the IP address, which must match what is signaled in PFCP as a Node ID.

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D

fqdn

Specifies the fully qualified domain name, up to 255 characters, which must match what is signaled in PFCP as a Node ID.

4.2.2.104 anti-affinity-label

Syntax

anti-affinity-label *label*

no anti-affinity-label

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Context

[Tree] configure mobile-gateway pdn bng up-group up anti-affinity-label

Description

This command assigns an anti-affinity label to the BNG-UP. BNG-UPs with the same anti-affinity label do not share FSGs, and therefore, do not backup each other.

The **no** form of this command removes the configuration.

Parameters

label

Specifies the label name, up to 32 characters.

4.2.2.105 c-tag-range

Syntax

c-tag-range start *from* **end** *to*

no c-tag-range

Context

[Tree] configure mobile-gateway pdn bng up-group up c-tag-range

Description

This command configures the C-tag range that connects the BNG-UP with the shared aggregation. See "BNG-UP resiliency" in the *MAG-c Control Plane Function Guide* for more information about the use cases for defining a C-tag range.

WARNING: Using a C-tag range at the BNG-UP level is an advanced use case. Unless it is necessary for the deployed aggregation network, Nokia recommends using a C-tag-range only at the UP group level.

When a range at the UP group level is configured, the BNG-UP level must have the same size. If the UP group-level range includes the tag with value 0, configuring a range at the BNG-UP level is not allowed.

When no C-tag range is configured, the UP group-level configuration applies.

The **no** form of this command removes the configuration.

Default

no c-tag-range

Parameters

from

Specifies the starting C-tag.

Values: 1 to 4094

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to

Specifies the ending C-tag, greater than or equal to the starting C-tag.

Values: 1 to 4094

4.2.2.106 drain

Syntax

[**no**] **drain**

Context

[Tree] configure mobile-gateway pdn bng up-group up drain

Description

This command enables sessions to be drained from the BNG-UP. The MAG-c avoids selecting a BNG-UP in drain mode as the active BNG-UP for an FSG. When enabled, this command forces the internal BNG-UP health to -1 (unavailable). Changing the drain configuration acts as an FSG active/standby reselection trigger.

The **no** form of this command disables the drain mode and resets the BNG-UP health to the calculated aggregate value.

Note: Drain is a persistent state. The BNG-UP stays drained until the configuration is changed again. It is not a one-time command to force a switchover.

Default

no drain

4.2.2.107 l2-access-id

Syntax

l2-access-id *id*

no l2-access-id

Context

[Tree] configure mobile-gateway pdn bng up-group up l2-access-id

Description

This command configures the Layer 2 access ID that connects the BNG-UP with the shared aggregation.

This command to configure the Layer 2 access IDs at the BNG-UP group level and the following command to configure the Layer 2 access IDs at the UP group level are mutually exclusive.

```
configure mobile-gateway pdn bng up-group l2-access-id
```

When no Layer 2 access ID is configured, the UP group level configuration applies.

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The **no** form of this command removes the configuration.

Default

no l2-access-id

Parameters

id

Specifies the Layer 2 access ID, up to 64 characters, as provisioned on the BNG-UP and learned on the MAG-c through IBCP.

4.2.2.108 preferred

Syntax

[**no**] **preferred**

Context

[Tree] configure mobile-gateway pdn bng up-group up preferred

Description

This command configures the BNG-UP as the preferred active BNG-UP. If all BNG-UP healths are equal, the MAG-c prefers this BNG-UP above others when selecting an active BNG-UP. Only one BNG-UP per UP group can be preferred.

The **no** form of this command removes the configuration.

Default

no preferred

4.2.2.109 s-tag-range

Syntax

s-tag-range start *from* **end** *to*

no s-tag-range

Context

[Tree] configure mobile-gateway pdn bng up-group up s-tag-range

Description

This command configures the S-tag range that connects the BNG-UP with the shared aggregation. See "BNG-UP resiliency" in the *MAG-c Control Plane Function Guide* for more information about the use cases for defining an S-tag range.

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WARNING: Using an S-tag range at the BNG-UP level is an advanced use case. Unless it is necessary for the deployed aggregation network, Nokia recommends using an S-tag-range only at the UP group level.

When a range at the UP group level is configured, the range at the BNG-UP level must have the same size. If the range at the UP group level includes the tag with value 0, a range at the BNG-UP level is not allowed.

When no S-tag range is configured, the UP group level configuration applies.

The **no** form of this command removes the configuration.

Default

no s-tag-range

Parameters

from

Specifies the starting S-tag.

Values: 1 to 4094

to

Specifies the ending S-tag, greater than or equal to the starting S-tag.

Values: 1 to 4094

4.2.2.110 wpp

Syntax

wpp

Context

[Tree] configure mobile-gateway pdn bng wpp

Description

Commands in this context configure WPP parameters.

4.2.2.111 interface

Syntax

interface [**service** *service-id*] **name** *interface-name*

no interface [**service** *service-id*] **name** *interface-name*

Context

[Tree] configure mobile-gateway pdn bng wpp interface

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Description

This command configures an interface to send and receive WPP packets. Multiple interfaces can be configured.

The **no** form of this command removes the configuration.

Parameters

service-id

Specifies the service name or the service ID where the interface resides, up to 64 characters.

Values: 1 to 2148278386 | name

interface-name

Specifies the name of the IP interface, up to 32 characters.

4.2.2.112 call-procedure-retry

Syntax

call-procedure-retry retry-time *seconds* **retry-attempts** *value* [**retry-delay** *retry-delay-msec*]

no call-procedure-retry

Context

[Tree] configure mobile-gateway pdn call-procedure-retry

Description

This command configures the retry time and the retry attempts for a local retry. This configuration is used instead of a trigger from a peering node (for example, the PCF), on a call-flow failure while a handover or TAU is in progress. The call-procedure retry is supported for procedures initiated by the SMF/GW-C while the handover or TAU is in progress. The retry delay specifies the duration the SMF/GW-C must wait for the next retry attempt after the TAU/HO is completed.

The **no** form of this command reverts to the default settings.

Default

no call-procedure-retry

Parameters

seconds

Specifies the retry time in seconds.

Value: 1 to 20
Default: 1

value

Specifies the maximum retry attempts.

Values: 0 to 5
Default: 0

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retry-delay-msec

Specifies the retry delay in milliseconds.

Values: 0 to 1000
Default: 0

4.2.2.113 cdbx

Syntax

cdbx

Context

[Tree] configure mobile-gateway pdn cdbx

Description

Commands in this context configure cloud database profile parameters.

4.2.2.114 cloud-db-profile

Syntax

cloud-db-profile *profile-name*

no cloud-db-profile

Context

[Tree] configure mobile-gateway pdn cdbx cloud-db-profile

Description

This command associates a cloud database profile to use as an interface to an external database.

The **no** form of this command removes the association.

Parameters

profile-name

Specifies the profile name, up to 32 characters.

4.2.2.115 interface

Syntax

interface [**router** *router-instance*] *interface-name*

no interface

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Context

[Tree] configure mobile-gateway pdn cdbx interface

Description

This command configures a local interface to use for communication with an external database.

The **no** form of this command removes the local interface association.

Parameters

router-instance

Specifies the virtual router name or service ID.

Values: *router-name* | *service-id*

- *router-name* – Base
- *service-id* – 1 to 2147483647

Default: Base

interface-name

Specifies an interface name, up to 32 characters and must start with a letter.

4.2.2.116 mss

Syntax

mss *mss-value*

no mss

Context

[Tree] configure mobile-gateway pdn cdbx mss

Description

This command configures the MSS size of the packets that the SM-VM forwards to the DB-VM. Nokia recommends increasing the MSS size based on the capabilities of the MTU interface.

Note: If no MSS value is specified, the default MSS size (1460) is used (derived from the default MTU-40).

Parameters

mss-value

Specifies the MSS size.

Values: 1460 to 8960

Default: 1460 (disabled)

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4.2.2.117 dns-client

Syntax

dns-client

Context

[Tree] configure mobile-gateway pdn dns-client

Description

Commands in this context configure the MAG-c DNS client.

4.2.2.118 dns-interface

Syntax

no dns-interface

dns-interface *interface-name* [**router** *router-instance*]

Context

[Tree] configure mobile-gateway pdn dns-client dns-interface

Description

This command configures the source interface to use with the DNS profile for DNS lookup on the MAG-c.

The **no** form of this command removes the configuration

Note: If no interface is configured, no DNS queries are sent.

Default

no dns-interface

Parameters

interface-name

Specifies an interface name that must start with a letter, up to 32 characters .

router-instance

Specifies the virtual router name or service ID.

Values: *router-name* | *vprn-svc-id*

- *router-name* – Base | management
- *vprn-svc-id* – 1 to 2147483647

Default: Base

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4.2.2.119 dns-profile

Syntax

no dns-profile

dns-profile *profile-name*

Context

[Tree] configure mobile-gateway pdn dns-client dns-profile

Description

This command configures a DNS profile used for all DNS lookups related to MAG-c session management functionality.

The **no** form of this command removes the DNS-profile.

Note: The DNS profile contains the DNS servers to send messages toward, so if no DNS Profile is configured, no DNS lookups are sent.

Default

no dns-profile

Parameters

profile-name

Specifies the name of the DNS profile, up to 32 characters. Profiles are configured using the **configure mobile-gateway profile dns-profile** command.

4.2.2.120 epc-node

Syntax

epc-node *name*

no epc-node

Context

[Tree] configure mobile-gateway pdn epc-node

Description

This command configures the EPC node name.

The **no** form of this command removes the name from the configuration.

Note: This command requires a PDN shutdown.

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Parameters

name

Specifies the EPC node name, up to 31 characters.

Syntax: <MCC>.<MNC>.<SGW|PGW|ePDG|TWAG>.<Region String>.<Group Id>.<Node Id>

4.2.2.121 failure-handling-alarm-threshold

Syntax

failure-handling-alarm-threshold upper *upper percentage* **lower** *lower percentage*

no **failure-handling-alarm-threshold**

Context

[Tree] configure mobile-gateway pdn failure-handling-alarm-threshold

Description

This command configures the thresholds for changing the failure handling alarm status:

- The alarm changes from unset to set when the percentage of sessions in failure handling exceeds the upper threshold.
- The alarm changes from set to unset when the percentage of sessions in failure handling drops below the lower threshold.

When an alarm changes state, the MAG-c generates a log event.

Each NF type (for example, CHF) has its own alarm, but the threshold configuration is shared over all NF types.

The **no** form of this command reverts to the default.

Default

failure-handling-alarm-threshold upper 10 lower 5

Parameters

upper percentage

Specifies the threshold percentage of sessions in failure handling, relative to the total number of sessions, that is used to set the alarm.

Values: 2 to 99

lower percentage

Specifies the threshold percentage of sessions in failure handling, relative to the total number of sessions, that is used to clear the alarm.

Values: 1 to 99

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4.2.2.122 home-plmn-list

Syntax

home-plmn-list *list-name*

no home-plmn-list

Context

[Tree] configure mobile-gateway pdn home-plmn-list

Description

This command configures the home Public Land Mobile Network (PLMN) list that the SMF covers and registers to the NRF.

Note: This command requires a PDN shutdown.

Parameters

list-name

Specifies the name of the referenced PLMN list, up to 32 characters; the PLMN list names are configured using the **configure mobile-gateway profile list plmn** command.

4.2.2.123 instance-type

Syntax

instance-type *instance-type-value*

no instance-type

Context

[Tree] configure mobile-gateway pdn instance-type

Description

This command must always be set to control.

Note:

- This command must be configured before configuring any reference point interfaces.
- This command requires a PDN shutdown.

Parameters

instance-type-value

Specifies the role of the PDN.

Values:

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- control – Enables MAG-c as control plane.
- user – Not supported for MAG-c.

4.2.2.124 kpi-kci

Syntax

kpi-kci

Context

[Tree] configure mobile-gateway pdn kpi-kci

Description

Commands in this context configure KPI-KCI statistics collection options.

4.2.2.125 accounting-policy

Syntax

[**no**] **accounting-policy** *acct-policy-id*

Context

[Tree] configure mobile-gateway pdn kpi-kci accounting-policy

Description

This command associates an accounting policy for the collection of KPI and KCI statistics.

The **no** form of this command removes the reference to the accounting policy.

Parameters

acct-policy-id

Specifies an accounting-policy ID configured in the **configure log accounting-policy** context.

Values: 1 to 99

4.2.2.126 collect-stats

Syntax

[**no**]**collect-stats**

Context

[Tree] configure mobile-gateway pdn kpi-kci accounting-policy collect-stats

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Description

This command enables KPI and KCI data collection.

The **no** form of this command disables KPI and KCI statistics collection.

Default

no collect-stats

4.2.2.127 load-control

Syntax

load-control

Context

[Tree] configure mobile-gateway pdn load-control

Description

Commands in this context configure MAG-c load-control settings.

4.2.2.128 enable-gtp-load-control

Syntax

[**no**] **enable-gtp-load-control**

Context

[Tree] configure mobile-gateway pdn load-control enable-gtp-load-control

Description

This command enables the MAG-c load-control functionality.

The **no** form of this command disables the load control functionality.

Note: This command enables the load-control functionality using the default configurations. Use the commands in the **load-control** context to change the default configurations, as required.

Default

no enable-gtp-load-control

4.2.2.129 enable-sbi-load-reporting

Syntax

[**no**] **enable-sbi-load-reporting**

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Context

[Tree] configure mobile-gateway pdn load-control enable-sbi-load-reporting

Description

This command enables service based interface (SBI) load reporting to the network resource function (NRF).

The **no** form of this command disables SBI load reporting to the NRF.

Default

no enable-sbi-load-reporting

4.2.2.130 load-change-trigger

Syntax

load-change-trigger *percent*

no load-change-trigger

Context

[Tree] configure mobile-gateway pdn load-control load-change-trigger

Description

This command configures the value of the load change that triggers a load-control update.

The **no** form of this command reverts to the default.

Note: Enabling the **enable-gtp-load-control** command or the **enable-sbi-load-reporting** command automatically enables the **load-change-trigger** command in the default mode.

Default

load-change-trigger 5

Parameters

percent

Specifies the value of the load change, as a percentage of the load.

Values: [5 | 10 | 15 | 20]

4.2.2.131 nth-message

Syntax

nth-message *number*

no nth-message

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Context

[Tree] configure mobile-gateway pdn load-control nth-message

Description

This command configures the message interval for sending load-control information.

The **no** form of the command reverts to the default.

Note: Enabling the **enable-gtp-load-control** command automatically enables this command in the default mode.

Default

nth-message 50

Parameters

number

Specifies the interval used to include load-control information.

Values: 1 to 1000

4.2.2.132 local-address-assignment

Syntax

local-address-assignment

Context

[Tree] configure mobile-gateway pdn local-address-assignment

Description

Commands in this context configure local address assignment parameters.

Default

local-address-assignment

4.2.2.133 network-realm

Syntax

[**no**] **network-realm** *realm-name*

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm

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Description

This command specifies the network-realm with which address pools used for local address assignment are associated.

Parameters

realm-name

Specifies the name of the associated network realm, up to 80 characters.

Note: Only the following characters are permitted:

- alphabetic characters (A-Z and a-z)
- digits (0-9)
- hyphen (-)
- dot (.)

4.2.2.134 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm description

Description

This command associates a text string with a configuration context to help identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.2.135 pool

Syntax

pool *name* [**tracking** *application*]

no pool *name*

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Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool

Description

This command configures an address pool associated with the network-realm.

Parameters

name

Specifies the pool name, up to 32 characters.

application

Specifies the creation of a local ODSA tracking pool for DHCP relay. Only the following fixed value is allowed.

Values: dhcp-relay

4.2.2.136 dedicated

Syntax

[**no**] **dedicated**

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool dedicated

Description

This command configures the pool as dedicated. In other words, no micro-nets are carved out from the pool prefix but addresses are directly assigned from the pool.

The **no** form of this command disables the dedicated mode and allows micro-nets over multiple user plane devices.

4.2.2.137 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool description

Description

This command enables a text description stored in the configuration file for a configuration context.

The **description** command associates a text string with a configuration context to help identify the content in the configuration file.

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The **no** form of this command removes the string from the configuration.

Parameters

description-string

The description character string; allowed values are any string up to 80 characters long composed of printable, 7-bit ASCII characters; if the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.2.138 hold-time

Syntax

hold-time [**min** *minutes*] [**sec** *seconds*]

no hold-time

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool hold-time

Description

This command configures the time for which a lease is held for the subscriber session after it has been released, that is, the address is not re-assigned for this duration.

Default

hold-time min 1

Parameters

minutes

Specifies the minutes part of the hold time.

Values: 0 to 5

seconds

Specifies the seconds part of the hold time.

Values: 0 to 59

4.2.2.139 ipv4

Syntax

ipv4

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv4

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Description

Commands in this context configure IPv4 parameters for the address pool.

Default

ipv4

4.2.2.140 default-gateway

Syntax

default-gateway *choice*

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv4 default-gateway

Description

This command configures the option to use the first or last address of the micro-net used for address allocation as the default-gateway IPv4 address for the client.

Default

default-gateway last-address

Parameters

choice

Specifies the default gateway choice.

Values: first-address | last-address

4.2.2.141 dns

Syntax

dns

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv4 dns

Description

Commands in this context configure the IPv4 DNS server addresses associated with the pool.

Default

dns

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4.2.2.142 primary-dns

Syntax

primary-dns *ip-address*

no primary-dns

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv4 dns primary-dns

Description

This command specifies the primary DNS server IP address associated with the pool.

Default

no primary-dns

Parameters

ip-address

Specifies the address of the primary DNS for the IPv4 network-realm pool.

Values: a.b.c.d

4.2.2.143 secondary-dns

Syntax

secondary-dns *ip-address*

no secondary-dns

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv4 dns secondary-dns

Description

This command specifies the secondary DNS server IP address associated with the pool.

Default

no secondary-dns

Parameters

ip-address

Specifies the address of the secondary DNS for the IPv4 network-realm pool.

Values: a.b.c.d

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4.2.2.144 micro-net-length

Syntax

micro-net-length *length*

no micro-net-length

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv4 micro-net-length

Description

This command specifies the length of IPv4 micro-nets that are used from the pool and assigned on-demand to a specific context (for example, UP) to allocate addresses to subscriber sessions associated with that context.

Default

no micro-net-length

Parameters

length

Specifies the micro-net length.

Values: 9 to 28

4.2.2.145 prefix

Syntax

[**no**] **prefix** *ip-prefix/length*

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv4 prefix

Description

This command configures the IPv4 prefix from which micro-nets are allocated if the dedicated mode is disabled. Addresses are subsequently allocated from individual micro-nets, or directly from the prefix if dedicated mode is disabled.

Parameters

ip-prefix

Specifies the IP address prefix.

Values: a.b.c.d, host bits must be 0

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length

Specifies the IP address length.

Values: 9 to 28

4.2.2.146 drain

Syntax

[**no**] **drain**

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv4 prefix drain

Description

This command enables the mode where no new micro-nets are allocated from the prefix and existing leases in the associated micro-nets are cleaned up on renew or rebind.

4.2.2.147 exclude-addresses

Syntax

[**no**] **exclude-addresses start** *ip-address* **end** *ip-address*

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv4 prefix exclude-addresses

Description

This command specifies a range of IP addresses that are excluded from allocation to subscriber sessions.

Parameters

ip-address

Specifies the start of the IP addresses to exclude.

Values: a.b.c.d

end *ip-address*

Specifies the end of the IP addresses to exclude.

Values: a.b.c.d

4.2.2.148 subnet-allocation

Syntax

[**no**] **subnet-allocation**

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Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv4 subnet-allocation

Description

This command enables the allocation of subnets instead of single /32 addresses.

Note: Only supported address allocation protocols, such as PPP IPCP, can use the subnets.

The **no** form of this command disables the subnet allocation, that is, only single /32 addresses are allocated from the pool.

Default

no subnet-allocation

4.2.2.149 length

Syntax

length *bits*

no length

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv4 subnet-allocation length

Description

This command configures the subnet length.

If a variable subnet allocation is configured (see the **variable** command in the same context) and no per-session length is provisioned, this command configures the default subnet length. The length must be within the limits configured by the **variable** command.

If variable subnet allocation is disabled, this command configures the only supported subnet length. Any per-session length provisioning must match this value.

The **no** form of this command disables the subnet allocation, irrespective of the values for the variable subnet allocation.

Note: The following configurations result in allocating single /32 addresses from the pool:

- **no subnet-allocation**
- **subnet-allocation no length**
- **subnet-allocation length 32** together with **subnet-allocation no variable**

Default

no length

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Parameters

bits

Specifies the length of the subnet to be allocated.

Values: 16 to 32

4.2.2.150 variable

Syntax

variable minimum *bits* **maximum** *bits*

[**no**] **variable**

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv4 subnet-allocation variable

Description

This command configures the minimum and the maximum length of the subnet to be allocated. The session setup fails if a per-session length is outside these limits.

The **length** command must be configured within these limits. It defines the default length if no per-session length is provisioned.

The **no** form of this command disables the variable subnet allocation.

Default

no variable

Parameters

bits

Specifies the minimum length of the subnet to be allocated.

Values: 16 to 31

maximum *bits*

Specifies the maximum length of the subnet to be allocated.

Values: 17 to 32

4.2.2.151 ipv6

Syntax

ipv6

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv6

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Description

Commands in this context configure IPv6 address pools.

4.2.2.152 dns

Syntax

dns

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv6 dns

Description

Commands in this context configure the IPv6 DNS server addresses associated with the pool.

4.2.2.153 primary-dns

Syntax

primary-dns *ipv6-address*

no primary-dns

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv6 dns primary-dns

Description

This command specifies the IP address of the primary IPv6 DNS server associated with the pool.

Default

no primary-dns

Parameters

ipv6-address

A unicast IPv6 address, up to 64 characters.

4.2.2.154 secondary-dns

Syntax

secondary-dns *ipv6-address*

no secondary-dns

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Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv6 dns secondary-dns

Description

This command specifies the IP address of the secondary IPv6 DNS server associated with the pool.

Default

no secondary-dns

Parameters

ipv6-address

A unicast IPv6 address, up to 64 characters.

4.2.2.155 na

Syntax

na

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv6 na

Description

Commands in this context configure NA parameters for the address pool.

4.2.2.156 micro-net-length

Syntax

micro-net-length *length*

no micro-net-length

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv6 na micro-net-length

Description

This command specifies the length of IPv6 NA micro-nets that are used from the pool and assigned on-demand to a specific context (for example, UP) to allocate addresses to subscriber sessions associated with that context.

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Parameters

length

Specifies the micro-net length.

Values: 105 to 124

4.2.2.157 prefix

Syntax

[**no**] **prefix** *ip-address/prefix-length*

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv6 na prefix

Description

This command configures the IPv6 prefix for the micro-nets if the dedicated mode is disabled. NA addresses are subsequently allocated from the individual micro-nets, or directly from the prefix if the dedicated mode is disabled.

Parameters

ip-address

Specifies the IPv6 address, up to 64 characters.

prefix-length

Specifies the IP address length.

Values: 105 to 124

4.2.2.158 drain

Syntax

[**no**] **drain**

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv6 na prefix drain

Description

This command enables the mode that does not allow to allocate new micro-nets or NA addresses from the prefix. Existing allocations are not automatically removed, only when the session is removed.

Default

no drain

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4.2.2.159 exclude-addresses

Syntax

[**no**] **exclude-addresses start** *ipv6-address* **end** *ipv6-address*

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv6 na prefix exclude-addresses

Description

This command specifies a range of IPv6 addresses that are excluded from allocation to subscriber sessions.

Parameters

ipv6-address

Specifies the start of the IPv6 addresses to exclude, up to 64 characters.

end *ipv6-address*

Specifies the end of the IPv6 addresses to exclude, up to 64 characters.

4.2.2.160 pd

Syntax

pd

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv6 pd

Description

Commands in this context configure IPv6 PD parameters for the address pool.

4.2.2.161 delegated-prefix

Syntax

delegated-prefix

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv6 pd delegated-prefix

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Description

Commands in this context configure IPv6 PD DPL parameters for the address pool.

4.2.2.162 length

Syntax

length *bits*

no length

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv6 pd delegated-prefix length

Description

This command specifies the fixed length for the delegated prefixes allocated from the pool.

Default

length 56

Parameters

bits

Specifies the DPL.

Values: 48 to 64

4.2.2.163 variable

Syntax

variable minimum *bits* **maximum** *bits*

no variable

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv6 pd delegated-prefix variable

Description

This command enables a variable delegated prefix and specifies the minimum and maximum length for the delegated prefixes allocated from the pool.

Default

no variable

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Parameters

bits

Specifies the minimum or maximum DPL.

Values: 48 to 64

4.2.2.164 micro-net

Syntax

micro-net length *length*

micro-net variable minimum *min* **maximum** *max*

no micro-net

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv6 pd micro-net

Description

This command specifies the length of IPv6 PD micro-nets that are used from the pool and assigned on-demand to a specific context (for example, UP) to allocate addresses to subscriber sessions associated with that context. The micro-net length can be fixed or variable. A variable micro-net length is only possible when a variable delegated prefix length is used. In this case, the micro-net length automatically adapts to the delegated prefix length.

Default

no micro-net

Parameters

length

Specifies the fixed micro-net length.

Values: 37 to 60

min

Specifies the minimum micro-net length.

Values: 37 to 60

max

Specifies the maximum micro-net length.

Values: 37 to 60

4.2.2.165 prefix

Syntax

[**no**] **prefix** *ip-address*/*prefix-length*

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Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv6 pd prefix

Description

This command configures the IPv6 prefix for the micro-nets if the dedicated mode is disabled. PD prefixes are subsequently allocated from the individual micro-nets, or directly from the prefix if the dedicated mode is disabled.

Parameters

ip-address

Specifies the IPv6 address, up to 64 characters.

prefix-length

Specifies the prefix length.

Values: 37 to 60

4.2.2.166 drain

Syntax

[**no**] **drain**

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv6 pd prefix drain

Description

This command enables the mode that does not allow to allocate new micro-nets or PD addresses from the prefix. Existing allocations are not automatically removed, only when the session is removed.

Default

no drain

4.2.2.167 exclude-prefixes

Syntax

[**no**] **exclude-prefixes start** *ip-address/prefix-length* **end** *ip-address/prefix-length*

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv6 pd prefix exclude-prefixes

Description

This command specifies a range of IPv6 prefixes that are excluded from allocation to subscriber sessions.

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Parameters

ip-address/prefix-length

Specifies the start of the IPv6 prefixes to exclude; the host bits of *ip-address* must be zero; *prefix-length* must equal the DPL (see the **length** command).

end *ip-address/prefix-length*

Specifies the end of the IPv6 prefixes to exclude; the host bits of *ip-address* must be zero; *prefix-length* must equal the DPL (see the **length** command).

4.2.2.168 slaac

Syntax

slaac

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv6 slaac

Description

Commands in this context configure IPv6 SLAAC parameters for the address pool.

4.2.2.169 micro-net-length

Syntax

micro-net-length *length*

no micro-net-length

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv6 slaac micro-net-length

Description

This command specifies the length of IPv6 SLAAC micro-nets that are used from the pool and assigned on-demand to a specific context (for example, UP) to allocate addresses to subscriber sessions associated with that context.

Parameters

length

Specifies the micro-net length.

Values: 41 to 60

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4.2.2.170 prefix

Syntax

[**no**] **prefix** *ip-address/prefix-length*

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv6 slaac prefix

Description

This command configures the IPv6 prefix for the micro-nets if the dedicated mode is disabled. SLAAC prefixes are subsequently allocated from the individual micro-nets, or directly from the prefix if the dedicated mode is disabled.

Parameters

ip-address

Specifies the IPv6 address, up to 64 characters.

prefix-length

Specifies the prefix length.

Values: 41 to 60

4.2.2.171 drain

Syntax

[**no**] **drain**

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv6 slaac prefix drain

Description

This command enables the mode that does not allow to allocate new micro-nets or SLAAC addresses from the prefix. Existing allocations are not automatically removed, only when the session is removed.

4.2.2.172 exclude-prefixes

Syntax

[**no**] **exclude-prefixes start** *ip-address/prefix-length* **end** *ip-address/prefix-length*

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Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv6 slaac prefix exclude-prefixes

Description

This command specifies a range of IPv6 prefixes that are excluded from allocation to subscriber sessions.

Parameters

ip-address/prefix-length

Specifies the start of the IPv6 prefixes to exclude; the host bits of *ip-address* must be zero; *prefix-length* must equal to 64.

end *ip-address/prefix-length*

Specifies the end of the IPv6 prefixes to exclude; the host bits of *ip-address* must be zero; *prefix-length* must equal to 64.

4.2.2.173 minimum-free

Syntax

minimum-free *number* [**rising-threshold** *value*] [**percent**]

no minimum-free

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool minimum-free

Description

This command configures a threshold for free micro-nets within the prefix. An event is generated when the number of free micro-nets in the pool becomes smaller than the **minimum-free** threshold or exceeds the sum of the **minimum-free** threshold and the **rising-threshold** value.

The **no** form of this command removes the configuration.

Default

minimum-free 1 rising-threshold 2

Parameters

number

Specifies the minimum number of free micro-nets.

Values: 1 to 255

value

Specifies the value for the rising threshold.

Values: 1 to 50

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percent

Keyword to specify the *number* and *value* parameters in percent.

4.2.2.174 multiple-sessions-per-apn-per-ue

Syntax

[**no**] **multiple-sessions-per-apn-per-ue**

Context

[Tree] configure mobile-gateway pdn multiple-sessions-per-apn-per-ue

Description

This command enables the MAG-c to create multiple PDN sessions per APN for the same IMSI, and multiple PDU sessions per DNN for the same SUPI.

The **no** form of this command disables the creation of multiple PDN or PDU sessions per APN or DNN for the same IMSI or SUPI.

Default

no multiple-sessions-per-apn-per-ue

4.2.2.175 nf-profile-attributes

Syntax

nf-profile-attributes

Context

[Tree] configure mobile-gateway pdn nf-profile-attributes

Description

Commands in this context configure attributes that define properties of the MAG-c as a 5G core Network Function.

4.2.2.176 capacity

Syntax

capacity {**factor** | **total**} *capacity-value*

no capacity

Context

[Tree] configure mobile-gateway pdn nf-profile-attributes capacity

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Description

This command configures the capacity value that is used in the NF profile during NF registration and in the NF update to the NRF. When the keyword **factor** is specified, the signaled capacity is multiplied by the number of configured SM-VMs.

The **no** form of this command removes the configuration, and the capacity value is not populated during NF registration and update procedures.

Default

no capacity

Parameters

factor

Keyword to specify that the capacity value is the capacity of a single SM-VM, which is calculated by multiplying the specified value with the number of active SM-VMs.

total

Keyword to specify that the capacity value is the total capacity of the NF instance.

capacity-value

Specifies the capacity value.

Values: 0 to 65535

4.2.2.177 exclude-ip-endpoints

Syntax

exclude-ip-endpoints

no exclude-ip-endpoints

Context

[Tree] configure mobile-gateway pdn nf-profile-attributes exclude-ip-endpoints

Description

This command excludes the local IP address when registering the MAG-c with the NRF. This typically results in peer functions discovering the MAG-c with DNS. Therefore, it is required to either configure an **fqdn** in this profile or in the following context.

```
configure mobile-gateway pdn sba-server-services
```

The **no** form of this command indicates that the local IP addresses is registered with the NRF.

Default

no exclude-ip-endpoints

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4.2.2.178 fqdn

Syntax

fqdn *fqdn*

no fqdn

Context

[Tree] configure mobile-gateway pdn nf-profile-attributes fqdn

Description

This command configures the FQDN of the MAG-c that is used in the NF profile during NF registration and in the NF update to the NRF.

The **no** form of this command removes the configuration, and the FQDN attribute is not populated during NF registration and update procedures.

Default

no fqdn

Parameters

fqdn

Specifies the FQDN string, up to 255 characters.

4.2.2.179 locality

Syntax

locality *string*

no locality

Context

[Tree] configure mobile-gateway pdn nf-profile-attributes locality

Description

This command configures the locality that the SMF registers to the NRF. The locality can be a geographical description, data-center location, and so on.

The **no** form of this command removes the configuration, and the locality attribute is not populated during NF registration and update procedures.

Default

no locality

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Parameters

locality

Specifies the arbitrarily-defined location string, such as the data center location or geographic location, up to 64 characters.

4.2.2.180 nf-instance-id

Syntax

nf-instance-id *uuid*

no nf-instance-id

Context

[Tree] configure mobile-gateway pdn nf-profile-attributes nf-instance-id

Description

This command registers the UUID to the NRF in the NFProfile as the NFInstanceId. The UUID cannot be changed for an active registration.

The **no** form of this command specifies that an auto-generated value is used.

Default

no nf-instance-id

Parameters

uuid

Specifies the NFInstanceId in UUIDv4 canonical textual representation.

Values: xxxxxxxx-xxxx-4xxx-xxxx-xxxxxxxxxxxx

x: [0..F]H

4.2.2.181 pgw-fqdn

Syntax

pgw-fqdn *fqdn*

no pgw-fqdn

Context

[Tree] configure mobile-gateway pdn nf-profile-attributes pgw-fqdn

Description

This command configures the PGW FQDN for the MAG-c that is used in the NF profile during NF registration and in the NF update to the NRF. This allows discovery of the MAG-c for sessions that require 4G interworking support.

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The **no** form of this command removes the configuration.

Default

no fqdn

Parameters

fqdn

Specifies the FQDN, up to 255 characters.

4.2.2.182 priority

Syntax

priority *priority-value*

no priority

Context

[Tree] configure mobile-gateway pdn nf-profile-attributes priority

Description

This command configures the priority value that is used in the NF profile during NF registration and in the NF update to the NRF.

The **no** form of this command removes the configuration, and the priority attribute is not populated during NF registration and update procedures.

Default

no priority

Parameters

priority-value

Specifies the priority as an integer, where a lower value means higher priority.

Values: 0 to 65535

4.2.2.183 tai-list

Syntax

tai-list *list-name*

no tai-list

Context

[Tree] configure mobile-gateway pdn nf-profile-attributes tai-list

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Description

This command configures the TAI list or TAI range list that the SMF covers and registers to the NRF.

The **no** form of this command removes the configuration, and the TAI range list is not signaled during NF registration and update procedures, indicating that all TAIs are supported.

Default

no tai-list

Parameters

list-name

Specifies the name of the referenced TAI list, up to 32 characters. The TAI list names are configured using the following command.

```
configure mobile-gateway profile list tai-list
```

4.2.2.184 overload-control

Syntax

overload-control

Context

[Tree] configure mobile-gateway pdn overload-control

Description

Commands in this context configure the overload settings used in overload conditions.

4.2.2.185 enable-gtp-overload-control

Syntax

[**no**] **enable-gtp-overload-control**

Context

[Tree] configure mobile-gateway pdn overload-control enable-gtp-overload-control

Description

This command enables the MAG-c overload control functionality.

The **no** form of this command disables the overload control functionality.

Note: This command enables the overload-control functionality using the default configurations. Use the commands in the **overload-control** context to change the default configurations, as required.

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Default

no enable-gtp-overload-control

4.2.2.186 enable-sbi-overload-control

Syntax

[**no**] **enable-sbi-overload-control**

Context

[Tree] configure mobile-gateway pdn overload-control enable-sbi-overload-control

Description

This command configures the handling of the node-level overload control toward the AMF. When the node-level overload threshold (configured by the **sbi-overload-threshold** command) is reached, an SNMP alarm is triggered, and any subsequent (non-emergency) Nsmf_PDUSession_CreateSMContext messages with a PDU Session Establishment Create Request are rejected. An HTTP 503 response is sent with the error attribute and ProblemDetails set to NF_CONGESTION and, if configured, the Retry-After HTTP header field set (in seconds).

The **no** form of this command disables the handling of the Network Slicing Management Function (NSMF) NF overload control toward the AMF.

Default

no enable-sbi-overload-control

4.2.2.187 local-throttling

Syntax

local-throttling

Context

[Tree] configure mobile-gateway pdn overload-control local-throttling

Description

Commands in this context configure local throttling during overload.

4.2.2.188 critical

Syntax

critical

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Context

[Tree] configure mobile-gateway pdn overload-control local-throttling critical

Description

Commands in this context configure the critical overload level for local throttling.

4.2.2.189 throttling-percent

Syntax

throttling-percent *percent-value*

no throttling-percent

Context

[Tree] configure mobile-gateway pdn overload-control local-throttling critical throttling-percent

Description

This command configures the percentage of traffic that is throttled (rejected) because of the call flows that add further load on the gateway, when the gateway is in critical overload. For example, if the gateway is in critical overload and the critical throttling percent is set to 90%, the gateway rejects nine out of ten call flows.

The **no** form of this command removes the configuration.

Note: Enabling the **enable-gtp-overload-control** command automatically enables this command in the default mode.

Default

throttling-percent 90

Parameters

percent-value

Specifies the percentage of traffic that should be throttled when the gateway is in the configured overload level.

Values: 0 to 100

4.2.2.190 local-overload-throttling

Syntax

local-overload-throttling {**enable** | **disable**}

no local-overload-throttling

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Context

[Tree] configure mobile-gateway pdn overload-control local-throttling local-overload-throttling

Description

This command configures the throttling (rejection) of call flows that add extra load on the gateway, when the gateway is in an overload state. When enabled, the gateway throttles (rejects) more signaling loads based on the configured percentage of the minor, major, and critical reduction values.

The **no** form of this command disables local overload throttling.

Note:

- To enable this command, you must enable the MAG-c overload control using the **enable-gtp-overload-control** command.
- This command enables the local-throttling functionality using the default configuration. Use the commands in the **local-throttling** context to change the default configuration, as required.

Default

no local-overload-throttling

Parameters

enable

Keyword to enable local overload throttling.

disable

Keyword to disable local overload throttling.

Default: **enable**

4.2.2.191 major

Syntax

major

Context

[Tree] configure mobile-gateway pdn overload-control local-throttling major

Description

Commands in this context configure the settings for the major overload state.

4.2.2.192 throttling-percent

Syntax

throttling-percent *percent-value*

no throttling-percent

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Context

[Tree] configure mobile-gateway pdn overload-control local-throttling major throttling-percent

Description

This command configures the percentage of traffic that is throttled (rejected) because of the call flows that add further load on the gateway, when the gateway is in major overload. For example, if the gateway is in major overload and the throttling value is set to 60%, the gateway rejects six out of ten call flows.

The **no** form of this command removes the configuration.

Note: Enabling the **local-overload-throttling** command automatically enables this command in the default mode.

Default

throttling-percent 60

Parameters

percent-value

Specifies the percentage of traffic that is throttled when the gateway is in the configured overload level.

Values: 0 to 100

4.2.2.193 minor

Syntax

minor

Context

[Tree] configure mobile-gateway pdn overload-control local-throttling minor

Description

Commands in this context configure the settings for the minor overload state.

4.2.2.194 throttling-percent

Syntax

throttling-percent *percent-value*

no throttling-percent

Context

[Tree] configure mobile-gateway pdn overload-control local-throttling minor throttling-percent

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Description

This command configures the percentage of traffic that is throttled (rejected) because of the call flows that add further load on the gateway, when the gateway is in minor overload. For example, if the gateway is in minor overload and the throttling value is set to 30%, the gateway rejects three out of ten call flows.

The **no** form of this command reverts to the default.

Note: Enabling the **local-overload-throttling** command automatically enables this command in the default mode.

Default

throttling-percent 0

Parameters

percent-value

Specifies the percentage of traffic that should be throttled when the gateway is in the configured overload level.

Values: 0 to 100

4.2.2.195 throttling-alarms

Syntax

throttling-alarms {**enable** | **disable**}

no throttling-alarms

Context

[Tree] configure mobile-gateway pdn overload-control local-throttling throttling-alarms

Description

This command configures the throttling alarms that the system raises when the first message is throttled (rejected) because of the call flows that add extra load on the gateway when the gateway is in an overload state. The alarms are cleared 30 seconds after the throttling (rejection) of the last message.

The **no** form of this command reverts to the default.

Default

throttling-alarms disable

Parameters

enable

Keyword to enable throttling alarms.

disable

Keyword to disable throttling alarms.

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4.2.2.196 overload-reduction

Syntax

overload-reduction

Context

[Tree] configure mobile-gateway pdn overload-control overload-reduction

Description

Commands in this context configure overload reduction.

Note: Enabling the **enable-gtp-overload-control** command automatically enables this command in the default mode.

4.2.2.197 critical

Syntax

critical *reduction-value*

no critical

Context

[Tree] configure mobile-gateway pdn overload-control overload-reduction critical

Description

This command configures the percentage of traffic reduction requested for a critical overload.

The **no** form of this command reverts to the default.

Note: Enabling the **enable-gtp-overload-control** command automatically enables this command in the default mode.

Default

critical 90

Parameters

reduction-value

Specifies the traffic reduction percentage for critical overload.

Values: 20 to 100

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4.2.2.198 major

Syntax

major *reduction value*

no major

Context

[Tree] configure mobile-gateway pdn overload-control overload-reduction major

Description

This command configures the percentage of traffic reduction requested for a major overload.

The **no** form of this command reverts to the default.

Note: Enabling the **enable-gtp-overload-control** command automatically enables this command in the default mode.

Default

major 60

Parameters

reduction-value

Specifies the traffic reduction percentage for major overload.

Values: 20 to 100

4.2.2.199 minor

Syntax

minor *reduction value*

no minor

Context

[Tree] configure mobile-gateway pdn overload-control overload-reduction minor

Description

This command configures the percentage of traffic reduction requested for a minor overload.

The **no** form of this command reverts to the default.

Note: Enabling the **enable-gtp-overload-control** command automatically enables this command in the default mode.

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Default

minor 30

Parameters

reduction-value

Specifies the traffic reduction percentage for minor overload.

Values: 20 to 100

4.2.2.200 sbi-overload-threshold

Syntax

sbi-overload-threshold *percent*

no sbi-overload-threshold

Context

[Tree] configure mobile-gateway pdn overload-control sbi-overload-threshold

Description

This command configures the overload threshold that triggers an NSMF overload.

The **no** form of this command reverts to the default.

Default

sbi-overload-threshold 92

Parameters

percent

Specifies the overload threshold as a percent.

Values: 50 to 97

4.2.2.201 sbi-retry-after-timer

Syntax

sbi-retry-after-timer *seconds*

no sbi-retry-after-timer

Context

[Tree] configure mobile-gateway pdn overload-control sbi-retry-after-timer

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Description

This command configures the Retry-After field in the HTTP header of the 503 error response when the node-level overload threshold is reached.

The **no** form of this command reverts to the default (disabled).

Default

sbi-retry-after-timer 0

Parameters

seconds

Specifies the retry timer in seconds.

Values: 2 to 36000

4.2.2.202 thresholds

Syntax

thresholds

Context

[Tree] configure mobile-gateway pdn overload-control thresholds

Description

Commands in this context configure the critical, major, and minor overload thresholds.

4.2.2.203 critical

Syntax

critical *threshold-value*

no critical

Context

[Tree] configure mobile-gateway pdn overload-control thresholds critical

Description

This command configures the threshold for the critical overload level. For example, when the critical threshold is configured with the value 97, the gateway reaches the critical overload level when its performance is between the configured major threshold and 97.

The **no** form of this command reverts to the default.

Note: Enabling the **enable-gtp-overload-control** command automatically enables this command in the default mode.

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Default

critical 97

Parameters

threshold-value

Specifies the threshold for a critical overload.

Values: 50 to 97

4.2.2.204 major

Syntax

major *threshold-value*

no major

Context

[Tree] configure mobile-gateway pdn overload-control thresholds major

Description

This command configures the threshold for the major overload level. For example, when the major threshold is configured with value 92, the gateway reaches the overload level when its performance is between the configured minor threshold value and 92.

The **no** form of this command reverts to the default.

Note: Enabling the **enable-gtp-overload-control** command automatically enables this command in the default mode.

Default

major 92

Parameters

threshold-value

Specifies the threshold for a critical overload.

Values: 50 to 97

4.2.2.205 minor

Syntax

minor *threshold-value*

no minor

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Context

[Tree] configure mobile-gateway pdn overload-control thresholds minor

Description

This command configures the threshold for the minor overload level. For example, when the minor threshold is configured with value 89, the gateway reaches the minor overload level when its performance is between 89 and the configured major threshold.

The **no** form of this command reverts to the default.

Note: Enabling the **enable-gtp-overload-control** command automatically enables this command in the default mode.

Default

minor 89

Parameters

threshold-value

Specifies the threshold for a minor overload.

Values: 50 to 97

4.2.2.206 validity-time

Syntax

validity-time value

no validity-time

Context

[Tree] configure mobile-gateway pdn overload-control validity-time

Description

This command configures the length of time for the reported overload to be in effect.

The **no** form of this command reverts to the default.

Note: Enabling the **enable-gtp-overload-control** command automatically enables this command in the default mode.

Default

validity-time 600

Parameters

value

Specifies the length of time, in seconds, for the overload to be in effect.

Values: 10 to 86400

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4.2.2.207 pcmd

Syntax

pcmd profile *profile-name*

no pcmd

Context

[Tree] configure mobile-gateway pdn pcmd

Description

This command configures a PCMD profile for the PDN. This enables the PDN to generate and stream PCMD records.

The **no** form of this command clears the PCMD configuration and disables generation and streaming of PCMD records.

Default

no pcmd

Parameters

profile-name

Specifies the PCMD profile name, up to 32 characters, that is configured in the following context.

```
configure mobile-gateway profile pcmd
```

4.2.2.208 pfcp-load-control

Syntax

pfcp-load-control

Context

[Tree] configure mobile-gateway pdn pfcp-load-control

Description

Commands in this context configure PFCP load control.

4.2.2.209 enable-pfcp-load-control

Syntax

[**no**] **enable-pfcp-load-control**

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Context

[Tree] configure mobile-gateway pdn pfcp-load-control enable-pfcp-load-control

Description

This command enables PFCP load control support indication in the PFCP association messaging toward the UPF.

The **no** form of this command disables PFCP load control.

Default

no enable-pfcp-load-control

4.2.2.210 pfcp-node-id-type

Syntax

pfcp-node-id-type {**fqdn** | **ip**} [**ip-type** {**ipv4** | **ipv6**}]

no pfcp-node-id-type

Context

[Tree] configure mobile-gateway pdn pfcp-node-id-type

Description

This command configures the PFCP node ID as an FQDN or IPv4/IPv6 address type.

The **no** form of this command specifies to use the default node ID type for the PFCP interface.

Note: This command requires a PDN shutdown.

Parameters

fqdn

Specifies the PFCP node ID as an FQDN type and the FQDN to be sent is the one configured under the **configure mobile-gateway pdn epc-node** command.

ip

Specifies the PFCP node ID as an IP address type and the IP address to be sent is the one configured for the Sx/N4 interface.

Default: fqdn

ipv4

Specifies to use the IPv4 address for the PFCP node ID when dual stack is configured on the Sx-N4 reference point interface.

ipv6

Specifies to use the IPv6 address for the PFCP node ID when dual stack is configured on the Sx-N4 reference point interface.

Default: ipv4

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Note: If dual stack is configured on the Sx-N4 reference point interface and the **pfcp-node-id-type** is set with IP address, then the IPv4 or IPv6 address must also be configured.

Caution:

- The **pfcp-node-id-type** command must not be changed on a live system.
- Use the **shutdown** command in the **configure mobile-gateway pdn** context before changing the node ID type for the Sx/N4 interface. Use the **no shutdown** command under the same context to apply the change.

4.2.2.211 priority-service

Syntax

priority-service

Context

[Tree] configure mobile-gateway pdn priority-service

Description

This command enters the context to configure a mapping profile of priority services.

4.2.2.212 priority-mapping

Syntax

priority-mapping *mapping-name* **priority-profile** *profile-name*

no priority-mapping

Context

[Tree] configure mobile-gateway pdn priority-service priority-mapping

Description

This command configures a priority mapping with a priority profile. This creates a mapping for handling priority of signaling messages based on the ARP or GTP message priority values.

The **no** form of this command removes the priority mapping and reverts to the default priority mapping.

Default

no priority-mapping

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Parameters

mapping-name

Specifies a priority-mapping name, up to 32 characters, configured in the following context.

```
configure mobile-gateway profile priority-mapping
```

profile-name

Specifies a priority profile name, up to 32 characters, configured in the following context.

```
configure mobile-gateway profile priority-profile
```

4.2.2.213 qfi-mapping-profile

Syntax

qfi-mapping-profile *profile-name*

no qfi-mapping-profile

Context

[Tree] configure mobile-gateway pdn qfi-mapping-profile

Description

This command configures an optional QoS flow binding profile. The QoS parameters specified within the profile are used for QoS flow binding. When this optional profile is not configured here or at the APN level, the QFI is generated dynamically in the range 1 to 64 using 5QI/ARP as key.

The **no** form of this command removes the profile name from the configuration.

Default

no qfi-mapping-profile

Parameters

profile-name

Specifies the QFI mapping profile name, up to 32 characters. The QFI mapping profile is configured using the following command.

```
configure mobile-gateway profile qfi-mapping-profile
```

4.2.2.214 radius

Syntax

radius

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Context

[Tree] configure mobile-gateway pdn radius

Description

Commands in this context configure parameters for communication to RADIUS servers.

4.2.2.215 radius-accounting-on-off

Syntax

radius-accounting-on-off

Context

[Tree] configure mobile-gateway pdn radius radius-accounting-on-off

Description

This command enables the context to control RADIUS accounting ON and OFF messaging.

4.2.2.216 messages-sent

Syntax

messages-sent {**none** | **on** | **on-off**}

no messages-sent

Context

[Tree] configure mobile-gateway pdn radius radius-accounting-on-off messages-sent

Description

This command specifies whether the MAG-c sends both RADIUS accounting ON and OFF messages, only RADIUS accounting ON messages, or no RADIUS accounting ON/OFF messages.

The **no** form of this command reverts to the default.

Default

messages-sent on-off

Parameters

{none | on | on-off}

Specifies which RADIUS accounting messages are sent.

- none – no radius accounting on or off messages are sent
- on – only radius accounting on messages are sent
- on-off – both radius accounting on or off messages are sent

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4.2.2.217 s11

Syntax

s11 [*sig-ref-point-name*]

no s11 [*sig-ref-point-name*]

Context

[Tree] configure mobile-gateway pdn s11

Description

This command configures the s11 reference point name.

Note: This command requires a PDN shutdown.

Default

s11 "default"

Parameters

sig-ref-point-name

Specifies a signaling reference point name up to 32 characters. At least one S11 interface must be configured on the MAG-c to allow peering with MME. A single S11 interface configured on the gateway can form peering with multiple MME nodes.

4.2.2.218 interface

Syntax

interface

Context

[Tree] configure mobile-gateway pdn s11 interface

Description

Commands in this context configure the s11 interface.

Note: This command requires a PDN shutdown.

4.2.2.219 gtp-c

Syntax

gtp-c [**router** *router-instance*] *interface-name* [**interface-realm** *s1-u-realm-name*]

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no gtp-c

Context

[Tree] configure mobile-gateway pdn s11 interface gtp-c

Description

This command configures the GTP-C profile parameters for the S11 interface.

Note: This command requires a PDN shutdown.

Parameters

router-instance

Specifies the virtual router name or service ID.

Values: *router-name* | *service-id*

- router-name – Base
- service-id – 1 to 2147483647

Default: Base

interface-name

Specifies an interface name up to 32 characters, which must start with a letter.

s1-u-realm-name

Specifies the associated realm name for the GTP-U interface on the user plane function, up to 32 characters.

Note: Only the following characters are permitted:

- alphabetic characters (A-Z and a-z)
- digits (0-9)
- hyphen (-)
- dot (.)

The realm name must be unique for a specific routing instance on the user plane and is communicated in the Network-Instance IE part of the PFCP interface session establishment/modification process.

4.2.2.220 signaling

Syntax

signaling

Context

[Tree] configure mobile-gateway pdn s11 signaling

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Description

Commands in this context configure signaling for the S11 interface.

Note: This command requires a PDN shutdown.

4.2.2.221 gtp-c

Syntax

gtp-c

Context

[Tree] configure mobile-gateway pdn s11 signaling gtp-c

Description

Commands in this context configure GTP-C signaling for the S11 signaling interface.

4.2.2.222 ddn-damp-timer

Syntax

ddn-damp-timer *ddn-damp-timer*

no ddn-damp-timer

Context

[Tree] configure mobile-gateway pdn s11 signaling gtp-c ddn-damp-timer

Description

This command configures the Downlink Data Notification (DDN) dampening timer. After a failed DDN request to the MME or AMF, no further DDNs are sent for the duration of the dampening timer.

The **no** form of this command reverts to the default, that is, no dampening.

Default

ddn-damp-timer 0

Parameters

ddn-damp-timer

Specifies the duration, in seconds, of the DDN dampening timer . A value of 0 indicates the timer is disabled and no dampening is applied.

Values: 0 | 10 to 3600

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4.2.2.223 ddn-throttling-arp-threshold

Syntax

ddn-throttling-arp-threshold *ddn-throttling-arp-threshold*

no ddn-throttling-arp-threshold

Context

[Tree] configure mobile-gateway pdn s11 signaling gtp-c ddn-throttling-arp-threshold

Description

This command configures the DDN ARP threshold. DDN throttling is activated when a "DL low priority traffic throttling" IE is received in a DDN acknowledgment message from an MME, for the duration signaled in that IE. While throttling is active, all DDNs for traffic received above the ARP threshold are dropped.

Note: DDN throttling is not applicable to 5G sessions.

The **no** form of this command removes the ARP threshold from the configuration.

Note: This command requires a PDN shutdown.

Default

ddn-throttling-arp-threshold 0

Parameters

ddn-throttling-arp-threshold

Specifies a DDN ARP threshold.

Values: 0 to 15

4.2.2.224 profile

Syntax

profile *profile-name*

no profile

Context

[Tree] configure mobile-gateway pdn s11 signaling gtp-c profile

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Description

This command configures the GTP-C signaling profile name for the S11 signaling interface. GTP-c signaling profiles are created using the following command.

```
configure mobile-gateway profile gtp
```

The **no** form of this command removes the profile name from the configuration.

Note: This command requires a PDN shutdown.

Default

no profile

Parameters

profile-name

Specifies the profile name, up to 32 characters.

4.2.2.225 restoration-time

Syntax

restoration-time *restoration-time*

no restoration-time

Context

[Tree] configure mobile-gateway pdn s11 signaling gtp-c restoration-time

Description

This command specifies the MAG-c wait duration before it deletes the UE context after detecting an MME failure. If a non-zero value is specified, the MME restoration procedures are enabled and the MAG-c maintains the session state of the affected UEs until the timer expires after a path failure. Upon expiry, the MAG-c cleans up the control plane and data plane sources of any remaining UEs.

The **no** form of this command reverts to the default.

Default

restoration-time 0

Parameters

restoration-time

Specifies the restoration time in seconds.

Values: 0 to 3600

Default: 0

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4.2.2.226 ue-inactivity-timer

Syntax

ue-inactivity-timer *ue-inactivity-timer*

no ue-inactivity-timer

Context

[Tree] configure mobile-gateway pdn s11 signaling gtp-c ue-inactivity-timer

Description

This command configures an inactivity timer to clean up hanging sessions after a path failure between the MME and the MAG-c.

If the path is temporarily down, for example, because of routing glitches, but neither the MME nor the MAG-c restarts, the MAG-c can have lingering idle sessions if path restoration is enabled using the following command.

```
configure mobile-gateway pdn s11 signaling gtp-c restoration-time
```

The **ue-inactivity-timer** command removes any idle sessions that are not reactivated after the specified time. The assumption is that these sessions are stale and that the MME has moved these sessions to another MAG-c.

A value of zero disables the UE inactivity timer, meaning that idle sessions are only subject to the **restoration-time** configuration, similar to active sessions.

The **no** form of this command reverts to the default.

Default

ue-inactivity-timer 0

Parameters

ue-inactivity-timer

Specifies the UE inactivity timer in minutes.

Values: 0 | 30 to 2880; 0 means disabled

Default: 0

4.2.2.227 s5

Syntax

s5 [*sig-ref-point-name*]

no s5 [*sig-ref-point-name]*

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Context

[Tree] configure mobile-gateway pdn s5

Description

Commands in this context configure the S5 interface. This interface is not used externally by the MAG-c, but the configured interface IP must match the "PGW S5/S8 Address for Control Plane or PMIP" address that is signaled in the GTP Create Session Request.

Note: This command requires a PDN shutdown.

Parameters

sig-ref-point-name

Specifies the S5 interface name, up to 32 characters.

4.2.2.228 interface

Syntax

interface

Context

[Tree] configure mobile-gateway pdn s5 interface

Description

Commands in this context configure interface parameters.

Note: This command requires a PDN shutdown.

4.2.2.229 gtp-c

Syntax

gtp-c [**router** *router-instance*] *interface-name* [**interface-realm** *s5-u-realm-name*]

no gtp-c

Context

[Tree] configure mobile-gateway pdn s5 interface gtp-c

Description

This command configures the GTP-C profile parameters for an S5 interface.

The **no** form of this command removes the parameter from the configuration.

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Note: This command requires a PDN shutdown.

Parameters

router-instance

Specifies the virtual router name or service ID.

Values: *router-name* | *service-id*

- *router-name* – Base
- *service-id* – 1 to 2147483647

Default: Base

interface-name

Specifies an interface name, up to 32 characters. The first character must be a letter.

s5-u-realm-name

Specifies the associated realm name for the S5 GTP-U interface on the user plane function, up to 32 characters.

Note: Only the following characters are permitted:

- alphabetic characters (A-Z and a-z)
- digits (0-9)
- hyphen (-)
- dot (.)

The realm name must be set the same as the S1-u GTP-u realm configured under the **s11** context. and is communicated in the Network-Instance IE part of the PFCP interface session establishment/modification process.

Note:

4.2.2.230 signaling

Syntax

signaling

Context

[Tree] configure mobile-gateway pdn s5 signaling

Description

Commands in this context configure signaling for the S5 interface.

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4.2.2.231 gtp-c

Syntax

gtp-c

Context

[Tree] configure mobile-gateway pdn s5 signaling gtp-c

Description

Commands in this context configure GTP-C signaling for the S5 signaling interface.

4.2.2.232 profile

Syntax

profile *profile-name*

no profile

Context

[Tree] configure mobile-gateway pdn s5 signaling gtp-c profile

Description

This command configures a GTP-C profile for S5 signaling.

The **no** form of this command removes the configuration.

Parameters

profile-name

Specifies the profile name, up to 32 characters.

4.2.2.233 sba-client-services

Syntax

sba-client-services

Context

[Tree] configure mobile-gateway pdn sba-client-services

Description

Commands in this context provide configuration options for MAG-c SBA services acting as the NF consumer.

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4.2.2.234 addressing-priority

Syntax

no addressing-priority

addressing-priority *addressing-priority*

Context

[Tree] configure mobile-gateway pdn sba-client-services addressing-priority

Description

This command configures the addressing method priority used for accessing the discovered services of peer NF producers when the discovered NF profiles contain both FQDN and IP endpoints.

The **no** form of this command reverts to the default.

Default

addressing-priority ip-endpoint

Parameters

addressing-priority

Values:

- fqdn – keyword to use the FQDN if present. If not present, the IP endpoint is used.
- ip-endpoint – keyword to always use the IP endpoint.
- ip-endpoint-fallback – keyword to use the FQDN if present. If not present, the IP endpoint is used. If the FQDN is used and IP resolution fails, the IP endpoint is used as a fallback.

4.2.2.235 amf-client

Syntax

amf-client

Context

[Tree] configure mobile-gateway pdn sba-client-services amf-client

Description

Commands in this context configure the MAG-c client-side options when the MAG-c consumes AMF services.

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4.2.2.236 namf-comm

Syntax

namf-comm *service-instance*

no namf-comm *service-instance*

Context

[Tree] configure mobile-gateway pdn sba-client-services amf-client namf-comm

Description

This command configures an instance of the Namf_Communication service. At least one service instance must be configured to allow peering with the AMF.

The **no** form of this command removes the service instance from the configuration.

Note: This command requires a PDN shutdown

Parameters

service-instance

Specifies the service instance name, up to 32 characters.

4.2.2.237 amf-profile

Syntax

amf-profile profile-name

no amf-profile

Context

[Tree] configure mobile-gateway pdn sba-client-services amf-client namf-comm amf-profile

Description

This command associates an AMF profile with the service instance. This profile specifies transmission and error-handling behavior.

The **no** form of this command removes the AMF profile and reverts all behavior to default values.

Default

amf-profile "default"

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Parameters

profile-name

Specifies the name of the AMF profile, up to 32 characters. AMF profiles are configured using the following command.

```
configure mobile-gateway profile amf-profile
```

4.2.2.238 fqdn

Syntax

fqdn *fqdn-sni-string*

no fqdn

Context

[Tree] configure mobile-gateway pdn sba-client-services amf-client namf-comm fqdn

Description

This command configures the FQDN which is used by the MAG-c when it needs to construct a hostname for this client, for example for creating a callback URI.

A single FQDN can be configured for all client services in the **configure mobile-gateway pdn sba-client-services** context or per client service instance.

The **no** form of this command removes the FQDN from the configuration.

Default

no fqdn

Parameters

fqdn-sni-string

Specifies the FQDN name string, up to 255 characters.

4.2.2.239 http2-profile

Syntax

http2-profile *http2-profile-name*

no http2-profile

Context

[Tree] configure mobile-gateway pdn sba-client-services amf-client namf-comm http2-profile

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Description

This command configures an HTTP/2 profile for the client service. A single HTTP/2 profile can be configured for all client services in the **configure mobile-gateway pdn sba-client-services** context or per client service instance.

The **no** form of this command removes the HTTP/2 profile from the configuration.

Default

no http2-profile

Parameters

http2-profile-name

Specifies the name of the HTTP/2 profile, up to 32 characters. Refers to a profile configured using the following command.

```
configure mobile-gateway profile http2
```

4.2.2.240 interface

Syntax

interface *interface-name* [**router** *router-instance*]

no interface

Context

[Tree] configure mobile-gateway pdn sba-client-services amf-client namf-comm interface

Description

This command configures the interface in which the HTTP/2 connections are established.

The **no** form of this command removes the interface from the configuration.

Note: This command requires a PDN shutdown

Default

no interface

Parameters

interface-name

Specifies an existing interface name up to 32 characters, which must start with a letter.

router-instance

Specifies the router instance.

Values: *router-name* | *service-id*

- *router-name* – Base

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- *service-id* – 1 to 2147483647

Default: Base

4.2.2.241 n1-profile

Syntax

n1-profile *profile-name*

no n1-profile

Context

[Tree] configure mobile-gateway pdn sba-client-services amf-client namf-comm n1-profile

Description

This command configures an N1 profile with the service instance. This profile specifies N1 messaging parameters when sending N1 messages via the Namf_Communication service.

The **no** form of this command removes the N1 profile from the service instance and reverts all behavior to default values.

Default

n1-profile "default"

Parameters

profile-name

Specifies the name of the N1 profile, up to 32 characters. N1 profiles are configured using the **configure mobile-gateway profile n1-profile** command.

4.2.2.242 nf-id-list

Syntax

nf-id-list *list-name*

no nf-id-list

Context

[Tree] configure mobile-gateway pdn sba-client-services amf-client namf-comm nf-id-list

Description

This command configures an NF ID list for peer discovery of this client service instance. This list is used in the following cases:

- NRF-based discovery only returns a list of NF Instances without IP/FQDN, in which case the specified NF Instance IDs must be present in the NF ID list.
- NRF-based discovery fails (for example, returns an empty list or times out).

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- NRF-based discovery is disabled.

The **no** form of this command removes the NF ID list from the configuration.

Default

no nf-id-list

Parameters

list-name

Specifies the NF ID list name, up to 32 characters. NF ID lists are configured using the **configure mobile-gateway profile list nf-id-list** command.

4.2.2.243 chf-client

Syntax

chf-client

Context

[Tree] configure mobile-gateway pdn sba-client-services chf-client

Description

Commands in this context configure the MAG-c client-side options when the MAG-c consumes CHF services.

4.2.2.244 nchf-convergedcharging

Syntax

nchf-convergedcharging *instance-name*

no nchf-convergedcharging *instance-name*

Context

[Tree] configure mobile-gateway pdn sba-client-services chf-client nchf-convergedcharging

Description

This command configures an instance of the Nchf_ConvergedCharging service. At least one service instance must be configured to allow the MAG-c to perform charging functionality toward the CHF.

The **no** form of this command removes the service instance from the configuration.

Parameters

instance-name

Specifies the service instance name, up to 32 characters.

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4.2.2.245 api-version

Syntax

api-version *version* [**minor** *minor*] [**patch** *patch*]

no api-version

Context

[Tree] configure mobile-gateway pdn sba-client-services chf-client nchf-convergedcharging api-version

Description

This command overrides the API version used in the API URI endpoint. This only changes the signaled URI to help compatibility with the remote system, it does not change how the CHF signals any other attributes.

The **no** form of this command removes the API version override. The MAG-c signals the latest version it supports.

Default

no api-version

Parameters

version

Specifies the major value of the version.

Values: 0 to 255

Default: 0

minor

Specifies the minor value of the version.

Values: 0 to 255

Default: 0

patch

Specifies the patch value of the version.

Values: 0 to 255

Default: 0

4.2.2.246 fqdn

Syntax

fqdn *fqdn-sni-string*

no fqdn

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Context

[Tree] configure mobile-gateway pdn sba-client-services chf-client nchf-convergedcharging fqdn

Description

This command configures the FQDN that the MAG-c uses to construct a hostname for this client; for example, for creating a callback URI.

A single FQDN can be configured for all client services in the following context or per client service instance.

```
configure mobile-gateway pdn sba-client-services
```

The **no** form of this command removes the FQDN from the configuration.

Default

no fqdn

Parameters

fqdn-sni-string

Specifies the FQDN name string, up to 255 characters.

4.2.2.247 http2-profile

Syntax

http2-profile *http2-profile-name*

no http2-profile

Context

[Tree] configure mobile-gateway pdn sba-client-services chf-client nchf-convergedcharging http2-profile

Description

This command configures an HTTP/2 profile for the client service. A single HTTP/2 profile can be configured for all client services in the following context, or per client service instance.

```
configure mobile-gateway pdn sba-client-services
```

The **no** form of this command removes the HTTP/2 profile from the configuration.

Default

no http2-profile

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Parameters

http2-profile-name

Specifies the name of the HTTP/2 profile, up to 32 characters. Refers to a profile configured using the following command.

```
configure mobile-gateway profile http2
```

4.2.2.248 interface

Syntax

interface *interface-name* [**router** *router-instance*]

no interface

Context

[Tree] configure mobile-gateway pdn sba-client-services chf-client nchf-convergedcharging interface

Description

This command configures the interface in which the HTTP/2 connections are established.

The **no** form of this command removes the interface from the configuration.

Note: This command requires a PDN shutdown

Default

no interface

Parameters

interface-name

Specifies an existing interface name, up to 32 characters, which must start with a letter.

router-instance

Specifies the router instance.

Values: *router-name* | *service-id*

- *router-name* – Base
  - Default: Base
- *service-id* – 1 to 2147483647

4.2.2.249 converged-interface-support

Syntax

converged-interface-support

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Context

[Tree] configure mobile-gateway pdn sba-client-services converged-interface-support

Description

Commands in this context configure 5G SBI interface support for UEs without 5GS NAS support.

4.2.2.250 pdu-session-id-base

Syntax

pdu-session-id-base *value*

no pdu-session-id-base

Context

[Tree] configure mobile-gateway pdn sba-client-services converged-interface-support pdu-session-id-base

Description

This command configures the base value used for the PDU session ID generated by the PGW-C or SMF when using the 5G Service Based Interfaces (SBI) for UEs without 5GS NAS support.

The **no** form of this command reverts to the default.

Default

pdu-session-id-base 0

Parameters

value

Specifies the PDU session ID base. When set to 0, the system defines the PDU session ID base value.

Values: 0 to 95

Default: 0

4.2.2.251 fqdn

Syntax

fqdn *fqdn-sni-string*

no fqdn

Context

[Tree] configure mobile-gateway pdn sba-client-services fqdn

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Description

This command configures the FQDN, which is used by the MAG-c to construct a hostname for this client when required; for example, to create a callback URI. A single FQDN can be configured for all client services in the **configure mobile-gateway pdn sba-client-services** context or the FQDN can be configured per client service instance.

The **no** form of this command removes the FQDN from the configuration

Default

no fqdn

Parameters

fqdn-sni-string

Specifies the FQDN name string, up to 255 characters.

4.2.2.252 http2-profile

Syntax

http2-profile*http2-profile*

no http2-profile

Context

[Tree] configure mobile-gateway pdn sba-client-services http2-profile

Description

This command configures an HTTP/2 profile for the client service. A single HTTP/2 profile can be configured for all client services in the **configure mobile-gateway pdn sba-client-services** context or per client service instance.

The **no** form of this command removes the HTTP/2 profile from the configuration.

Default

no http2-profile

Parameters

http2-profile-name

Specifies the name of the HTTP/2 profile, up to 32 characters. Refers to a profile configured using the following command.

```
configure mobile-gateway profile http2
```


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4.2.2.253 nrf-client

Syntax

nrf-client

Context

[Tree] configure mobile-gateway pdn sba-client-services nrf-client

Description

Commands in this context configure the MAG-c client-side options when the MAG-c consumes NRF services.

4.2.2.254 nnrf-disc

Syntax

nnrf-disc *service-instance*

no nnrf-disc *service-instance*

Context

[Tree] configure mobile-gateway pdn sba-client-services nrf-client nnrf-disc

Description

This command configures an instance of the Nnrf_Discovery client service. At least one service instance must be configured to allow the MAG-c to discover other service provides via the NRF.

The **no** form of this command removes the service instance from the configuration.

Parameters

service-instance

Specifies the service instance name, up to 32 characters.

4.2.2.255 blocklist-duration

Syntax

blocklist-duration *seconds*

no blocklist-duration

Context

[Tree] configure mobile-gateway pdn sba-client-services nrf-client nnrf-disc blocklist-duration

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Description

This command configures the blocklist duration for NRF peers. When an NRF peer is blocklisted, the MAG-c attempts to reconnect to this NRF peer only after the configured time has expired.

Note: When the duration of the blocklist timer is configured with high values and all NRF peers are blocklisted, for example as a result of a short connectivity outage, all peers are unavailable until the blocklist timer expires. To avoid this, Nokia recommends that you should configure low values for the blocklist timer.

The **no** form of this command reverts to the default value.

Default

blocklist-duration 5

Parameters

seconds

Specifies the blocklist duration in seconds.

Values: 0 to 300

4.2.2.256 chf-selection-options

Syntax

chf-selection-options

Context

[Tree] configure mobile-gateway pdn sba-client-services nrf-client nnrf-disc chf-selection-options

Description

Commands in this context configure CHF-specific discovery and selection options.

4.2.2.257 exclude-gpsi

Syntax

[no] exclude-gpsi

Context

[Tree] configure mobile-gateway pdn sba-client-services nrf-client nnrf-disc chf-selection-options exclude-gpsi

Description

This command excludes GPSI from the from the query parameter lists in the CHF discovery request.

The **no** form of this command includes GPSI in the CHF discovery request.

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Default

no exclude-gpsi

4.2.2.258 exclude-supi

Syntax

[no] exclude-supi

Context

[Tree] configure mobile-gateway pdn sba-client-services nrf-client nnrf-disc chf-selection-options exclude-supi

Description

This command excludes SUPI from the query parameter lists in the CHF discovery request.

The **no** form of this command includes SUPI in the CHF discovery request.

Default

no exclude-supi

4.2.2.259 preferred-locality

Syntax

preferred-locality *string*

no preferred-locality

Context

[Tree] configure mobile-gateway pdn sba-client-services nrf-client nnrf-disc chf-selection-options preferred-locality

Description

This command configures the locality that the SMF uses for the preferred-locality query parameter in the CHF discovery request toward the NRF. The locality can be a geographical description, data-center location, and so on.

The **no** form of this command removes the configuration, and the inclusion of the preferred-locality query parameter depends on the value of the `configure mobile-gateway pdn sba-client-services nrf-client nnrf-disc use-locality` and **configure mobile-gateway pdnnf-profile-attributes locality** commands.

Default

no preferred-locality

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Parameters

string

Specifies the preferred locality for CHF discovery, up to 64 characters.

4.2.2.260 exclude-snssais

Syntax

exclude-snssais

no exclude-snssais

Context

[Tree] configure mobile-gateway pdn sba-client-services nrf-client nnrf-disc exclude-snssais

Description

This command configures the exclusion of the SNSSAI list from the query parameter lists in the NF discovery request.

The **no** form of this command includes the SNSSAI list in the NF discovery request.

Default

no exclude-snssais

4.2.2.261 fqdn

Syntax

fqdn *fqdn-sni-string*

no fqdn

Context

[Tree] configure mobile-gateway pdn sba-client-services nrf-client nnrf-disc fqdn

Description

This command configures the FQDN which is used by the MAG-c when it needs to construct a hostname for this client, for example for creating a callback URI. A single FQDN can be configured for all client services in the **configure mobile-gateway pdn sba-client-services** context or per client service instance.

The **no** form of this command removes the FQDN from the configuration.

Default

no fqdn

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Parameters

fqdn-sni-string

Specifies the FQDN name string, up to 255 characters.

4.2.2.262 http2-profile

Syntax

http2-profile *http2-profile-name*

no http2-profile

Context

[Tree] configure mobile-gateway pdn sba-client-services nrf-client nnrf-disc http2-profile

Description

This command configures an HTTP/2 profile for the client service. A single HTTP/2 profile can be configured for all client services in the **configure mobile-gateway pdn sba-client-services** context or per client service instance.

The **no** form of this command removes the HTTP/2 profile from the configuration.

Default

no http2-profile

Parameters

http2-profile-name

Specifies the name of the HTTP/2 profile, up to 32 characters. Refers to a profile configured using the following command.

```
configure mobile-gateway profile http2
```

4.2.2.263 interface

Syntax

interface *interface-name* [**router** *router-name*

no interface

Context

[Tree] configure mobile-gateway pdn sba-client-services nrf-client nnrf-disc interface

Description

This command configures the interface in which the HTTP/2 connections are established.

The **no** form of this command removes the interface from the configuration.

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Note: This command requires a PDN shutdown.

Default

no interface

Parameters

interface-name

Specifies an existing interface name up to 32 characters, which must start with a letter.

router-instance

Specifies the router instance.

Values: *router-name* | *service-id*

- *router-name* – Base
  - Default: Base
- *service-id* – 1 to 2147483647

4.2.2.264 nf-id-list

Syntax

no nf-id-list

nf-id-list *list-name*

Context

[Tree] configure mobile-gateway pdn sba-client-services nrf-client nnrf-disc nf-id-list

Description

This command configures an NF ID list for peer discovery of this client service instance. Because the NRF itself cannot be discovered, you must configure this to enable the Nnrf_Discovery service

The **no** form of this command removes the NF ID list from the configuration.

Default

no nf-id-list

Parameters

list-name

Specifies the NF ID list name, up to 32 characters. NF ID lists are configured using the **configure mobile-gateway profile list nf-id-list** command.

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4.2.2.265 nrf-cache-interval

Syntax

nrf-cache-interval {*value* | **use-nrf-validity-period**}

no nrf-cache-interval

Context

[Tree] configure mobile-gateway pdn sba-client-services nrf-client nnrf-disc nrf-cache-interval

Description

This command configures the NRF discovery results validity period.

The **no** form of this command reverts to the default.

Note: Configuring this value higher than the Validity period signaled by the NRF may lead to the MAG-c using stale peer lists. Nokia recommends to keep this configuration to its default, and otherwise to check if the configured validity period is equal or less than the validity period used by the NRF.

Default

nrf-cache-interval use-nrf-validity-period

Parameters

value

Specifies the validity period in hours.

Value: 0 to 24

use-nrf-validity-period

Keyword to use the validity period provided in the NRF discovery response.

4.2.2.266 suppress-discovery

Syntax

[**no**] **suppress-discovery** [**amf** | **chf** | **pcf** | **udm**]

Context

[Tree] configure mobile-gateway pdn sba-client-services nrf-client nnrf-disc suppress-discovery

Description

This command configures an NF type to use the locally-configured NF ID lists for selecting a peer instead of using the NRF.

The **no** form of this command configures that discovery via the NRF is used for all NF types.

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Default

no suppress-discovery

Parameters

amf

Keyword to suppress NRF discovery when selecting an AMF peer.

chf

Keyword to suppress NRF discovery when selecting a CHF peer.

pcf

Keyword to suppress NRF discovery when selecting a PCF peer.

udm

Keyword to suppress NRF discovery when selecting an UDM peer.

4.2.2.267 udm-selection-options

Syntax

udm-selection-options

Context

[Tree] configure mobile-gateway pdn sba-client-services nrf-client nnrf-disc udm-selection-options

Description

Commands in this context configure UDM-specific discovery and selection options.

4.2.2.268 exclude-supi

Syntax

exclude-supi

no exclude-supi

Context

[Tree] configure mobile-gateway pdn sba-client-services nrf-client nnrf-disc udm-selection-options exclude-supi

Description

This command configures the exclusion of the SUPI from the query parameter lists in the UDM discovery request.

The **no** form of this command includes the SUPI in the UDM discovery request.

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Default

no exclude-supi

4.2.2.269 preferred-locality

Syntax

preferred-locality *string*

no preferred-locality

Context

[Tree] configure mobile-gateway pdn sba-client-services nrf-client nnrf-disc udm-selection-options preferred-locality

Description

This command configures the locality that the SMF uses for the preferred-locality query parameter in the UDM discovery request toward the NRF. The locality can be a geographical description, data-center location, and so on.

The **no** form of this command removes the configuration, and the inclusion of the preferred-locality query parameter depends on the value of the `configure mobile-gateway pdn sba-client-services nrf-client nnrf-disc use-locality` and **configure mobile-gateway pdnnf-profile-attributes locality** commands.

Default

no preferred-locality

Parameters

string

Specifies the preferred locality for UDM discovery, up to 64 characters.

4.2.2.270 use-locality

Syntax

use-locality

no use-locality

Context

[Tree] configure mobile-gateway pdn sba-client-services nrf-client nnrf-disc use-locality

Description

This command configures the discovery requests for UDM, PCF, and CHF peers to use the preferred-locality query parameter. This also requires configuring the **locality** parameter in the **configuremobile-gateway pdn nf-profile-attributes** context.

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This command and the **locality** parameter in the **configure mobile-gateway pdn nf-profile-attributes** context can be overridden by the `preferred-locality` command in following contexts:

```
configure mobile-gateway pdn sba-client-services nrf-client nnrf-disc udm-selection-options
 preferred-locality
configure mobile-gateway pdn sba-client-services nrf-client nnrf-disc chf-selection-options
 preferred-locality
configure mobile-gateway pdn apn pcf-selection preferred-locality
```

The **no** form of this command disables the inclusion of the preferred-locality query parameter based on the nf-profile attribute. If both this command and the `preferred-locality` command are disabled for an NF type discovery (UDM, PCF, or CHF), the parameter is not included.

Default

no use-locality

4.2.2.271 nnrf-nfm

Syntax

nnrf-nfm *service-instance*

no nnrf-nfm *service-instance*

Context

[Tree] configure mobile-gateway pdn sba-client-services nrf-client nnrf-nfm

Description

This command configures an instance of the Nnrf_NFManagement client service. At least one service instance must be configured to allow the MAG-c to register its own server services with the NRF.

The **no** form of this command removes the service instance from the configuration.

Parameters

service-instance

Specifies the service instance name, up to 32 characters.

4.2.2.272 blocklist-duration

Syntax

blocklist-duration *seconds*

no blocklist-duration

Context

[Tree] configure mobile-gateway pdn sba-client-services nrf-client nnrf-nfm blocklist-duration

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Description

This command configures the blocklist duration of NRF peers. When an NRF peer is blocklisted, the MAG-c only attempts to reconnect to this NRF peer after the configured time expires.

Note: When the duration of the block list timer is configured with high values and all NRF peers are blocklisted; for example, as a result of a short connectivity outage, there are not any peers available until the blocklist timer expires. Nokia recommends to configure low values for the blocklist timer.

The **no** form of this command reverts to the default value.

Default

blocklist-duration 60

Parameters

seconds

Specifies the blocklist duration in seconds.

Values: 0 to 300

4.2.2.273 fqdn

Syntax

fqdn *fqdn-sni-string*

no fqdn

Context

[Tree] configure mobile-gateway pdn sba-client-services nrf-client nnrf-nfm fqdn

Description

This command configures the FQDN which is used by the MAG-c when it needs to construct a hostname for this client, for example for creating a callback URI.

A single FQDN can be configured for all client services in the **configure mobile-gateway pdn sba-client-services** context or per client service instance.

The **no** form of this command removes the FQDN from the configuration.

Default

no fqdn

Parameters

fqdn-sni-string

Specifies the FQDN name string, up to 255 characters.

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4.2.2.274 heartbeat-nrf-blocklist

Syntax

heartbeat-nrf-blocklist retry *retry-count* **wait-timer** *seconds*

no heartbeat-nrf-blocklist

Context

[Tree] configure mobile-gateway pdn sba-client-services nrf-client nnrf-nfm heartbeat-nrf-blocklist

Description

This command configures the heartbeat NFUpdate operation blocklist algorithm of NRF peers. The retry keyword specifies the number of times a heartbeat is resent, when there is no response from the peer, after the timer configured using the wait-timer keyword expires.

The retry counter is also applied when specific HTTP error status codes are received in the heartbeat response from the NRF. In this case, the new heartbeat is sent immediately after the response is received. This does not apply to HTTP status codes 400 and 501 which immediately block the peer, or to HTTP status code 404 which triggers a new NFRegister operation.

Note: See "NRF Failure handling" in the *MAG-c Control Plane Function Guide* for more information about blocklisting.

The **no** form of this command reverts to the default values.

Default

heartbeat-nrf-blocklist retry 3 wait-timer 2

Parameters

retry-count

Specifies the number of retries before the peer is blocked.

Values: 0 to 10

seconds

Species the time to wait between retries after a timeout, in seconds.

Values: 1 to 10

4.2.2.275 http2-profile

Syntax

http2-profile *http2-profile-name*

no http2-profile

Context

[Tree] configure mobile-gateway pdn sba-client-services nrf-client nnrf-nfm http2-profile

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Description

This command configures an HTTP/2 profile for the client service. A single HTTP/2 profile can be configured for all client services in the **configure mobile-gateway pdn sba-client-services** context or per client service instance.

The **no** form of this command removes the HTTP/2 profile from the configuration.

Default

no http2-profile

Parameters

http2-profile-name

Specifies the name of the HTTP/2 profile, up to 32 characters. Refers to a profile configured using the following command.

```
configure mobile-gateway profile http2
```

4.2.2.276 interface

Syntax

interface *interface-name* [**router** *router-instance*]

no interface

Context

[Tree] configure mobile-gateway pdn sba-client-services nrf-client nnrf-nfm interface

Description

This command configures the interface in which the HTTP/2 connections are established.

The **no** form of this command removes the interface from the configuration.

Note: This command requires a PDN shutdown

Default

no interface

Parameters

interface-name

Specifies an existing interface name up to 32 characters, which must start with a letter.

router-instance

Specifies the router instance.

Values: *router-name* | *service-id*

- *router-name* – Base

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– Default: Base

- *service-id* – 1 to 2147483647

4.2.2.277 nf-id-list

Syntax

no nf-id-list

nf-id-list *list-name*

Context

[Tree] configure mobile-gateway pdn sba-client-services nrf-client nnrf-nfm nf-id-list

Description

This command configures an NF ID list for peer discovery of this client service instance. Because the NRF itself cannot be discovered, you must configure this to enable the Nnrf_NFManagement service.

The **no** form of this command removes the NF ID list from the configuration.

Default

no nf-id-list

Parameters

list-name

Specifies the NF ID list name, up to 32 characters. NF ID lists are configured using the **configure mobile-gateway profile list nf-id-list** command.

4.2.2.278 nfm-nrf-blocklist

Syntax

nfm-nrf-blocklist retry *retry-count* **wait-timer** *seconds*

no nfm-nrf-blocklist

Context

[Tree] configure mobile-gateway pdn sba-client-services nrf-client nnrf-nfm nfm-nrf-blocklist

Description

This command configures the blocklist algorithm of NRF peers for any operation except the heartbeat NFUpdate. This includes regular NFUpdate operations. The retry keyword specifies the number of times a heartbeat is resent, when there is no response from the peer, after the timer configured using the wait-timer keyword expires.

The retry counter is also applied when specific HTTP error status codes are received in the heartbeat response from the NRF. In this case, the new heartbeat is sent immediately after the response is

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received. For NFRegister operations this does not apply to HTTP status codes 400 to 499, and 501 which immediately block the peer. For NFUpdate operations this does not apply to HTTP status codes 400 and 501 which immediately block the peer, or to HTTP status code 404 which triggers a new NFRegister operation.

Note: See "NRF Failure handling" in the *MAG-c Control Plane Function Guide* for more information about blocklisting.

The **no** form of this command reverts to the default value.

Default

nfm-nrf-blocklist retry 3 wait-timer 2

Parameters

retry-count

Specifies the number of retries before the peer is blocked.

Values: 0 to 10

seconds

Species the time to wait between retries after a timeout, in seconds.

Values: 1 to 10

4.2.2.279 pcf-client

Syntax

pcf-client

Context

[Tree] configure mobile-gateway pdn sba-client-services pcf-client

Description

Commands in this context configure the MAG-c client-side options when the MAG-c consumes PCF services.

4.2.2.280 npcf-smpolicycontrol

Syntax

no npcf-smpolicycontrol *service-instance*

npcf-smpolicycontrol *service-instance*

Context

[Tree] configure mobile-gateway pdn sba-client-services pcf-client npcf-smpolicycontrol

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Description

This command configures an instance of the Npcf_SMPolicyControl client service. At least one service instance must be configured to allow the MAG-c to perform policy management with a PCF.

The **no** form of this command removes the service instance from the configuration.

Parameters

service-instance

Specifies the service instance name, up to 32 characters.

4.2.2.281 fqdn

Syntax

fqdn *fqdn-sni-string*

no fqdn

Context

[Tree] configure mobile-gateway pdn sba-client-services pcf-client npcf-smpolicycontrol fqdn

Description

This command configures the FQDN which is used by the MAG-c when it needs to construct a hostname for this client, for example for creating a callback URI.

A single FQDN can be configured for all client services in the **configure mobile-gateway pdn sba-client-services** context or per client service instance.

The **no** form of this command removes the FQDN from the configuration.

Default

no fqdn

Parameters

fqdn-sni-string

Specifies the FQDN name string, up to 255 characters.

4.2.2.282 http2-profile

Syntax

http2-profile *http2-profile-name*

no http2-profile

Context

[Tree] configure mobile-gateway pdn sba-client-services pcf-client npcf-smpolicycontrol http2-profile

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Description

This command configures an HTTP/2 profile for the client service. A single HTTP/2 profile can be configured for all client services in the **configure mobile-gateway pdn sba-client-services** context or per client service instance.

The **no** form of this command removes the HTTP/2 profile from the configuration.

Default

no http2-profile

Parameters

http2-profile-name

Specifies the name of the HTTP/2 profile, up to 32 characters. Refers to a profile configured using the following command.

```
configure mobile-gateway profile http2
```

4.2.2.283 interface

Syntax

interface *interface-name* [**router** *router-instance*]

no interface

Context

[Tree] configure mobile-gateway pdn sba-client-services pcf-client npcf-smpolicycontrol interface

Description

This command configures the interface in which the HTTP/2 connections are established.

The **no** form of this command removes the interface from the configuration.

Note: This command requires a PDN shutdown

Default

no interface

Parameters

interface-name

Specifies an existing interface name up to 32 characters, which must start with a letter.

router-instance

Specifies the router instance.

Values: *router-name* | *service-id*

- *router-name* – Base

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– Default: Base

- *service-id* – 1 to 2147483647

4.2.2.284 mode

Syntax

mode *mode* [**fallback** *fallback-mode*]

no mode

Context

[Tree] configure mobile-gateway pdn sba-client-services pcf-client npcf-smpolicycontrol mode

Description

This command configures the Npcf_SMPolicyControl service communication mode and fallback option used by the PFC client.

The **no** form of this command reverts to the default.

Default

mode direct

Parameters

mode

Specifies the communication mode.

Values:

- **direct**
  Enables direct communication mode.
- **delegated**
  Enables indirect communication mode with delegated discovery.

fallback-mode

Specifies the fallback communication mode.

Note: The fallback mode cannot be the same as the primary mode of communication configured using this command.

Values:

- **direct**
  Enables direct fallback communication mode.
- **none**
  Enables none for the fallback communication mode.

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4.2.2.285 nf-id-list

Syntax

nf-id-list *list-name*

no nf-id-list

Context

[Tree] configure mobile-gateway pdn sba-client-services pcf-client npcf-smpolicycontrol nf-id-list

Description

This command configures an NF ID list for peer discovery of this client service instance. This list is used in the following cases:

- NRF based discovery only returns a list of NF Instances without IP/FQDN, in which case the specified NF Instance IDs must be present in the NF ID list.
- NRF based discovery fails (for example, returns an empty list or times out).
- NRF based discovery is disabled.
- No NF ID list is configured with the following command for the APN instance associated with the session for which discovery is done.

```
configure mobile-gateway pdn apn pcf-selection nf-id-list
```

The **no** form of this command removes the NF ID list from the configuration.

Default

no nf-id-list

Parameters

list-name

Specifies the NF ID list name, up to 32 characters. NF ID lists are configured using the **configure mobile-gateway profile list nf-id-list** command.

4.2.2.286 pcf-profile

Syntax

no pcf-profile

pcf-profile *profile-name*

Context

[Tree] configure mobile-gateway pdn sba-client-services pcf-client npcf-smpolicycontrol pcf-profile

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Description

This command associates a PCF profile with the service instance. This profile specifies transmission, error handling, and attribute manipulation behavior.

The **no** form of this command removes the PCF profile and reverts all behavior to default values.

Default

no pcf-profile

Parameters

profile-name

Specifies the name of the PCF profile, up to 32 characters. PCF profiles are configured using the **configure mobile-gateway profile pcf-profile** command.

4.2.2.287 scp-client

Syntax

scp-client

Context

[Tree] configure mobile-gateway pdn sba-client-services scp-client

Description

Commands in this context configure the SCP options for SCP client services.

4.2.2.288 scp-service

Syntax

scp-service *service-instance*

no scp-service *service-instance*

Context

[Tree] configure mobile-gateway pdn sba-client-services scp-client scp-service

Description

This command configures an instance of the SCP client service. At least one service instance must be configured to allow peering with the SCP.

The **no** form of this command removes the specified service instance.

Parameters

service-instance

Specifies the name of the service instance, up to 32 characters.

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4.2.2.289 http2-profile

Syntax

http2-profile *http2-profile-name*

no http2-profile

Context

[Tree] configure mobile-gateway pdn sba-client-services scp-client scp-service http2-profile

Description

This command configures an HTTP/2 profile for the client service. A single HTTP/2 profile can be configured for all client services in the **configure mobile-gateway pdn sba-client-services** context or per client service instance.

The **no** form of this command removes the HTTP/2 profile from the configuration.

Default

no http2-profile

Parameters

http2-profile-name

Specifies the name of the HTTP/2 profile, up to 32 characters. Refers to a profile configured using the following command.

```
configure mobile-gateway profile http2
```

4.2.2.290 interface

Syntax

interface *interface-name* [**router** *router-instance*]

no interface

Context

[Tree] configure mobile-gateway pdn sba-client-services scp-client scp-service interface

Description

This command configures the interface for the SCP client service instance.

The **no** form of this command removes the interface from the configuration.

Default

no interface

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Parameters

interface-name

Specifies an existing interface name, up to 32 characters. The name must start with a letter.

router-instance

Specifies the router instance.

Values: *router-name* | *service-id*

- *router-name* – Base
  - Default: Base
- *service-id* – 1 to 2147483647

4.2.2.291 nf-id-list

Syntax

nf-id-list *list-name*

no nf-id-list

Context

[Tree] configure mobile-gateway pdn sba-client-services scp-client scp-service nf-id-list

Description

This command configures an NF ID list name for the SCP client service instance.

The **no** form of this command removes the NF ID list configuration.

Default

no nf-id-list

Parameters

list-name

Specifies the name of an NF ID list, up to 32 characters.

4.2.2.292 scp-domain

Syntax

scp-domain *domain-name*

no scp-domain

Context

[Tree] configure mobile-gateway pdn sba-client-services scp-client scp-service scp-domain

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Description

This command configures an SCP domain for the SCP client service.

The **no** form of this command removes the SCP domain configuration.

Parameters

domain-name

Specifies the name of the SCP client service instance domain, up to 32 characters.

4.2.2.293 udm-client

Syntax

udm-client *service-instance*

Context

[Tree] configure mobile-gateway pdn sba-client-services udm-client

Description

Commands in this context configure the MAG-c client-side options when the MAG-c consumes UDM services.

The **no** form of this command removes the specified configuration.

Parameters

service-instance

Specifies the service instance name, up to 32 characters.

4.2.2.294 nudm-sdm

Syntax

no nudm-sdm *service-instance*

nudm-sdm *service-instance*

Context

[Tree] configure mobile-gateway pdn sba-client-services udm-client nudm-sdm

Description

This command configures an instance of the Nudm_SubscriberDataManagement service. At least one service instance must be configured to allow the MAG-c to get session management subscription data from the UDM.

The **no** form of this command removes the service instance from the configuration.

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Parameters

service-instance

Specifies the service instance name, up to 32 characters.

4.2.2.295 fqdn

Syntax

fqdn *fqdn-sni-string*

no fqdn

Context

[Tree] configure mobile-gateway pdn sba-client-services udm-client nudm-sdm fqdn

Description

This command configures the FQDN which is used by the MAG-c when it needs to construct a hostname for this client, for example for creating a callback URI.

A single FQDN can be configured for all client services in the **configure mobile-gateway pdn sba-client-services** context or per client service instance.

The **no** form of this command removes the FQDN from the configuration.

Default

no fqdn

Parameters

fqdn-sni-string

Specifies the FQDN name string, up to 255 characters.

4.2.2.296 http2-profile

Syntax

http2-profile *http2-profile-name*

no http2-profile

Context

[Tree] configure mobile-gateway pdn sba-client-services udm-client nudm-sdm http2-profile

Description

This command configures an HTTP/2 profile for the client service. A single HTTP/2 profile can be configured for all client services in the **configure mobile-gateway pdn sba-client-services** context or per client service instance.

The **no** form of this command removes the HTTP/2 profile from the configuration.

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Default

no http2-profile

Parameters

http2-profile-name

Specifies the name of the HTTP/2 profile, up to 32 characters. Refers to a profile configured using the following command.

```
configure mobile-gateway profile http2
```

4.2.2.297 implied-single-stack-pdu-session-types

Syntax

[**no**] **implied-single-stack-pdu-session-types**

Context

[Tree] configure mobile-gateway pdn sba-client-services udm-client nudm-sdm implied-single-stack-pdu-session-types

Description

When this command is enabled, the MAG-c adds IPv4 and IPv6 to the allow list when the UDM signals **IPV4V6** in the defaultSessionType or allowedSessionTypes IE of the Nudm_SDM Get Response, even when the UDM does not explicitly signal **IPV4** or **IPV6** in those IEs.

The **no** form of this command disables the functionality and causes the MAG-c to strictly enforce the allow list based on the content of the defaultSessionType and allowedSessionTypes IEs in the Nudm_SDM Get Response. An IPv4 or IPv6 PDU session type cannot be set up if it is not present in those IEs.

Default

no implied-single-stack-pdu-session-types

4.2.2.298 interface

Syntax

interface *interface-name* [**router** *router-instance*]

no interface

Context

[Tree] configure mobile-gateway pdn sba-client-services udm-client nudm-sdm interface

Description

This command configures the interface in which the HTTP/2 connections are established.

The **no** form of this command removes the interface from the configuration.

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Note: This command requires a PDN shutdown

Default

no interface

Parameters

interface-name

Specifies an existing interface name up to 32 characters, which must start with a letter.

router-instance

Specifies the router instance.

Values: *router-name* | *service-id*

- *router-name* – Base
  - Default: Base
- *service-id* – 1 to 2147483647

4.2.2.299 mode

Syntax

mode *mode* [**fallback** *fallback-mode*]

no mode

Context

[Tree] configure mobile-gateway pdn sba-client-services udm-client nudm-sdm mode

Description

This command configures the NUDM-SDM communication mode used by the UDM client.

The **no** form of this command reverts to the default.

Default

mode direct

Parameters

mode

Specifies the communication mode.

Values:

- **direct**
  Enables direct communication mode.
- **delegated**
  Enables indirect communication mode with delegated discovery.

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fallback-mode

Specifies the fallback communication mode.

Note: The fallback mode cannot be the same as the primary mode of communication configured using this command.

Values:

- **direct**
  Enables direct fallback communication mode.
- **none**
  Enables none for the fallback communication mode.

4.2.2.300 nf-id-list

Syntax

nf-id-list *list-name*

no nf-id-list

Context

[Tree] configure mobile-gateway pdn sba-client-services udm-client nudm-sdm nf-id-list

Description

This command configures an NF ID list for peer discovery of this client service instance. This list is used in the following cases:

- NRF based discovery only returns a list of NF Instances without IP/FQDN, in which case the specified NF Instance IDs must be present in the NF ID list.
- NRF based discovery fails (for example, returns an empty list or times out).
- NRF based discovery is disabled.

The **no** form of this command removes the NF ID list from the configuration.

Default

no nf-id-list

Parameters

list-name

Specifies the NF ID list name, up to 32 characters. NF ID lists are configured using the **configure mobile-gateway profile list nf-id-list** command.

4.2.2.301 udm-sdm-profile

Syntax

no udm-sdm-profile

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udm-sdm-profile *profile-name*

Context

[Tree] configure mobile-gateway pdn sba-client-services udm-client nudm-sdm udm-sdm-profile

Description

This command configures an Nudm_SDM profile with the service instance. This profile specifies transmission and error handling behavior.

The **no** form of this command removes the Nudm_SDM profile and reverts all behavior to default values.

Default

no udm-sdm-profile

Parameters

profile-name

Specifies the name of the Nudm_SDM profile, up to 32 characters. Nudm_SDM profiles are configured using the **configure mobile-gateway profile udm-sdm-profile** command.

4.2.2.302 unsubscribe-mode

Syntax

unsubscribe-mode *mode* [**expiry-time** *seconds*]

Context

[Tree] configure mobile-gateway pdn sba-client-services udm-client nudm-sdm unsubscribe-mode

Description

This command configures the subscription mode. When the *mode* parameter is set to **implicit**, the MAG-c sets the **implicitUnsubscribe IE** to true when creating a subscription in the UDM, else to false.

The **expiry-time** parameter is optional and specifies as follows how the **expires IE** is signaled to the UDM:

- If the **expiry-time** parameter is not specified, the **expires IE** depends on the value of the *mode* parameter:
  - When *mode* equals **implicit**, the **expires IE** is not included.
  - When *mode* equals **explicit**, the **expires IE** is included with a time stamp of 24 h in the future.
- If the **expiry-time** parameter is specified, the **expires IE** is included with a time stamp matching the expiration time value.

Default

unsubscribe-mode implicit

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Parameters

mode

Specifies the mode.

Values: explicit | implicit

seconds

Specifies the expiration time in seconds.

Values: 1800 to 604800

4.2.2.303 nudm-uecm

Syntax

no nudm-uecm *service-instance*

nudm-uecm *service-instance*

Context

[Tree] configure mobile-gateway pdn sba-client-services udm-client nudm-uecm

Description

This command configures an instance of the Nudm_UEContextManagement service. At least one service instance must be configured to allow the MAG-c to register PDU sessions in the UDM.

The **no** form of this command removes the service instance from the configuration.

Parameters

service-instance

Specifies the service instance name, up to 32 characters.

4.2.2.304 fqdn

Syntax

fqdn *fqdn-sni-string*

no fqdn

Context

[Tree] configure mobile-gateway pdn sba-client-services udm-client nudm-uecm fqdn

Description

This command configures the FQDN which is used by the MAG-c when it needs to construct a hostname for this client, for example for creating a callback URI.

A single FQDN can be configured for all client services in the **configure mobile-gateway pdn sba-client-services** context or per client service instance.

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The **no** form of this command removes the FQDN from the configuration.

Default

no fqdn

Parameters

fqdn-sni-string

Specifies the FQDN name string, up to 255 characters.

4.2.2.305 http2-profile

Syntax

http2-profile *http2-profile-name*

no http2-profile

Context

[Tree] configure mobile-gateway pdn sba-client-services udm-client nudm-uecm http2-profile

Description

This command configures an HTTP/2 profile for the client service. A single HTTP/2 profile can be configured for all client services in the **configure mobile-gateway pdn sba-client-services** context or per client service instance.

The **no** form of this command removes the HTTP/2 profile from the configuration.

Default

no http2-profile

Parameters

http2-profile-name

Specifies the name of the HTTP/2 profile, up to 32 characters. Refers to a profile configured using the following command.

```
configure mobile-gateway profile http2
```

4.2.2.306 interface

Syntax

interface *interface-name* [**router** *router-instance*]

no interface

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Context

[Tree] configure mobile-gateway pdn sba-client-services udm-client nudm-uecm interface

Description

This command configures the interface in which the HTTP/2 connections are established.

The **no** form of this command removes the interface from the configuration.

Note: This command requires a PDN shutdown

Default

no interface

Parameters

interface-name

Specifies an existing interface name, up to 32 characters. The name must start with a letter.

router-instance

Specifies the router instance.

Values: *router-name* | *service-id*

- *router-name* – Base
  - Default: Base
- *service-id* – 1 to 2147483647

4.2.2.307 mode

Syntax

mode *mode* [**fallback** *fallback-mode*]

no mode

Context

[Tree] configure mobile-gateway pdn sba-client-services udm-client nudm-uecm mode

Description

This command configures the NUDM-UECM communication used by the UDM client.

The **no** form of this command removes the configured mode.

Default

mode direct

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Parameters

mode

Specifies the communication mode.

Values:

- **direct**
  Enables direct communication mode.
- **delegated**
  Enables indirect communication mode with delegated discovery.

fallback-mode

Specifies the fallback communication mode.

Note: The fallback mode cannot be the same as the primary mode of communication configured using this command.

Values:

- **direct**
  Enables direct fallback communication mode.
- **none**
  Enables none for the fallback communication mode.

4.2.2.308 nf-id-list

Syntax

no nf-id-list

nf-id-list *list-name*

Context

[Tree] configure mobile-gateway pdn sba-client-services udm-client nudm-uecm nf-id-list

Description

This command configures an NF ID list for peer discovery of this client service instance. This list is used in the following cases:

- NRF based discovery only returns a list of NF Instances without IP/FQDN, in which case the specified NF Instance IDs must be present in the NF ID list.
- NRF based discovery fails (for example, returns an empty list or times out).
- NRF based discovery is disabled.

The **no** form of this command removes the NF ID list from the configuration.

Default

no nf-id-list

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Parameters

list-name

Specifies the NF ID list name, up to 32 characters. NF ID lists are configured using the **configure mobile-gateway profile list nf-id-list** command.

4.2.2.309 udm-uecm-profile

Syntax

no udm-uecm-profile

udm-uecm-profile *profile-name*

Context

[Tree] configure mobile-gateway pdn sba-client-services udm-client nudm-uecm udm-uecm-profile

Description

This command configures an Nudm_UECM profile with the service instance. This profile specifies transmission and error handling behavior.

The **no** form of this command removes the Nudm_UECM profile and reverts all behavior to default values.

Default

no udm-uecm-profile

Parameters

profile-name

Specifies the name of the Nudm_UECM profile, up to 32 characters. Nudm_UECM profiles are configured using the **configure mobile-gateway profile udm-uecm-profile** command.

4.2.2.310 sba-server-services

Syntax

sba-server-services

Context

[Tree] configure mobile-gateway pdn sba-server-services

Description

Commands in this context configure the server-side options provided by MAG-c as an NF producer.

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4.2.2.311 fqdn

Syntax

fqdn *fqdn-sni-string*

no fqdn

Context

[Tree] configure mobile-gateway pdn sba-server-services fqdn

Description

This command configures an FQDN that is used by all SBA server services. Each server service may also override this with a more service-specific FQDN.

The **no** form of this command removes the FQDN from the configuration.

Default

no fqdn

Parameters

fqdn-sni-string

Specifies the FQDN name string, up to 255 characters.

4.2.2.312 http2-profile

Syntax

http2-profile *http2-profile-name*

no http2-profile

Context

[Tree] configure mobile-gateway pdn sba-server-services http2-profile

Description

This command configures an HTTP/2 profile for the client service. A single HTTP/2 profile can be configured for all client services in the **configure mobile-gateway pdn sba-client-services** context or per client service instance.

The **no** form of this command removes the HTTP/2 profile from the configuration.

Default

no http2-profile

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Parameters

fqdn-sni-string

Specifies the name of the HTTP/2 profile, up to 32 characters. Refers to a profile configured using the following command.

```
configure mobile-gateway profile http2
```

4.2.2.313 nsmf-pdusession

Syntax

no nsmf-pdusession *service-name*

nsmf-pdusession *service-name*

Context

[Tree] configure mobile-gateway pdn sba-server-services nsmf-pdusession

Description

This command configures a service instance of the Nsmf_PDUSession service. At least one service instance must be configured to allow peering with AMF. The service also must be provisioned as a **server-service** in the **configure mobile-gateway pdn sba-service-realm** context.

The **no** form of this command removes the service instance from the configuration.

Note: This command requires a PDN shutdown.

Parameters

service-name

Specifies the service instance name, up to 32 characters.

4.2.2.314 allowed-nf-domains-list

Syntax

allowed-nf-domains-list *list-name*

no allowed-nf-domains-list

Context

[Tree] configure mobile-gateway pdn sba-server-services nsmf-pdusession allowed-nf-domains-list

Description

This command configures the allowed NF domains for the NF service instance. The allowed NF domain list is configured using the **configure mobile-gateway profile list allowed-nf-domains-list** command. These domains are used in the NFProfile field during registration to the NRF. The configured values of the list are

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also used for static authorization that manages (allows or disallows), serving requests from the indicated NF domains.

The **no** form of this command removes the configuration.

Default

no allowed-nf-domains-list

Parameters

list-name

Specifies the allowed NF domain list name, up to 32 characters.

4.2.2.315 allowed-plmns

Syntax

allowed-plmns *list-name*

no allowed-plmns

Context

[Tree] configure mobile-gateway pdn sba-server-services nsmf-pdusession allowed-plmns

Description

This command configures the allowed PLMN list for the NF Service Instance. This list is configured using the **configure mobile-gateway profile list plmn** command. These PLMNs are used in the NFProfile field during registration to the NRF. If the PLMN list is not defined, the service applies to any PLMN.

The **no** form of this command removes the association of the PLMN list.

Default

no allowed-plmns

Parameters

list-name

Specifies the PLMN list name, up to 32 characters.

4.2.2.316 allowed-slices

Syntax

allowed-slices *list-name*

no allowed-slices *list-name*

Context

[Tree] configure mobile-gateway pdn sba-server-services nsmf-pdusession allowed-slices

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Description

This command configures the allowed S-NSSAI list for the NF Service Instance. The allowed slice list is configured using the **configure mobile-gateway profile list slice-list** command. These slices are used in the NFProfile field during registration to the NRF. If the slice list is not configured, nothing is sent to NRF and all slices are allowed.

The **no** form of this command removes the allowed slice list from the configuration.

Default

no allowed-slices

Parameters

list-name

Specifies the slice list name, up to 32 characters.

4.2.2.317 api-prefix

Syntax

api-prefix *api-prefix*

no api-prefix

Context

[Tree] configure mobile-gateway pdn sba-server-services nsmf-pdusession api-prefix

Description

This command configures the API prefix for the service that defines the optional path segment in the API root.

The **no** form of this command removes the API prefix from configuration.

Default

no api-prefix

Parameters

api-prefix

Specifies the API prefix, up to 32 characters.

4.2.2.318 fqdn

Syntax

fqdn *fqdn-sni-string*

no fqdn

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Context

[Tree] configure mobile-gateway pdn sba-server-services nsmf-pdusession fqdn

Description

This command configures an FQDN for the Nsmf_pdusession server service. This overrides any **fqdn** configuration under **configure mobile-gateway pdn sba-server-services**.

The **no** form of this command removes the FQDN from the configuration.

Default

no fqdn

Parameters

fqdn-sni-string

Specifies the FQDN name string, up to 255 characters.

4.2.2.319 http2-profile

Syntax

http2-profile *http2-profile*

no http2-profile

Context

[Tree] configure mobile-gateway pdn sba-server-services nsmf-pdusession http2-profile

Description

This command configures an HTTP/2 profile for the Nsmf_pdusession server service. This overrides any **http2-profile** configuration under **configure mobile-gateway pdn sba-server-services**.

The **no** form of this command removes the HTTP/2 profile from configuration. If another HTTP/2 profile is present under **configure mobile-gateway pdn sba-server-services**, it is used instead. If not, no HTTP/2 profile is applied and default HTTP/2 parameters are used.

Default

no http2-profile

Parameters

http2-profile-name

Specifies the name of the HTTP/2 profile, up to 32 characters. Refers to a profile configured using the following command.

```
configure mobile-gateway profile http2
```


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4.2.2.320 interface

Syntax

interface *interface-name* [**router** *router-instance*] [**port** *port-number*]

no interface

Context

[Tree] configure mobile-gateway pdn sba-server-services nsmf-pdusession interface

Description

This command configures the interface on which the NF service listens for incoming HTTP/2 connections. By default the service listens on port 80, but an alternative port can be specified.

The **no** form of this command removes the interface from the configuration.

Note: This command requires a PDN shutdown.

Default

no interface

Parameters

interface-name

Specifies an existing interface name, up to 32 characters. The name must start with a letter.

router-instance

Specifies the router instance.

Values: *router-name* | *service-id*

- *router-name* – Base
- *service-id* – 1 to 2147483647

Default: Base

port-number

Specifies the port number.

Values: 1 to 65535

Default: 80

4.2.2.321 n3-interface-realm

Syntax

n3-interface-realm *realm-name*

no n3-interface-realm

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Context

[Tree] configure mobile-gateway pdn sba-server-services nsmf-pdusession n3-interface-realm

Description

This command configures the network instance of the N3 reference point that is sent to the FWA UP in PFCP messaging. In case interworking with 4G is required, this realm must be configured the same as the *interface-realm* parameter of the **configure mobile-gateway pdn s11 interface gtp-c** command.

The **no** form of this command removes the N3 interface realm.

Default

no n3-interface-realm

Parameters

realm-name

Specifies the realm name, up to 32 characters.

4.2.2.322 s5-ref-point

Syntax

s5-ref-point *sig-ref-point-name*

no s5-ref-point

Context

[Tree] configure mobile-gateway pdn sba-server-services nsmf-pdusession s5-ref-point

Description

This command configures the S5 reference point associated with this Nsmf_PDUSession service instance.

The configuration is required for EPS interworking to define the S5 reference point used when there is handover from 5GS to EPS.

The **no** form of this command removes the S5 reference point associated with the Nsmf_PDUSession service instance.

Parameters

sig-ref-point-name

Specifies the reference point name, up to 32 characters.

4.2.2.323 sba-service-realm

Syntax

[no] sba-service-realm *service-realm*

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Context

[Tree] configure mobile-gateway pdn sba-service-realm

Description

This command configures an SBA service realm on the MAG-c. The service realm binds the server and client service instances together.

The **no** form of this command removes the specified service realm from the configuration

Parameters

service-realm

Specifies the SBA service realm name, up to 32 characters.

4.2.2.324 client-service

Syntax

[no] client-service *service-name* **service-instance** *service-instance*

Context

[Tree] configure mobile-gateway pdn sba-service-realm client-service

Description

This command configures a client-side service instance on the MAG-c under the service realm.

The **no** form of this command removes the specified client-side service instance from the configuration.

Parameters

service-name

Specifies the service name.

Values: namf-comm | npcf-smpolicycontrol | nudm-sdm | nudm-uecm | nnrf-nfm | nnrf-disc | nchf-convergedcharging

service-instance

Specifies the service instance, up to 32 characters.

4.2.2.325 server-service

Syntax

[no] server-service *service-name* **service-instance** *service-instance*

Context

[Tree] configure mobile-gateway pdn sba-service-realm server-service

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Description

This command configures a server-side service instance on the MAG-c under the service realm.

The **no** form of this command removes the specified server-side service instance from the configuration.

Note: The command requires a PDN shutdown when the service-name parameter is set to nsmf-pdusession.

Parameters

service-name

Specifies the service name.

Values: nsmf-pdusession

service-instance

Specifies the service instance, up to 32 characters.

4.2.2.326 serving-node-for-combo-sessions

Syntax

serving-node-for-combo-sessions {**mme** | **sgw**}

no serving-node-for-combo-sessions

Context

[Tree] configure mobile-gateway pdn serving-node-for-combo-sessions

Description

This command configures the IP address that the PGW sends as the serving node IP address to various interfaces for combined SGW/PGW sessions. You can reconfigure this command at any time; when the IP address changes, the next message sent to the peer reflects the changed address.

The **no** form of this command reverts to the default, that is, using the existing behavior of sending the MME IP address as the serving node.

Default

serving-node-for-combo-sessions mme

Parameters

mme

Keyword to enable the MME as the serving node for combined sessions.

sgw

Keyword to enable the SGW as the serving node for combined sessions.

Default: mme

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4.2.2.327 session-deletion-rate

Syntax

session-deletion-rate *session-deletion-rate*

no session-deletion-rate

Context

[Tree] configure mobile-gateway pdn session-deletion-rate

Description

This command configures the session deletion rate for bulk deletes, for example, deletes triggered by the following command.

```
clear mobile-gateway pdn bearer-context
```

The **no** form of this command reverts to the default.

Default

session-deletion-rate 512

Parameters

session-deletion-rate

Specifies the session deletion rate in sessions per second.

Values: 2 to 2048

Default: 512

4.2.2.328 shutdown

Syntax

[**no**] **shutdown**

Context

[Tree] configure mobile-gateway pdn shutdown

Description

This command administratively disables the entity. When disabled, an entity does not change, reset, or remove any configuration settings or statistics. Many entities must be explicitly enabled using the **no shutdown** command.

The operational state of the entity is disabled as well as the operational state of any entities contained within. Many objects must be shut down before they may be deleted.

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Caution: The use of the **configure mobile-gateway pdn shutdown** command on the mobile gateway and in the operational active role in geographical redundancy deployments affects the service. When the command is issued a warning informs the administrator that the execution of the command affects the service.

4.2.2.329 signaling

Syntax

signaling

Context

[Tree] configure mobile-gateway pdn signaling

Description

Commands in this context configure signaling.

4.2.2.330 gtp-c

Syntax

gtp-c

Context

[Tree] configure mobile-gateway pdn signaling gtp-c

Description

This command specifies the GPRS Tunneling Protocol-Control plane (GTP-C) profile name. The GTP-C profile provides GTP-C signaling related configuration.

Note: This command requires a PDN shutdown.

4.2.2.331 profile

Syntax

profile *profile-name*

no profile

Context

[Tree] configure mobile-gateway pdn signaling gtp-c profile

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Description

This command specifies the GTP-C profile name.

The **no** form of this command removes the profile name from the configuration.

Note: This command requires a PDN shutdown.

Default

no profile

Parameters

profile-name

Specifies the GTP-C profile name.

4.2.2.332 slices

Syntax

slices

Context

[Tree] configure mobile-gateway pdn slices

Description

This command enables the context to configure a slice list or a slice instance list that the MAG-c supports and signals to the NRF when registering itself.

4.2.2.333 slice-instance-list

Syntax

slice-instance-list *list-name*

no slice-instance-list

Context

[Tree] configure mobile-gateway pdn slices slice-instance-list

Description

This command configures the slice instances that the MAG-c supports and signals during NF registration and in the NF update to the NRF.

The **no** form of this command removes the configuration.

Default

no slice-instance-list

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Parameters

list-name

Specifies the name of the slice instance list, up to 32 characters. The slice instance list is configured using the following command.

```
configure mobile-gateway profile list slice-instance-list
```

4.2.2.334 slice-list

Syntax

slice-list *list-name*

no slice-list

Context

[Tree] configure mobile-gateway pdn slices slice-list

Description

This command configures the slices that the MAG-c supports and signals during NF registration and in the NF update to the NRF.

The **no** form of this command removes the configuration.

Default

no slice-list

Parameters

list-name

Specifies the name of the slice list, up to 32 characters. The slice list is configured using the following command.

```
configure mobile-gateway profile list slice-list
```

4.2.2.335 suspend

Syntax

[**no**] **suspend**

Context

[Tree] configure mobile-gateway pdn suspend

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Description

This command puts the gateway instance in suspend state. While in suspend state, no new sessions can be connected to the gateway, but existing sessions are not automatically removed.

The **no** form of this command removes the suspend state. New sessions can connect again.

Default

no suspend

4.2.2.336 sx-n4

Syntax

[**no**] **sx-n4** [*ref-point-name*]

Context

[Tree] configure mobile-gateway pdn sx-n4

Description

Commands in this context configure the Sx/N4 interface parameters.

Note: This command requires a PDN shutdown.

Default

sx-n4 "default"

Parameters

ref-point-name

Specifies a name to associate with this reference point, up to 32 characters.

4.2.2.337 enforced-pfcp-association-list

Syntax

[**no**] **enforced-pfcp-association-list**

Context

[Tree] configure mobile-gateway pdn sx-n4 enforced-pfcp-association-list

Description

This command enables the PFCP to accept only PFCP association setup from a peer that is configured in the PFCP association list (using the pfcp-association-list command).

The **no** form of this command reverts to the default, which accepts and dynamically adds PFCP association requests from a peer that is not configured in the PFCP association list.

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4.2.2.338 interface

Syntax

interface

Context

[Tree] configure mobile-gateway pdn sx-n4 interface

Description

Commands in this context configure GTP-U and Packet Forwarding Control Protocol (PFCP) parameters for the Sx/N4 interface.

Note: This command requires a PDN shutdown.

4.2.2.339 ibcp

Syntax

ibcp [**router** *router-name*] *interface-name*

no ibcp

Context

[Tree] configure mobile-gateway pdn sx-n4 interface ibcp

Description

This command configures the binding Sx-N4 binding interface for In-Band Control Protocol (IBCP).

The **no** form of this command removes the configuration.

Note: This command requires a PDN shutdown.

Parameters

router-name

Specifies the router instance, up to 32 characters.

interface-name

Specifies the interface name, up to 32 characters.

4.2.2.340 pfcp

Syntax

pfcp [**router** *router-instance*] *interface-name*

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no pfcp

Context

[Tree] configure mobile-gateway pdn sx-n4 interface pfcp

Description

This command configures the Packet Forwarding Control Plane (PFCP) profile parameters for the Sx/N4 interface.

The **no** form of this command removes the parameter from the configuration.

Note: This command requires a PDN shutdown.

Parameters

router-instance

Specifies the router instance, up to 32 characters.

interface-name

Specifies an interface name, up to 32 characters.

4.2.2.341 pfcp-association-list

Syntax

pfcp-association-list *list-name*

no pfcp-association-list

Context

[Tree] configure mobile-gateway pdn sx-n4 pfcp-association-list

Description

This command links the PFCP association peer list to the PDN that is configured as the CP or UP function using the following command.

```
configure mobile-gateway pdn instance-type
```

If the gateway is configured as a CP function, the command links the PFCP association peer list of the UP function peers that are to be associated with this Sx/N4 interface.

If the gateway is configured as a UP function, the command links the PFCP association peer list of the CP function peers that are to be associated with this Sx/N4 interface.

Note:

- If sessions exist on any peers in the specified PFCP association peer list, you must shutdown the PDN before removing or replacing the list.

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- You can modify an existing PFCP association peer list on the fly (without a shutdown), to add or remove peers that do not have any sessions.

Parameters

list-name

Specifies the name of the PFCP association peer list defined in the **configure mobile-gateway profile pfcp** context, up to 32 characters.

4.2.2.342 signaling

Syntax

signaling

Context

[Tree] configure mobile-gateway pdn sx-n4 signaling

Description

Commands in this context configure the signaling parameters of the Sx/N4 interface.

Note: This command requires a PDN shutdown.

4.2.2.343 ibcp

Syntax

ibcp

Context

[Tree] configure mobile-gateway pdn sx-n4 signaling ibcp

Description

Commands in this context configure IBCP signaling parameters.

Note: This command requires a PDN shutdown.

4.2.2.344 bng-entry-point

Syntax

bng-entry-point *name*

no bng-entry-point

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Context

[Tree] configure mobile-gateway pdn sx-n4 signaling ibcp bng-entry-point

Description

This command configures the BNG entry point name, which are used to start authenticating control plane packets received over the default IBCP tunnel.

Note: This command requires a PDN shutdown.

Parameters

name

Specifies the BNG entry point name, up to 32 characters.

4.2.2.345 ip-dscp

Syntax

ip-dscp *ip-dscp-value*

no ip-dscp

Context

[Tree] configure mobile-gateway pdn sx-n4 signaling ibcp ip-dscp

Description

This command configures the IPv4 DSCP or IPv6 Traffic Class DS value that is used in the outer IP header of outgoing IBCP messages.

Note: This command requires a PDN shutdown.

Default

ip-dscp 56

Parameters

ip-dscp-value

Specifies the value of the IPv4 DSCP or IPv6 Traffic Class DS.

Values: 0 to 63

4.2.2.346 ip-ttl

Syntax

ip-ttl *ip-ttl-value*

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no ip-ttl

Context

[Tree] configure mobile-gateway pdn sx-n4 signaling ibcp ip-ttl

Description

This command configures the TTL value that is used in the outer IP header of outgoing IBCP messages.

Note: This command requires a PDN shutdown.

Default

ip-ttl 254

Parameters

ip-ttl-value

Specifies the value of the TTL used in the outer IP header.

Values: 0 to 255

4.2.2.347 triggers

Syntax

triggers [**pppoe-discover**] [**ipoe-dhcp**] [**ipoe-dhcpv6**] [**ipoe-router-solicit**] [**ipoe-data**]

no triggers

Context

[Tree] configure mobile-gateway pdn sx-n4 signaling ibcp triggers

Description

This command specifies the type of control packets that are sent over the default IBCP tunnel.

The **no** form of this command disables the default IBCP tunnel.

Note: This command requires a PDN shutdown.

Parameters

pppoe-discovery

Enables the PPPoE discover trigger.

ipoe-dhcp

Enables the DHCP IPoE trigger.

ipoe-dhcpv6

Enables the DHCPv6 IPoE trigger.

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ipoe-router-solicit

Enables the RS IPoE trigger.

ipoe-data

Enables the IPoE data trigger.

4.2.2.348 pfcp

Syntax

pfcp

Context

[Tree] configure mobile-gateway pdn sx-n4 signaling pfcp

Description

Commands in this context configure PFCP signaling parameters.

Note: This command requires a PDN shutdown.

4.2.2.349 profile

Syntax

profile *profile-name*

no profile

Context

[Tree] configure mobile-gateway pdn sx-n4 signaling pfcp profile

Description

This command configures the PFCP profile for use in the Sx/N4 interface.

The **no** form of this command removes the association.

Note: This command requires a PDN shutdown.

Parameters

profile-name

Specifies a policy base profile name, up to 32 characters.

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4.2.2.350 up-peer-list

Syntax

up-peer-list *list-name*

no up-peer-list

Context

[Tree] configure mobile-gateway pdn up-peer-list

Description

This command associates a UP peer list with the MAG-c. For FWA sessions, this list must be populated to select an FWA UP. For fixed BNG sessions, the entries in this list are ignored and the list may be empty.

The **no** form of this command removes the UP peer list association.

Note: This command requires a PDN shutdown.

Default

no up-peer-list

Parameters

list-name

Specifies the UP peer list name, up to 32 characters.

4.2.2.351 up-selection

Syntax

up-selection

Context

[Tree] configure mobile-gateway pdn up-selection

Description

Commands in this context configure the UP selection.

4.2.2.352 pgw-u-client-profile

Syntax

pgw-u-client-profile *client-profile-name*

no pgw-u-client-profile

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Context

[Tree] configure mobile-gateway pdn up-selection pgw-u-client-profile

Description

This command configures the PGW-U selection policy. The MAG-c applies the specified client profile for PGW-U node selection on the control plane.

The **no** form of this command removes the configuration.

Parameters

client-profile-name

Specifies the client profile name, up to 32 characters.

4.2.3 configure mobile-gateway profile amf-profile command descriptions

4.2.3.1 amf-profile

Syntax

[**no**] **amf-profile** *profile-name*

Context

[Tree] configure mobile-gateway profile amf-profile

Description

This command configures an AMF profile that defines the failure-handling policy when the AMF services are used.

The **no** form of this command removes the AMF profile from the configuration.

Parameters

profile-name

Specifies the profile name, up to 32 characters.

4.2.3.2 fh-session-no-response

Syntax

fh-session-no-response *action*

Context

[Tree] configure mobile-gateway profile amf-profile fh-session-no-response

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Description

This command configures the failure handling behavior when no response from the AMF is received.

Default

fh-session-no-response attempt-continue

Parameters

action

Specifies the failure handling action.

Values:

- terminate – keyword to terminate the session
- attempt-continue – keyword to continue the triggering procedure. This may fail the procedure or terminate the session, depending on whether the procedure can continue without AMF interaction.

4.2.3.3 http-status-code

Syntax

http-status-code *status-code-value* [**application-error** *app-error-code*] {**attempt-continue** | **terminate**}

no http-status-code *status-code-value* [**application-error** *app-error-code*]

Context

[Tree] configure mobile-gateway profile amf-profile http-status-code

Description

This command configures the failure-handling behavior for a specific HTTP status code. Optionally, you can specify a more granular failure handling behavior per status code and per application error. When an error is received, the following priority determines the failure handling behavior in the order listed:

1. If the error matches a specific HTTP status code and application error, use that behavior.
2. If the error matches a specific HTTP status code without an application error, use that behavior.
3. If the two previous priorities do not apply, use the **attempt-continue** option.

RFC 9110 section 15 defines HTTP status codes. 3GPP TS 29.518 table 6.1.7.3-1 defines application error codes for Namf_Communication, and 3GPP TS 29.500 table 5.2.7.2-1 defines common application error values.

The **no** form of this command removes the code-specific failure handling for that HTTP status code and optional application error code.

Parameters

status-code-value

Specifies the three-digit HTTP status code value.

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Values: 300 to 599

app-error-code

Specifies the application error, up to 64 characters.

attempt-continue

Keyword to continue the triggering procedure. This may fail the procedure or terminate the session, depending on whether the procedure can continue without AMF interaction.

terminate

Keyword to terminate the session.

4.2.3.4 retry-count

Syntax

retry-count *max*

no retry-count

Context

[Tree] configure mobile-gateway profile amf-profile retry-count

Description

This command configures the maximum number of times a message is retransmitted if there is no reply when the message is sent. The message is resent after the time configured by the **transaction-timer** command elapses and until the maximum number of retries is reached. If the message times out after the last retry, failure handling is triggered.

The **no** form of this command configures that no retries are attempted.

Default

no retry-count

Parameters

max

Specifies the maximum number of retries to resend the message.

Values: 1 to 10

4.2.3.5 transaction-timer

Syntax

transaction-timer *value*

no transaction-timer

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Context

[Tree] configure mobile-gateway profile amf-profile transaction-timer

Description

This command configures the transaction time used to send messages. If there is no reply during the transaction time, the message is resent until the retry count is reached, as configured by the **retry-count** command. If the message times out again, the connection to the AMF is considered down and failure handling is triggered.

The **no** form of this command reverts to the default.

Default

transaction-timer 5000

Parameters

value

Specifies the transaction timer value, in milliseconds.

Values: 1000 to 20000

4.2.4 configure mobile-gateway profile authentication-database command descriptions

4.2.4.1 authentication-database

Syntax

[**no**] **authentication-database** *db-name*

Context

[Tree] configure mobile-gateway profile authentication-database

Description

This command configures a new authentication database or enables the context to configure an existing **authentication-database**.

The **no** form of this command removes the authentication database name.

Parameters

db-name

Specifies the name of the authentication database, up to 32 characters.

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4.2.4.2 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile authentication-database description

Description

This command associates a text string with a configuration context to help identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Parameters

description-string

Specifies the description string composed of printable, 7-bit ASCII characters, up to 80 characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.4.3 entry

Syntax

[**no**] **entry** *name*

Context

[Tree] configure mobile-gateway profile authentication-database entry

Description

This command configures a new authentication database entry or enables the context to configure an existing **authentication-database entry**.

The **no** form of this command removes the selected entry from the authentication database.

Parameters

name

Specifies the entry name, up to 32 characters.

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4.2.4.4 access-loop-encapsulation

Syntax

access-loop-encapsulation

Context

[Tree] configure mobile-gateway profile authentication-database entry access-loop-encapsulation

Description

Commands in this context configure parameters for access loop encapsulation.

4.2.4.5 actual-rate-down

Syntax

actual-rate-down discard

actual-rate-down *rate*

no actual-rate-down

Context

[Tree] configure mobile-gateway profile authentication-database entry access-loop-encapsulation actual-rate-down

Description

This command configures the actual downstream rate for the last link mile in the access loop. For LAC, the rate overrides the actual downstream rate received in the PPPoE tags to send to the BNG-UP. The BNG-UP reflects this configuration in the L2TP signaling.

The **no** form of this command removes the configuration.

Default

no actual-rate-down

Parameters

discard

Keyword to discard the actual downstream rates from previous ADB lookups.

rate

Specifies the actual downstream rate.

Values: 1 to 2147483647

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4.2.4.6 action

Syntax

action *action-type*

action local-auth password *password* [**hash | hash2**]

action radius radius-authentication-profile *profile-name*

no action

Context

[Tree] configure mobile-gateway profile authentication-database entry action

Description

This command configures the action to apply to a match of the authentication database entry.

The **no** form of this command reverts to the default.

Default

action accept

Parameters

action-type

Specifies the action that is applied to a match.

Values:

- accept – the system uses the configurations in the entry to create the session
- reject – the system fails the session authentication
- local-auth – the system uses the specified password and configured username for authentication
- radius – the system does a RADIUS authentication with the specified radius-authentication-profile; if RADIUS authentication succeeds, the system uses what the RADIUS server returns and the configurations in the entry to create the session; if RADIUS authentication fails, the system fails the session authentication

password

Specifies the password, up to 64 characters

hash | hash2

Specifies the version of the hash algorithm used for the encryption of the password. If the **hash** or **hash2** keyword is not used, the secret is assumed to be in an unencrypted clear text form.

Note: For security purposes, all keys are automatically stored in an encrypted hash form in the configuration. The configuration in the following

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context defines the hash form when the password is configured in clear text format (that is, **hash** or **hash2** is not specified).

```
system security hash-control
```

profile-name

Specifies the RADIUS authentication profile name, up to 32 characters (required if *action-type* is **radius**).

4.2.4.7 address-assignment

Syntax

address-assignment

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment

Description

This command enables the context for configuring a session address assignment.

Default

address-assignment

4.2.4.8 delegated-prefix-length

Syntax

delegated-prefix-length *length*

no delegated-prefix-length

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment delegated-prefix-length

Description

This command configures the length of the delegated prefix requested from ODSA.

The **no** form of this command removes the configuration.

Default

no delegated-prefix-length

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Parameters

length

Specifies the length.

Values: 48 to 64

4.2.4.9 dhcp-relay

Syntax

dhcp-relay

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment dhcp-relay

Description

Commands in this context configure DHCP relay.

4.2.4.10 ipv4

Syntax

ipv4

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment dhcp-relay ipv4

Description

Commands in this context configure DHCPv4 relay.

4.2.4.11 gi-address

Syntax

gi-address *ip-address*

no gi-address

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment dhcp-relay ipv4 gi-address

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Description

This command configures the gateway IP address (giaddr) for DHCPv4 relay. The specified address must be configured on a MAG-c IP interface that is reachable by the DHCPv4 server. Typically, this is a /32 address configured on a loopback interface.

The **no** form of this command removes the configuration.

Parameters

ip-address

Specifies the gateway IP interface address.

Values: a.b.c.d

4.2.4.12 options

Syntax

options

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment dhcp-relay ipv4 options

Description

Commands in this context configure the options for DHCPv4 relay.

4.2.4.13 request-dhcp-profile

Syntax

request-dhcp-profile discard

request-dhcp-profile *name*

no request-dhcp-profile

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment dhcp-relay ipv4 options request-dhcp-profile

Description

This command configures the DHCP profile for the DHCPv4 request messages relayed toward the server.

The **no** form of this command removes the configuration.

Parameters

discard

Keyword to discard the DHCP profile from previous ADB lookups.

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name

Specifies the DHCP profile name, up to 32 characters.

4.2.4.14 response-dhcp-profile

Syntax

response-dhcp-profile discard

response-dhcp-profile *name*

no response-dhcp-profile

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment dhcp-relay ipv4 options response-dhcp-profile

Description

This command configures the DHCP profile for the DHCPv4 response messages relayed toward the client.

The **no** form of this command removes the configuration.

Parameters

discard

Keyword to discard the DHCP profile from previous ADB lookups.

name

Specifies the DHCP profile name, up to 32 characters.

4.2.4.15 pool

Syntax

pool *pool-name*

no pool

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment dhcp-relay ipv4 pool

Description

This command configures the IP address pool to track the addresses assigned by the DHCP server.

The **no** form of this command removes the configuration.

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Parameters

name

Specifies the pool name, up to 32 characters.

4.2.4.16 router

Syntax

router *router-instance*

no router

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment dhcp-relay ipv4 router

Description

This command configures the router instance to reach the DHCP server.

The **no** form of this command removes the configuration.

Parameters

router-instance

Specifies the router instance.

Values: *router-name* | *vprn-svc-id*
where

router-name – "Base" | "management"

vprn-svc-id – 1 to 2147483647

4.2.4.17 server

Syntax

server *ip-address* [*ip-address*...(up to 8 max)]

no server

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment dhcp-relay ipv4 server

Description

This command configures the IP addresses of the DHCP servers.

The **no** form of this command removes the configuration.

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Parameters

ip-address

Specifies the IP address of the DHCP server.

Values: a.b.c.d

4.2.4.18 ipv6

Syntax

ipv6

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment dhcp-relay ipv6

Description

Commands in this context configure DHCPv6 relay.

4.2.4.19 link-address

Syntax

link-address *ipv6-address*

no link-address

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment dhcp-relay ipv6 link-address

Description

This command configures the link-address for DHCPv6 relay.

The **no** form of this command removes the configuration.

Parameters

ipv6-address

Specifies the link-address.

Values: x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
where

x – [0..FFFF]H

d – [0..255]D

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4.2.4.20 options

Syntax

options

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment dhcp-relay ipv6 options

Description

Commands in this context configure the DHCPv6 relay options.

4.2.4.21 request-dhcp6-profile

Syntax

request-dhcp6-profile discard

request-dhcp6-profile discard *name*

no request-dhcp6-profile discard

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment dhcp-relay ipv6 options request-dhcp6-profile

Description

This command configures the DHCP profile for the DHCPv6 request messages relayed toward the server.

The **no** form of this command removes the configuration.

Parameters

discard

Keyword to discard the DHCP profile from previous ADB lookups.

name

Specifies the DHCP profile name, up to 32 characters.

4.2.4.22 pool

Syntax

pool *name*

no pool

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Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment dhcp-relay ipv6 pool

Description

This command configures the IP address pool to track the addresses assigned by the DHCPv6 server.

The **no** form of this command removes the configuration.

Parameters

name

Specifies the pool name, up to 32 characters.

4.2.4.23 router

Syntax

router *router-instance*

no router

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment dhcp-relay ipv6 router

Description

This command configures the router instance to reach DHCPv6 server.

The **no** form of this command removes the configuration.

Parameters

router-instance

Specifies the router instance.

Values: *router-name* | *vprn-svc-id*
where

router-name – "Base" | "management"

vprn-svc-id – 1 to 2147483647

4.2.4.24 server

Syntax

server *ipv6-address* [*ipv6-address*...(up to 8 max)]

no server

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Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment dhcp-relay ipv6 server

Description

This command configures the IP addresses of the DHCPv6 servers.

The **no** form of this command removes the configuration.

Parameters

ipv6-address

Specifies the IPv6 address of the DHCP server.

Values: x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
where

x – [0..FFFF]H

d – [0..255]D

4.2.4.25 source-ip-address

Syntax

source-ip-address *ipv6-address*

no source-ip-address

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment dhcp-relay ipv6 source-ip-address

Description

This command configures the source IPv6 address of the relayed DHCPv6 message toward the server. It must be a local IP interface address.

The **no** form of this command removes the configuration.

Parameters

ipv6-address

Specifies the source IPv6 address.

Values: x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
where

x – [0..FFFF]H

d – [0..255]D

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4.2.4.26 initial-ip-handling

Syntax

initial-ip-handling

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment initial-ip-handling

Description

Commands in this context configure how the IP address is handled in address assignment.

4.2.4.27 data-trigger

Syntax

data-trigger

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment initial-ip-handling data-trigger

Description

Commands in this context configure how the source IP address of a data-trigger packet is handled in address assignment.

4.2.4.28 ipv6-address-assignment-type

Syntax

ipv6-address-assignment-type *type* [**pd-prefix-length** *length*]

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment initial-ip-handling data-trigger ipv6-address-assignment-type

Description

This command configures the IPv6 address and prefix type created by the IPoE data-trigger when the **unmanaged-default** option is specified for the **source-ip** command.

The **no** form of this command removes the configuration.

Default

no ipv6-address-assignment-type

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Parameters

type

Specifies the IPv6 address and prefix type created by IPoE data-trigger.

Values:

- na – IPv6 NA
- pd – IPv6 PD prefix
- slaac – IPv6 SLAAC prefix

length

Specifies the prefix length.

Values: 48 to 64

4.2.4.29 source-ip

Syntax

source-ip {**ignore** | **unmanaged-default**}

no source-ip

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment initial-ip-handling data-trigger source-ip

Description

This command configures the method to handle the source IP address of a data-trigger packet in address assignment.

The **no** form of this command removes the configuration.

Default

no source-ip

Parameters

ignore

Keyword to force address assignment in the ADB entry or from AAA.

unmanaged-default

Keyword to use an unmanaged address and prefix based on the source IP address. You can use the **ipv6-address-assignment-type** command in conjunction with this option to define the source IPv6 address modeling in the IPoE session.

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4.2.4.30 lifetimes

Syntax

lifetimes

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment lifetimes

Description

This command enables the context for configuring lifetime timers for the session.

4.2.4.31 dhcpv6-rebind

Syntax

no dhcpv6-rebind

dhcpv6-rebind *seconds*

dhcpv6-rebind [**days** *days*] [**hrs** *hours*] [**min** *mins*] [**sec** *secs*]

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment lifetimes dhcpv6-rebind

Description

This command configures the DHCPv6 rebind (T2) timer. If the timer expires and renew failed, the client must send a rebind message. If unspecified, the default value of the rebind timer is 80% of the preferred lifetime. A value equal to zero means that the timer is unspecified and that the client can choose the value.

Note: At session setup, DHCPv6 renew, DHCPv6 rebind, preferred lifetime, and valid lifetime must all be smaller than or equal to the next in the list. Otherwise, all timers fall back to their defaults.

The **no** form of this command removes the configuration.

Default

no dhcpv6-rebind

Parameters

seconds

Specifies the lifetime in seconds.

Values: 0 | 240 to 5184000

days

Specifies the number of days.

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Values: 0 to 60

hours

Specifies the number of hours.

Values: 0 to 23

mins

Specifies the number of minutes.

Values: 0 to 59

secs

Specifies the number of seconds.

Values: 0 to 59

4.2.4.32 dhcpv6-renew

Syntax

no dhcpv6-renew

dhcpv6-renew *seconds*

dhcpv6-renew [**days** *days*] [**hrs** *hours*] [**min** *mins*] [**sec** *secs*]

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment lifetimes dhcpv6-renew

Description

This command configures the DHCPv6 renew (T1) timer. If the timer expires, the client must send a renew message. If unspecified, the default value of the renew timer is half of the preferred lifetime. A value equal to zero means that the timer is unspecified and that the client can choose the value.

Note: At session setup, DHCPv6 renew, DHCPv6 rebind, preferred lifetime, and valid lifetime must all be smaller than or equal to the next in the list. Otherwise, all timers fall back to their defaults.

The **no** form of this command removes the configuration.

Default

no dhcpv6-renew

Parameters

seconds

Specifies the lifetime in seconds.

Values: 0 | 150 to 5184000

days

Specifies the number of days.

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Values: 0 to 60

hours

Specifies the number of hours.

Values: 0 to 23

mins

Specifies the number of minutes.

Values: 0 to 59

secs

Specifies the number of seconds.

Values: 0 to 59

4.2.4.33 preferred

Syntax

no preferred

preferred *seconds*

preferred [**days** *days*] [**hrs** *hours*] [**min** *mins*] [**sec** *secs*]

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment lifetimes preferred

Description

This command configures the lifetime for an IPv6 address to be preferred. The preferred address can be used to forward traffic for existing flows and to set up new flows. If unspecified, the default value of the preferred lifetime is seven days.

Note: At session setup, DHCPv6 renew, DHCPv6 rebind, preferred lifetime, and valid lifetime must all be smaller than or equal to the next in the list. Otherwise, all timers fall back to their defaults.

The **no** form of this command removes the configuration.

Default

no preferred

Parameters

seconds

Specifies the lifetime in seconds.

Values: 300 to 214748364

days

Specifies the number of days.

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Values: 0 to 2485

hours

Specifies the number of hours.

Values: 0 to 23

mins

Specifies the number of minutes.

Values: 0 to 59

secs

Specifies the number of seconds.

Values: 0 to 59

4.2.4.34 valid

Syntax

no valid

valid *seconds*

valid [**days** *days*] [**hrs** *hours*] [**min** *mins*] [**sec** *secs*]

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment lifetimes valid

Description

This command configures the lifetime for an IPv6 address to remain valid. The valid address can be used to forward traffic for existing flows. If unspecified, the default valid lifetime is 30 days.

Note: At session setup, DHCPv6 renew, DHCPv6 rebind, preferred lifetime, and valid lifetime must all be smaller than or equal to the next in the list. Otherwise, all timers fall back to their defaults.

The **no** form of this command removes the configuration.

Default

no valid

Parameters

seconds

Specifies the lifetime in seconds.

Values: 300 to 214748364

days

Specifies the number of days.

Values: 0 to 2485

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hours

Specifies the number of hours.

Values: 0 to 23

mins

Specifies the number of minutes.

Values: 0 to 59

secs

Specifies the number of seconds.

Values: 0 to 59

4.2.4.35 local-dynamic

Syntax

local-dynamic

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment local-dynamic

Description

This command enables the context for configuring local IP address pool assignment for the session.

4.2.4.36 ipv4-pool

Syntax

ipv4-pool discard

ipv4-pool *pool-name*

no ipv4-pool

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment local-dynamic ipv4-pool

Description

This command configures the pool name for the local IPv4 address assignment or specifies the pool name previously returned by the AAA server or an ADB in the flow to be discarded.

The **no** form of this command removes the configuration.

Default

no ipv4-pool

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Parameters

discard

Keyword to discard the previous pool.

pool-name

Specifies the pool name for the local IPv4 address, up to 32 characters.

4.2.4.37 ipv6-na-pool

Syntax

ipv6-na-pool discard

ipv6-na-pool *pool-name*

no ipv6-na-pool

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment local-dynamic ipv6-na-pool

Description

This command configures the IPv6 NA pool name for local address assignment or specifies that the previous pool is discarded.

The **no** form of this command removes the configuration.

Default

no ipv6-na-pool

Parameters

discard

Keyword to discard the previous pool.

pool-name

Specifies the pool name, up to 32 characters.

4.2.4.38 ipv6-pd-pool

Syntax

ipv6-pd-pool discard

ipv6-pd-pool *pool-name*

no ipv6-pd-pool

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Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment local-dynamic ipv6-pd-pool

Description

This command configures the IPv6 PD pool name for local address assignment or specifies that the previous pool is discarded.

The **no** form of this command removes the configuration.

Default

no ipv6-pd-pool

Parameters

discard

Keyword to discard the previous pool.

pool-name

Specifies the pool name, up to 32 characters.

4.2.4.39 ipv6-slaac-pool

Syntax

ipv6-slaac-pool discard

ipv6-slaac-pool *pool-name*

no ipv6-slaac-pool

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment local-dynamic ipv6-slaac-pool

Description

This command configures the IPv6 SLAAC pool name for local address assignment or specifies if the previous pool is discarded.

The **no** form of this command removes the configuration.

Default

no ipv6-slaac-pool

Parameters

discard

Keyword to discard the previous pool.

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pool-name

Specifies the pool name, up to 32 characters.

4.2.4.40 managed-routes

Syntax

managed-routes

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment managed-routes

Description

Commands in this context configure managed routes.

4.2.4.41 route-entry

Syntax

[**no**] **route-entry** *ip-prefix/ip-prefix-length*

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment managed-routes route-entry

Description

This command assigns a managed route to a BNG session and installs a static route on the UPF that points to the subscriber-host IP address as a next hop. By default, there are no managed routes configured.

The **no** form of this command removes the specified route.

Parameters

ip-prefix/length

Specifies the IP prefix and length.

Values:

- IPv4-prefix – a.b.c.d with host bits set to 0
- IPv4-prefix length – 0 to 32
- IPv6-prefix – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D

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- IPv6-prefix length – 0 to 128

4.2.4.42 metric

Syntax

metric *value*

no metric

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment managed-routes route-entry metric

Description

This command associates a metric value with the provisioned managed route.

The **no** form of this command returns the metric to its default value.

Default

no metric

Parameters

value

Specifies the metric value.

Value: 1 to 4294967295

4.2.4.43 preference

Syntax

preference *value*

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment managed-routes route-entry preference

Description

This command associates a preference value with the provisioned managed route.

Parameters

value

Specifies the preference value.

Value: 0 to 255

Default: 0

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4.2.4.44 tag

Syntax

tag *value*

no tag

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment managed-routes route-entry tag

Description

This command associates a route tag with the provisioned managed route.

The **no** form of this command reverts to the default.

Default

no tag

Parameters

value

Specifies the route tag value.

Value: 1 to 4294967295

4.2.4.45 pd-as-framed-route

Syntax

pd-as-framed-route *boolean-value*

no pd-as-framed-route

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment pd-as-framed-route

Description

This command specifies whether to signal an allocated PD prefix to the UPF as a framed route or as a direct session prefix in the UE IP address IE. By default, a PD is sent as a direct session prefix.

The **no** form of this command removes the configuration.

Default

no pd-as-framed-route

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Parameters

boolean-value

Specifies whether to enable (true) or disable (false) the sending of a PD prefix as framed route.

Values: false | true

4.2.4.46 unmanaged

Syntax

unmanaged

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment unmanaged

Description

Commands in this context configure IP address pool information that is not managed by ODSA or external DHCP; for example, IP address pool information for AAA address assignment or static address assignment.

4.2.4.47 ipv4-address

Syntax

ipv4-address discard

ipv4-address *ip-address*

no ipv4-address

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment unmanaged ipv4-address

Description

This command configures the static assigned IPv4 address.

The **no** form of this command removes the configuration.

Default

no ipv4-address

Parameters

ip-address

Specifies the IPv4 address.

Values: a.b.c.d

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discard

Keyword to discard the previous IPv4 address.

4.2.4.48 ipv4-pool

Syntax

ipv4-pool discard

ipv4-pool *pool-name*

no ipv4-pool

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment unmanaged ipv4-pool

Description

This command configures the name of the ODSA pool that contains the assigned IPv4 address, If not specified, the assigned address is treated as a non-provisioned address assignment.

The **no** form of this command removes the configuration.

Default

no ipv4-pool

Parameters

pool-name

Specifies the pool name, up to 32 characters.

discard

Keyword to discard the previous pool name.

4.2.4.49 ipv6-na-address

Syntax

ipv6-na-address discard

ipv6-na-address *ipv6-address*

no ipv6-na-address

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment unmanaged ipv6-na-address

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Description

This command specifies the static assigned IPv6 IANA address.

The **no** form of this command removes the configuration.

Default

no ipv6-na-address

Parameters

ipv6-address

Specifies the IPv6 NA address.

Values: x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

x – [0..FFFF]H

d – [0..255]D

discard

Keyword that discards the previous IPv6 NA address.

4.2.4.50 ipv6-na-pool

Syntax

ipv6-na-pool discard

ipv6-na-pool *pool-name*

no ipv6-na-pool

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment unmanaged ipv6-na-pool

Description

This command configures the ODSA pool name that contains the assigned IPv6 NA address. If not specified, the assigned address is treated as a non-provisioned address assignment.

The **no** form of this command removes the configuration.

Default

no ipv6-na-pool

Parameters

pool-name

Specifies the pool name, up to 32 characters.

discard

Keyword to discard the previous pool name.

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4.2.4.51 ipv6-pd-pool

Syntax

ipv6-pd-pool discard

ipv6-pd-pool *pool-name*

no ipv6-pd-pool

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment unmanaged ipv6-pd-pool

Description

This command configures the name of the ODSA pool that contains the assigned IPv6 PD prefix. If not specified, the assigned prefix is treated as a non-provisioned address assignment.

The **no** form of this command removes the configuration.

Default

no ipv6-pd-pool

Parameters

pool-name

Specifies the pool name, up to 32 characters.

discard

Keyword to discard the previous pool name.

4.2.4.52 ipv6-pd-prefix

Syntax

ipv6-pd-prefix discard

ipv6-pd-prefix *ipv6-prefix/length*

no ipv6-pd-prefix

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment unmanaged ipv6-pd-prefix

Description

This command specifies the static assigned IPv6 prefix for prefix-delegation.

The **no** form of this command removes the configuration.

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Default

no ipv6-pd-prefix

Parameters

ipv6-prefix/length

Specifies the IPv6 prefix length.

Values: x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

x – [0..FFFF]H

d – [0..255]D

prefix-length

Specifies the prefix length.

Value: 48 to 64

discard

Keyword that discards the previous IPv6 PD prefix.

4.2.4.53 ipv6-slaac-pool

Syntax

ipv6-slaac-pool discard

ipv6-slaac-pool *name*

no ipv6-slaac-pool

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment unmanaged ipv6-slaac-pool

Description

This command configures the ODSA pool name that contains the assigned SLAAC prefix. If not specified, the assigned prefix is treated as a non-provisioned address assignment.

The **no** form of this command removes the configuration.

Default

no ipv6-slaac-pool

Parameters

name

Specifies the pool name, up to 32 characters.

discard

Keyword to discard the previous pool name.

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4.2.4.54 ipv6-slaac-prefix

Syntax

ipv6-slaac-prefix discard

ipv6-slaac-prefix *ipv6-prefix/length*

no ipv6-slaac-prefix

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment unmanaged ipv6-slaac-prefix

Description

This command specifies the static assigned IPv6 prefix for SLAAC.

The **no** form of this command removes the configuration.

Default

no ipv6-slaac-prefix

Parameters

ipv6-prefix/length

Specifies the IPv6 prefix length.

Values: x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
where

x – [0..FFFF]H

d – [0..255]D

prefix-length

Specifies the prefix length.

Value: 64

discard

Keyword that discards the previous IPv6 SLAAC prefix.

4.2.4.55 unmatching-prefix

Syntax

unmatching-prefix allow [**ipv4**] [**ipv6-na**] [**ipv6-pd**] [**ipv6-slaac**]

unmatching-prefix disallow

unmatching-prefix discard

no unmatching-prefix

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Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment unmatching-prefix

Description

This command configures the support for unmatching prefixes. It allows an external source (for example, a RADIUS server) to assign an address to a BNG session without pre-provisioning the prefix on the MAG-c or the UPF.

The **no** form of this command removes the configuration but does not change the configuration that is returned by the previous ADB.

Default

no unmatching-prefix

Parameters

allow [ipv4] [ipv6-na] [ipv6-pd] [ipv6-slaac]

Keyword to enable the support for unmatching prefixes with one or multiple allowed address types.

disallow

Keyword to disable the support for unmatching prefixes.

discard

Keyword to discard the configuration that is returned by the previous ADB.

4.2.4.56 apn

Syntax

apn discard

apn *apn-name*

no apn

Context

[Tree] configure mobile-gateway profile authentication-database entry apn

Description

This command configures the APN name for the session and specifies if the previous APN is discarded.

The **no** form of this command removes the configuration.

Default

no apn

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Parameters

discard

Keyword to discard the previous APN.

apn-name

Specifies the APN name, up to 80 characters.

4.2.4.57 charging

Syntax

charging

Context

[Tree] configure mobile-gateway profile authentication-database entry charging

Description

This command enables the context for configuring charging information for the session.

Default

charging

4.2.4.58 bng-charging-profile

Syntax

bng-charging-profile *profile-name* [*profile-name* ...(up to 5 max)]

bng-charging-profile discard

no bng-charging-profile

Context

[Tree] configure mobile-gateway profile authentication-database entry charging bng-charging-profile

Description

This command configures BNG charging profiles for the session or specifies that the previously returned BNG charging profile in the authentication flow is discarded.

The **no** form of this command removes the configuration.

Default

no bng-charging-profile

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Parameters

profile-name

Specifies the BNG profile name, up to 32 characters; more than one profile name, with a maximum of five, can be entered for the same ADB entry.

discard

Keyword to discard the previously returned BNG charging profile in the authentication flow; for more information, see *Authentication database* section, in the *MAG-c Control Plane Function Guide*.

4.2.4.59 cp-volume-tracking

Syntax

cp-volume-tracking

Context

[Tree] configure mobile-gateway profile authentication-database entry charging cp-volume-tracking

Description

This command enables the context for configuring CPF-based traffic volume tracking.

Default

cp-volume-tracking

4.2.4.60 downstream

Syntax

downstream discard

downstream *megabytes*

no downstream

Context

[Tree] configure mobile-gateway profile authentication-database entry charging cp-volume-tracking downstream

Description

This command configures the downstream traffic volume limit for the session and specifies if the previous downstream traffic limit is discarded.

The **no** form of this command removes the configuration.

Default

no downstream

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Parameters

discard

Keyword to specify a force removal of volume tracking.

megabytes

Specifies the downstream traffic volume limit, in megabytes.

Values: 1 to 1000000000

4.2.4.61 total

Syntax

total discard

total *megabytes*

no total

Context

[Tree] configure mobile-gateway profile authentication-database entry charging cp-volume-tracking total

Description

This command configures the total traffic volume limit that contains both upstream and downstream and specifies if the previous total traffic volume limit is discarded.

The **no** form of this command removes the configuration.

Default

no total

Parameters

discard

Keyword to specify a force removal of volume tracking.

megabytes

Specifies the total traffic volume limit, in megabytes.

Values: 1 to 1000000000

4.2.4.62 upstream

Syntax

upstream discard

upstream *megabytes*

no upstream

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Context

[Tree] configure mobile-gateway profile authentication-database entry charging cp-volume-tracking upstream

Description

This command configures the upstream traffic volume limit for the session.

The **no** form of this command removes the configuration.

Default

no upstream

Parameters

discard

Keyword to specify a force removal of volume tracking.

megabytes

Specifies the upstream traffic volume limit, in megabytes.

Values: 1 to 1000000000

4.2.4.63 detailed-statistics

Syntax

detailed-statistics *boolean-value*

no detailed-statistics

Context

[Tree] configure mobile-gateway profile authentication-database entry charging detailed-statistics

Description

This command enables the collection of detailed statistics. When enabled, a Nokia BNG UPF sends detailed per queue and per policer statistics. The content of the statistics depends on the BNG UPF QoS **stat-mode** configuration.

The **no** form of this command keeps the previous value of **detailed-statistics**.

To explicitly disable the collection of detailed statistics, this command must be set to false. The initial value for **detailed-statistics** is false.

Note: By default, the detailed statistics collection is disabled because of the potentially large amount of data to be transmitted in the Nokia BNG UPF statistics reports.

Default

no detailed-statistics

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Parameters

boolean-value

Specifies to enable or disable the detailed statistics collection.

Values: false | true

4.2.4.64 statistics-collection-interval

Syntax

statistics-collection-interval *seconds*

no statistics-collection-interval

Context

[Tree] configure mobile-gateway profile authentication-database entry charging statistics-collection-interval

Description

This command enables a BNG UPF to periodically send unsolicited statistics to the BNG CPF using the configured time interval (accounting push mode).

The **no** form of this command disables the unsolicited periodic BNG UPF statistics reporting.

Default

no statistics-collection-interval

Parameters

seconds

Specifies the interval in seconds.

Values: 30 to 3600

4.2.4.65 cp-nat-profile

Syntax

cp-nat-profile discard

cp-nat-profile *name*

no cp-nat-profile

Context

[Tree] configure mobile-gateway profile authentication-database entry cp-nat-profile

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Description

This command configures a BNG CUPS CP NAT profile. A CP NAT profile is a container for NAT specific parameters and is used to associate IPoE and PPPoE sessions with NAT.

The **no** form of this command removes the configuration.

Default

no cp-nat-profile

Parameters

discard

Keyword to remove the previous cp-nat-profile.

name

Specifies the CP NAT profile name, up to 32 characters.

4.2.4.66 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile authentication-database entry description

Description

This command enables a text description stored in the configuration file for a configuration context.

The **description** command associates a text string with a configuration context to help identify the content in the configuration file.

The **no** form of this command removes the string from the configuration.

Parameters

description-string

Specifies the description character string. Allowed values are any string up to 80 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.4.67 dhcp-profile

Syntax

dhcp-profile discard

dhcp-profile *name*

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no dhcp-profile

Context

[Tree] configure mobile-gateway profile authentication-database entry dhcp-profile

Description

This command configures the DHCP profile for the session.

The **no** form of this command removes the configuration.

Default

no dhcp-profile

Parameters

discard

Keyword to discard the previous DHCP profile.

name

Specifies the DHCP profile name, up to 32 characters.

4.2.4.68 dhcpv6-profile

Syntax

dhcpv6-profile discard

dhcpv6-profile *name*

no dhcpv6-profile

Context

[Tree] configure mobile-gateway profile authentication-database entry dhcpv6-profile

Description

This command specifies the DHCPv6 profile for the DHCPv6 messages sent in the context of this session. The DHCPv6 profiles are configured using the **dhcpv6-profile** command in the following context.

```
configure mobile-gateway profile bng
```

The **no** form of this command removes the configuration.

Default

no dhcpv6-profile

Parameters

discard

Keyword to discard the DHCPv6 profile from previous ADB lookups.

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name

Specifies the DHCPv6 profile name, up to 32 characters.

4.2.4.69 dynamic-policy

Syntax

no dynamic-policy

dynamic-policy {**bypass** | **required** | **discard**}

Context

[Tree] configure mobile-gateway profile authentication-database entry dynamic-policy

Description

This command overrides interactions with a dynamic policy function such as the PCF.

The **no** form of this command indicates this ADB entry does not update the dynamic-policy value. To explicitly reset it to the default, use the **discard** option.

By default, a dynamic policy function is contacted if one is provisioned, but it is not a setup error if **none** is provisioned.

Parameters

bypass

Keyword to specify that the MAG-c must not contact a dynamic policy function, even if one is configured.

required

Keyword to specify the session requires a dynamic policy function to be provisioned. If none is provisioned, the setup fails. If such a function is provisioned but communication fails, the failure handling specified for that function determines whether the setup succeeds.

discard

Keyword to discard the dynamic policy functions from previous ADB lookups.

4.2.4.70 fixed-wireless-access

Syntax

fixed-wireless-access

Context

[Tree] configure mobile-gateway profile authentication-database entry fixed-wireless-access

Description

Commands in this context configure parameters specific to fixed wireless access (FWA) sessions.

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4.2.4.71 address-hold-time

Syntax

address-hold-time max-lifetime

address-hold-time *minutes*

no address-hold-time

Context

[Tree] configure mobile-gateway profile authentication-database entry fixed-wireless-access address-hold-time

Description

This command holds the allocated addresses after session deletion for the configured amount of time or for the maximum remaining session lifetime after deletion. The maximum remaining session lifetime is based on the longest running session timer; for example, the DHCP or DHCPv6 lease time. The hold time cannot exceed the maximum configurable value. If the maximum remaining session lifetime exceeds the maximum configurable value, the hold time equals the maximum configurable value.

All allocated addresses use the same hold time, independent of the origin of allocation (for example, ODSA versus AAA), or the individual stack lifetimes. If the value configured with the per-session **address-hold-time** command is greater than the per-pool configured ODSA hold time, the per-session hold time is used also in ODSA.

The **no** form of this command removes the configuration.

Default

no address-hold-time

Parameters

max-lifetime

Keyword to base the hold time on the maximum remaining session lifetime at the moment of deletion.

minutes

Specifies the hold time in minutes.

Values: 0 to 14400

4.2.4.72 default-qos-profiles

Syntax

default-qos-profiles

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Context

[Tree] configure mobile-gateway profile authentication-database entry fixed-wireless-access default-qos-profiles

Description

Commands in this context configure the default QoS profiles.

4.2.4.73 authorized-4g

Syntax

authorized-4g discard

authorized-4g *name*

no authorized-4g

Context

[Tree] configure mobile-gateway profile authentication-database entry fixed-wireless-access default-qos-profiles authorized-4g

Description

This command configures the default 4G/5G NSA authorized QoS profile for the session. This profile is used when no authorized QoS parameters are provided, for example, during PCF interaction. The profile overrides any subscribed QoS parameters provisioned via HSS or RADIUS.

The **no** form of this command indicates that the ADB entry does not change the authorized 4G QoS profile.

Default

no authorized-4g

Parameters

name

Specifies the name of a QoS profile, up to 32 characters, that is configured using the following command.

```
configure mobile-gateway profile qos-profile
```

discard

Keyword to discard the authorized 4G QoS profile from previous ADB lookups.

4.2.4.74 authorized-5g

Syntax

authorized-5g discard

authorized-5g *name*

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no authorized-5g

Context

[Tree] configure mobile-gateway profile authentication-database entry fixed-wireless-access default-qos-profiles authorized-5g

Description

This command configures the authorized 5G SA QoS profile for the session. This profile is used when no authorized QoS parameters are provided, for example, during PCF interaction. The profile overrides any subscribed QoS parameters provisioned via UDM or RADIUS.

The **no** form of this command indicates that the ADB entry does not change the authorized 5G QoS profile.

Default

no authorized-5g

Parameters

name

Specifies the name of a QoS 5G profile, up to 32 characters, that is configured using the following command.

```
configure mobile-gateway profile qos-5g-profile
```

discard

Keyword to discard the authorized 5G QoS profile from previous ADB lookups.

4.2.4.75 subscribed-5g

Syntax

subscribed-5g discard

subscribed-5g *name*

no subscribed-5g

Context

[Tree] configure mobile-gateway profile authentication-database entry fixed-wireless-access default-qos-profiles subscribed-5g

Description

This command configures the subscribed 5G SA QoS profile for the session. This profile is used when no subscribed QoS parameters are provided, for example, during UDM or RADIUS interaction. If authorized QoS parameters are also provisioned, for example, via PCF or ADB, those parameters take precedence over the subscribed QoS profile.

The **no** form of this command indicates that the ADB entry does not change the subscribed 5G QoS profile.

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Default

no subscribed-5g

Parameters

name

Specifies the name of a QoS 5G profile, up to 32 characters, that is configured using the following command.

```
configure mobile-gateway profile qos-5g-profile
```

discard

Keyword to discard the subscribed 5G QoS profile from previous ADB lookups.

4.2.4.76 ipv4-link-mtu

Syntax

ipv4-link-mtu *octets*

no ipv4-link-mtu

Context

[Tree] configure mobile-gateway profile authentication-database entry fixed-wireless-access ipv4-link-mtu

Description

This command configures the maximum transit unit (MTU) of an IPv4 packet to send in the protocol configuration option (PCO) or extended protocol configuration option (ePCO) IE in GTPv2 (S11 interface) or HTTP/2 (N11 interface) to a requesting FWA UE.

The **no** form of this command removes the configuration.

Default

no ipv4-link-mtu

Parameters

octets

Specifies the MTU size in octets.

Values: 64 to 9212

4.2.4.77 ipv4-signaling-method

Syntax

ipv4-signaling-method *signaling-method*

no ipv4-signaling-method

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Context

[Tree] configure mobile-gateway profile authentication-database entry fixed-wireless-access ipv4-signaling-method

Description

This command configures the method to signal an allocated IPv4 address to the FWA RG. The options are NAS or DHCP (deferred allocation) messaging. This value overrides any preference signaled via PCO IEs.

The **no** form of this command removes the configuration.

Default

no ipv4-signaling-method

Parameters

signaling-method

Specifies the method to signal allocated IPv4 addresses.

Values: nas | dhcp

4.2.4.78 prefer-up

Syntax

prefer-up *node-id*

no prefer-up

Context

[Tree] configure mobile-gateway profile authentication-database entry fixed-wireless-access prefer-up

Description

This command configures the preferred FWA-UP for the ADB entry. The preferred FWA-UP overrides the policy-based FWA-UP selection and must be part of the candidate FWA-UP pool.

The **no** form of this command removes the configuration.

Default

no prefer-up

Parameters

node-id

Specifies the node ID of the preferred FWA-UP to be selected, up to 255 characters.

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4.2.4.79 up-group

Syntax

up-group *name* **site** *name*

up-group discard

no up-group

Context

[Tree] configure mobile-gateway profile authentication-database entry fixed-wireless-access up-group

Description

This command assigns the session to a UP group, and site within that group, for FWA resiliency.

The **no** form of this command removes the session assignment.

Parameters

up-group *name*

Specifies the name of the UP group, up to 32 characters.

site *name*

Specifies the name of the site configured in the UP group, up to 32 characters.

4.2.4.80 http-redirect

Syntax

http-redirect

Context

[Tree] configure mobile-gateway profile authentication-database entry http-redirect

Description

This command enables the context for configuring the HTTP redirect parameters for the WPP authentication.

Default

http-redirect

4.2.4.81 url

Syntax

url *url-string*

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no url

Context

[Tree] configure mobile-gateway profile authentication-database entry http-redirect url

Description

This command configures the HTTP redirection URL of this session.

The **no** form of this command removes the configuration.

Default

no url

Parameters

url-string

Specifies the URL, up to 255 characters.

4.2.4.82 interface

Syntax

interface

Context

[Tree] configure mobile-gateway profile authentication-database entry interface

Description

This command enables the context for configuring interface-related parameters for the session.

Default

interface

4.2.4.83 group-interface-template

Syntax

group-interface-template *name*

no group-interface-template

Context

[Tree] configure mobile-gateway profile authentication-database entry interface group-interface-template

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Description

This command configures the group interface template that is used on the UPF for the session. The **no** form of this command removes the configuration.

Default

no group-interface-template

Parameters

name

Specifies the group interface template name, up to 32 characters.

4.2.4.84 link-local-address

Syntax

link-local-address *ipv6-address*

no link-local-address

Context

[Tree] configure mobile-gateway profile authentication-database entry interface link-local-address

Description

This command configures the IPv6 LLA to be used as a source address when sending control plane messages such as ICMPv6 or DHCPv6. Additionally, the LLA is installed on the BNG UPF to answer neighbor discovery messages.

The **no** form of this command removes the configuration.

Default

no link-local-address

Parameters

ipv6-address

Specifies a valid IPv6 link local address.

Values: x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
where

x – [0..FFFF]H

d – [0..255]D

4.2.4.85 sap-template

Syntax

sap-template *name*

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no sap-template

Context

[Tree] configure mobile-gateway profile authentication-database entry interface sap-template

Description

This command configures the subscriber SAP template that is used on the UPF for the session.

The **no** form of this command removes the configuration.

Default

no sap-template

Parameters

name

Specifies the SAP template name, up to 32 characters.

4.2.4.86 ip-anti-spoof

Syntax

ip-anti-spoof *boolean-value*

no ip-anti-spoof

Context

[Tree] configure mobile-gateway profile authentication-database entry ip-anti-spoof

Description

This command enables IP address-based anti-spoofing functionality.

The **no** form of this command keeps the previous value of ip-anti-spoofing.

To explicitly disable ip-anti-spoofing, this command must be set to false. The initial value of ip-anti-spoofing is true.

Default

no ip-anti-spoof

Parameters

boolean-value

Specifies a true or false value.

Values: true | false

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4.2.4.87 l2tp

Syntax

l2tp

Context

[Tree] configure mobile-gateway profile authentication-database entry l2tp

Description

Commands in this context configure L2TP parameters.

4.2.4.88 group

Syntax

group discard

group *name*

no group

Context

[Tree] configure mobile-gateway profile authentication-database entry l2tp group

Description

This command configures the L2TP tunnel group to use when setting up a LAC session.

The **no** form of this command removes the configuration.

Parameters

discard

Keyword to discard the L2TP groups from the previous ADB lookups.

name

References the name of an L2TP tunnel group that is configured in the following context, up to 32 characters.

```
configure mobile-gateway profile bng l2tp-group
```

4.2.4.89 match

Syntax

match

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Context

[Tree] configure mobile-gateway profile authentication-database entry match

Description

Commands in this context configure the match criteria of the authentication database entry. If there is no match, the entry is considered as a default entry.

Default

match

4.2.4.90 apn

Syntax

apn *apn-name*

no apn

Context

[Tree] configure mobile-gateway profile authentication-database entry match apn

Description

This command configures the APN name that the system uses to match the session to the entry. This is either the APN name as returned by a previous auth-flow step, or for FWA sessions, the APN or DNN as signaled during session setup.

The **no** form of this command removes the configuration.

Default

no apn

Parameters

apn-name

Specifies the APN name, up to 80 characters.

4.2.4.91 cell-id-list

Syntax

cell-id-list *list-name*

no cell-id-list

Context

[Tree] configure mobile-gateway profile authentication-database entry match cell-id-list

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Description

This command configures the list of e-UTRAN cell global identification (ECGI) and NR cell global identification (NCGI) values that the MAG-c uses to match the session to the entry. The MAG-c matches the values in the list to the ECGI (4G) or NCGI (5G) value received during FWA setup.

The **no** form of this command removes the configuration.

Default

no cell-id-list

Parameters

list-name

References the name of a list of ECGI and NCGI values that is configured using the following command, up to 32 characters.

```
configure mobile-gateway profile list cell-id-list
```

4.2.4.92 charging-characteristics

Syntax

charging-characteristics *charging-characteristics*

no charging-characteristics

Context

[Tree] configure mobile-gateway profile authentication-database entry match charging-characteristics

Description

This command configures charging characteristics (CC) value as signaled by the HSS or UDM that the system uses to match the session to the entry.

The **no** form of this command removes the configuration.

Default

no charging-characteristics

Parameters

charging-characteristics

Specifies the CC value.

Values: 0 to 65535

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4.2.4.93 circuit-id

Syntax

circuit-id string *cid-string*

circuit-id hex *binary cid*

no circuit-id

Context

[Tree] configure mobile-gateway profile authentication-database entry match circuit-id

Description

This command configures the value of the circuit ID (CID) that the system uses to match the session to the entry.

The **no** form of this command removes the configuration.

Default

no circuit-id

Parameters

cid-string

Specifies the CID name, up to 255 characters.

binary cid

Specifies the binary CID value.

Values: 0x0 to 0xFFFFFFFF... (maximum of 510 hex nibbles)

4.2.4.94 client-id

Syntax

client-id string *id-string*

client-id hex *binary id*

no client-id

Context

[Tree] configure mobile-gateway profile authentication-database entry match client-id

Description

This command configures the value of the client ID that the system uses to match the session to the entry. For DHCPv4, the matching uses the option 61 and excludes the byte of the type field. For DHCPv6, the matching uses the option 1 and excludes the 2 bytes of the UUID type field.

The **no** form of this command removes the configuration.

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Default

no client-id

Parameters

id-string

Specifies the client ID name, up to 255 characters.

binary id

Specifies the binary client ID value.

Values: 0x0 to 0xFFFFFFFF... (maximum of 510 hex nibbles)

4.2.4.95 imei-tac

Syntax

imei-tac *tac value*

no imei-tac

Context

[Tree] configure mobile-gateway profile authentication-database entry match imei-tac

Description

This command configures the value of the IMEI-based TAC value that the system uses to match the session to the entry.

The **no** form of this command removes the configuration.

Default

no imei-tac

Parameters

tac value

Specifies the IMEI-based TAC value.

Values: eight-digit number

4.2.4.96 imsi

Syntax

imsi *imsi*

no imsi

Context

[Tree] configure mobile-gateway profile authentication-database entry match imsi

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Description

This command configures the IMSI value that the system uses to match the session to the ADB entry.

The **no** form of this command removes the configuration.

Default

no imsi

Parameters

imsi

Specifies the IMSI value, up to 15 digits.

4.2.4.97 imsi-mcc

Syntax

imsi-mcc *mcc value*

no imsi-mcc

Context

[Tree] configure mobile-gateway profile authentication-database entry match imsi-mcc

Description

This command configures the IMSI-based MCC value that the system uses to match the session to the entry.

The **no** form of this command removes the configuration.

Default

no imsi-mcc

Parameters

mcc value

Specifies the IMSI-based MCC value.

Values: 000 to 999 (three-digit number)

4.2.4.98 imsi-mnc

Syntax

imsi-mnc *mnc value*

no imsi-mnc

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Context

[Tree] configure mobile-gateway profile authentication-database entry match imsi-mnc

Description

This command configures the IMSI-based MNC value that the system uses to match the session to the entry.

The **no** form of this command removes the configuration.

Default

no imsi-mnc

Parameters

mnc value

Specifies the IMSI-based MNC value.

Values: 00 to 999 (two- or three-digit number)

4.2.4.99 l2-access-id

Syntax

l2-access-id *string*

no l2-access-id

Context

[Tree] configure mobile-gateway profile authentication-database entry match l2-access-id

Description

This command configures the Layer 2 access ID value that the system uses to match the session to the entry.

The **no** form of this command removes the configuration.

Default

no l2-access-id

Parameters

string

Specifies the Layer 2 access ID name, up to 64 characters.

4.2.4.100 mac

Syntax

mac *ieee-address*

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no mac

Context

[Tree] configure mobile-gateway profile authentication-database entry match mac

Description

This command configures the value of the MAC address that the system uses to match the session to the entry.

The **no** form of this command removes the configuration.

Default

no mac

Parameters

ieee-address

Specifies the MAC address.

Values: xx:xx:xx:xx:xx:xx or xx-xx-xx-xx-xx-xx

4.2.4.101 pdn-type

Syntax

pdn-type *pdn-type*

no pdn-type

Context

[Tree] configure mobile-gateway profile authentication-database entry match pdn-type

Description

This command configures the value of the PDN type that the system uses to match the session to the entry. For a 4G session, match on the PDN Type as signaled in the GTP Create Session Request. For a 5G session, match on the PDU Session Type as signaled in an N1 PDU Session Establishment Request, or if that is missing, the defaultSessionType as received from UDM.

The **no** form of this command removes the configuration.

Default

no pdn-type

Parameters

pdn-type

Specifies the PDN type.

Values:

- ipv4 – Keyword to match sessions that signal PDN Type/PDU Session Type ipv4.

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- ipv6 – Keyword to match sessions that signal PDN Type/PDU Session Type ipv6.
- ipv4v6 – Keyword to match sessions that signal PDN Type/PDU Session Type ipv4v6.

4.2.4.102 remote-id

Syntax

remote-id string *rid-string*

remote-id hex *binary rid*

no remote-id

Context

[Tree] configure mobile-gateway profile authentication-database entry match remote-id

Description

This command configures the value of the remote ID that the system uses to match the session to the entry.

The **no** form of this command removes the configuration.

Default

no remote-id

Parameters

rid-string

Specifies the remote ID name, up to 255 characters.

binary rid

Specifies the binary remote ID.

Values: 0x0 to 0xFFFFFFFF... (maximum of 510 hex nibbles)

4.2.4.103 s-nssai

Syntax

s-nssai

Context

[Tree] configure mobile-gateway profile authentication-database entry match s-nssai

Description

Commands in this context configure S-NSSAI based match criteria.

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4.2.4.104 sd

Syntax

no sd

sd *sd hex string*

Context

[Tree] configure mobile-gateway profile authentication-database entry match s-nssai sd

Description

This command configures the value of the SD part of the S-NSSAI that the system uses to match the session to the entry after UDM interaction.

The **no** form of this command removes the configuration.

Default

no sd

Parameters

sd hex string

Specifies the SD value.

Values: 000000 to FFFFFF

4.2.4.105 sst

Syntax

sst *sst value*

no sst

Context

[Tree] configure mobile-gateway profile authentication-database entry match s-nssai sst

Description

This command configures the value of the SST part of the S-NSSAI that the system uses to match the session to the entry after UDM interaction.

The **no** form of this command removes the configuration.

Default

no sst

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Parameters

sst value

Specifies the SST value.

Values: 0 to 255

4.2.4.106 source-ip-prefix

Syntax

source-ip-prefix *prefix/prefix-length* [*prefix/prefix-length*...**(up to 4 max)**]

no source-ip-prefix

Context

[Tree] configure mobile-gateway profile authentication-database entry match source-ip-prefix

Description

This command configures the IP prefix entries that the system uses to match to the source address in the trigger packet of data-triggered IPoE sessions.

The **no** form of this command removes the configuration.

Default

no source-ip-prefix

Parameters

prefix/prefix-length

Specifies the IP prefix and length, up to 4 maximum.

Values:

- ipv4-prefix – a.b.c.d (host bits must be 0)
- ipv4-prefix-length – [1..32]
- ipv6-prefix – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d

  where

  x – [0..FFFF]H

  d – [0..255]D
- ipv6-prefix-length – [4..128]

4.2.4.107 tai

Syntax

tai

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Context

[Tree] configure mobile-gateway profile authentication-database entry match tai

Description

Commands in this context configure match criteria based on tracking area identity (TAI).

4.2.4.108 mcc

Syntax

mcc *mcc value*

no mcc

Context

[Tree] configure mobile-gateway profile authentication-database entry match tai mcc

Description

This command configures the value of the mobile country code (MCC) part of the TAI that the system uses to match the session to the entry.

The **no** form of this command removes the configuration.

Default

no mcc

Parameters

mcc value

Specifies the MCC value.

Values: 000 to 999 (three digit number)

4.2.4.109 mnc

Syntax

mnc *mnc value*

no mnc

Context

[Tree] configure mobile-gateway profile authentication-database entry match tai mnc

Description

This command configures the value of the mobile network code (MNC) part of the TAI that the system uses to match the session to the entry.

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The **no** form of this command removes the configuration.

Default

no mnc

Parameters

mnc value

Specifies the MNC value.

Values: 000 to 999 (two or three digit number)

4.2.4.110 tac

Syntax

tac *tac hex string*

no tac

Context

[Tree] configure mobile-gateway profile authentication-database entry match tai tac

Description

This command configures the tracking area code (TAC) part of the TAI that the system uses to match the session to the entry.

The **no** form of this command removes the configuration.

Default

no tac

Parameters

tac hex string

Specifies the TAC value.

Values: 000000 to FFFFFF

4.2.4.111 tai-list

Syntax

tai-list *list-name*

no tai-list

Context

[Tree] configure mobile-gateway profile authentication-database entry match tai-list

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Description

This command configures the list of tracking area identity (TAI) values that the MAG-c uses to match the session to the entry. The MAG-c matches the values in the list to the TAI value received during FWA setup.

The **no** form of this command removes the configuration.

Default

no tai-list

Parameters

list-name

References the name of a TAI list that is configured using the following command, up to 32 characters.

```
configure mobile-gateway profile list tai-list
```

4.2.4.112 up-group

Syntax

up-group *name*

no up-group

Context

[Tree] configure mobile-gateway profile authentication-database entry match up-group

Description

This command configures the name of the UP group to match the session to the entry. The matching value can be either an exact match or a partial match if the following command is configured in the match configuration for the UP group.

```
configure mobile-gateway profile authentication-database match string-mask
```

The MAG-c derives the UP group by comparing the incoming packet's Layer 2 access ID, S-tag, and C-tag to the UP group configuration in the following context.

```
configure mobile-gateway pdn bng up-group
```

The **no** form of this command removes the configuration.

Default

no up-group

Parameters

name

Specifies the UP group name, up to 32 characters.

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4.2.4.113 up-ip

Syntax

up-ip *ip-address*

no up-ip

Context

[Tree] configure mobile-gateway profile authentication-database entry match up-ip

Description

This command configures the UPF IP address that the system uses to match the session to the entry.

The **no** form of this command removes the configuration.

Default

no up-ip

Parameters

ip-address

Specifies the UP IP address.

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D

4.2.4.114 up-node-id

Syntax

up-node-id *node-id*

no up-node-id

Context

[Tree] configure mobile-gateway profile authentication-database entry match up-node-id

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Description

This command configures the value of the UP node ID to match the session to the entry. The matching value can be either an exact match or a partial match if the following command is configured in the match configuration for the UP node ID.

```
configure mobile-gateway profile bng entry-point match string-mask
```

The UP node ID is not explicitly present in incoming IBCP packets. The MAG-c derives the UP node ID from the PFCP association to which the IBCP tunnel is tied. If this command configures an IP address, it only matches the packet if the PFCP signaled node ID equals the configured IP address, even if the configuration matches the incoming IBCP source IP address.

The **no** form of this command removes the configuration.

Default

no up-node-id

Parameters

node-id

Specifies the UP node ID as an IP address or a name, up to 255 characters.

4.2.4.115 username

Syntax

username *name*

Context

[Tree] configure mobile-gateway profile authentication-database entry match username

Description

This command configures the PPPoE username that the system uses to match the session to the entry.

The value specified can be either an exact match or a partial match, if the **string-mask** is configured in the authentication database match configuration.

The **no** form of this command removes the configuration.

Default

no username

Parameters

name

Specifies the username, up to 253 characters.

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4.2.4.116 username-domain

Syntax

username-domain *domain*

no username-domain

Context

[Tree] configure mobile-gateway profile authentication-database entry match username-domain

Description

This command configures the domain name of the PPPoE username that the system uses to match the session to the entry.

The **no** form of this command removes the configuration.

Default

no username-domain

Parameters

domain

Specifies the domain name, up to 253 characters.

4.2.4.117 vendor-class

Syntax

vendor-class string *vendor-class-string*

vendor-class hex *binary vendor-class*

no vendor-class

Context

[Tree] configure mobile-gateway profile authentication-database entry match vendor-class

Description

This command configures the vendor class that the system uses to match the session to the entry.

The **no** form of this command removes the configuration.

Parameters

vendor-class-string

Specifies the vendor class value as an ASCII string, up to 255 characters.

binary vendor-class

Specifies the vendor class value as a hexadecimal string.

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Values: 0x0 to 0xFFFFFFFF...(max 510 hex nibbles)

4.2.4.118 vlan

Syntax

[**no**] **vlan**

Context

[Tree] configure mobile-gateway profile authentication-database entry match vlan

Description

This command enables the VLAN configuration context that the system uses to match the session to the entry. The **no** form of this command disables the VLAN configuration context.

Default

vlan

4.2.4.119 c-vlan

Syntax

c-vlan start *tag* **end** *tag*

no c-vlan

Context

[Tree] configure mobile-gateway profile authentication-database entry match vlan c-vlan

Description

This command configures a customer VLAN (inner VLAN) range for matching the entry. If the customer VLAN of a trigger packet falls within the specified range, a match occurs. The interaction between the **c-vlan** and **s-vlan** configuration, in combination with the three possible values that come in the trigger packets are:

- **q-in-q**
  The trigger packet contains two VLANs that are called service VLAN (s-vlan) and customer VLAN (c-vlan).
- **dot1q**
  The trigger packet contains one VLAN. In this case, this is matched to the s-vlan range, if configured. However, if the **c-vlan** range is configured, the packet does not match because it has no customer VLAN values.
- **no vlans**
  The trigger packet contains no VLANs. In this case, the packet only matches entries that have neither service VLAN or customer VLAN range values configured.

The **no** form of this command removes the configuration.

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Default

no c-vlan

Parameters

start *tag*

Specifies the start of the inner VLAN range.

Values: 1 to 4094

end *tag*

Specifies the end of the inner VLAN range.

Values: 1 to 4094

4.2.4.120 s-vlan

Syntax

s-vlan start *tag* **end** *tag*

no s-vlan

Context

[Tree] configure mobile-gateway profile authentication-database entry match vlan s-vlan

Description

This command configures a service VLAN (outer VLAN) range for matching the entry. If the service VLAN of a trigger packet falls within the specified range, a match occurs.

The **no** form of this command removes the configuration.

Default

no s-vlan

Parameters

start *tag*

Specifies the start of the outer VLAN range.

Values: 1 to 4094

end *tag*

Specifies the end of the outer VLAN range.

Values: 1 to 4094

4.2.4.121 pfcp

Syntax

pfcp

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Context

[Tree] configure mobile-gateway profile authentication-database entry pfcp

Description

Commands in this context configure PFCP parameters.

4.2.4.122 include-attributes

Syntax

include-attributes

no include-attributes

Context

[Tree] configure mobile-gateway profile authentication-database entry pfcp include-attributes

Description

This command enables the inclusion of information elements (IEs) in the PFCP messages.

The **no** form of this command disables the inclusion of IEs in the PFCP messages.

Default

no include-attributes

4.2.4.123 acct-session-id

Syntax

acct-session-id *origin*

no acct-session-id

Context

[Tree] configure mobile-gateway profile authentication-database entry pfcp include-attributes acct-session-id

Description

This command includes the Accounting Session ID IE in PFCP messages.

The **no** form of this command removes the configuration.

Default

no act-session-id

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Parameters

origin

Specifies the origin.

Values: session | subscriber

4.2.4.124 pppoe

Syntax

pppoe

Context

[Tree] configure mobile-gateway profile authentication-database entry pppoe

Description

This command enables the context for configuring PPPoE session parameters.

Default

pppoe

4.2.4.125 pado-delay

Syntax

pado-delay *deci-seconds*

no pado-delay

Context

[Tree] configure mobile-gateway profile authentication-database entry pppoe pado-delay

Description

This command configures the delay before the system returns a PPPoE Active Discovery Offer (PADO) packet, in deciseconds.

The **no** form of this command keeps the previous value of **pado-delay**.

To explicitly disable this command, the *deci-seconds* value must be set to zero. The initial value for pado-delay is zero.

Default

no pado-delay

Parameters

deci-seconds

Specifies the delay, in deciseconds.

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Values: 0 to 30

4.2.4.126 ra-profile

Syntax

ra-profile discard

ra-profile *name*

no ra-profile

Context

[Tree] configure mobile-gateway profile authentication-database entry ra-profile

Description

This command specifies the RA profile for DHCPv6 messages sent in the session. The RA profiles are configured using the **ra-profile** command in the **configure mobile-gateway profile bng** context.

The **no** form of this command removes the configuration.

Default

no ra-profile

Parameters

discard

Keyword to discard the RA profile from previous ADB lookups.

name

Specifies the RA profile name, up to 32 characters.

4.2.4.127 server-identifiers

Syntax

server-identifiers

Context

[Tree] configure mobile-gateway profile authentication-database entry server-identifiers

Description

Commands in this context configure IP addresses or DNS names of servers typically contacted by end-uses, for example P-CSCF server addresses. These are reflected during setup in for example DHCP, DHCPv6, PCO, or IPCP messages

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4.2.4.128 pcscf-ipv4-address

Syntax

pcscf-ipv4-address discard

pcscf-ipv4-address *ip-address*

no pcscf-ipv4-address

Context

[Tree] configure mobile-gateway profile authentication-database entry server-identifiers pcscf-ipv4-address

Description

This command configures the IPv4 address of the PCSCF server.

The **no** form of this command removes the configuration.

Default

no pcscf-ipv4-address

Parameters

ip-address

Specifies the IPv4 address of the primary PCSCF server.

Values: a.b.c.d

discard

Keyword to discard previous IPv4 address.

4.2.4.129 pcscf-ipv6-address

Syntax

pcscf-ipv6-address discard

pcscf-ipv6-address *ipv6-address*

no pcscf-ipv6-address

Context

[Tree] configure mobile-gateway profile authentication-database entry server-identifiers pcscf-ipv6-address

Description

This command configures the IPv6 address of the PCSCF server.

The **no** form of this command removes the configuration.

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Default

no pcscf-ipv6-address

Parameters

ipv6-address

Specifies the IPv6 address of the primary PCSCF server.

Values: x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

x – [0..FFFF]H

d – [0..255]D

discard

Keyword to discard previous IPv6 address.

4.2.4.130 session-timeout

Syntax

session-timeout *seconds*

session-timeout infinite

no session-timeout

Context

[Tree] configure mobile-gateway profile authentication-database entry session-timeout

Description

This command configures the amount of time before the system removes a session.

The **no** form of this command disables this capability.

Default

no session-timeout

Parameters

seconds

Specifies the session timeout interval, in seconds.

Values: 1 to 31104000

infinite

Keyword to never remove the session based on timeout.

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4.2.4.131 shutdown

Syntax

[**no**] **shutdown**

Context

[Tree] configure mobile-gateway profile authentication-database entry shutdown

Description

This command administratively disables the entity. When disabled, an entity does not change, reset, or remove any configuration settings or statistics. Many entities must be explicitly enabled using the **no shutdown** command.

The operational state of the entity is disabled as well as the operational state of any entities contained within. Many objects must be shut down before they may be deleted.

4.2.4.132 subscriber-mgmt

Syntax

subscriber-mgmt

Context

[Tree] configure mobile-gateway profile authentication-database entry subscriber-mgmt

Description

This command enables the context for configuring subscriber management.

Default

subscriber-mgmt

4.2.4.133 sla-profile

Syntax

sla-profile *name*

no sla-profile

Context

[Tree] configure mobile-gateway profile authentication-database entry subscriber-mgmt sla-profile

Description

This command configures the UPF SLA profile that is used for the session.

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The **no** form of this command removes the configuration.

Default

no sla-profile

Parameters

name

Specifies the SLA profile name, up to 32 characters.

4.2.4.134 sub-profile

Syntax

sub-profile *name*

no sub-profile

Context

[Tree] configure mobile-gateway profile authentication-database entry subscriber-mgmt sub-profile

Description

This command configures the UPF subscriber profile that is used for the session.

The **no** form of this command removes the configuration.

Default

no sub-profile

Parameters

name

Specifies the subscriber profile name, up to 32 characters.

4.2.4.135 wpp

Syntax

wpp

Context

[Tree] configure mobile-gateway profile authentication-database entry wpp

Description

Commands in this context configure WPP.

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4.2.4.136 initial-profiles

Syntax

initial-profiles

Context

[Tree] configure mobile-gateway profile authentication-database entry wpp initial-profiles

Description

Commands in this context configure the initial profiles. The initial profiles are used for a WPP session before WPP authentication.

4.2.4.137 sla-profile

Syntax

sla-profile *name*

no sla-profile

Context

[Tree] configure mobile-gateway profile authentication-database entry wpp initial-profiles sla-profile

Description

This command configures the initial SLA profile for a WPP session.

The **no** form of this command removes the configuration.

Default

no sla-profile

Parameters

name

Specifies the SLA profile name, up to 32 characters.

4.2.4.138 sub-profile

Syntax

sub-profile *name*

no sub-profile

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Context

[Tree] configure mobile-gateway profile authentication-database entry wpp initial-profiles sub-profile

Description

This command configures the initial subscriber profile for a WPP session.

The **no** form of this command removes the configuration.

Default

no sub-profile

Parameters

name

Specifies the subscriber profile name, up to 32 characters.

4.2.4.139 portal-group

Syntax

portal-group *name*

no portal-group

Context

[Tree] configure mobile-gateway profile authentication-database entry wpp portal-group

Description

This command configures a reference to the portal group that authenticates the WPP session. The portal group is defined using the **portal-group** command in the **configure mobile-gateway profile bng wpp** context (see portal-group).

The **no** form of this command removes the configuration.

Default

no portal-group

Parameters

name

Specifies the portal group name, up to 32 characters.

4.2.4.140 restore-disconnected

Syntax

[**no**] **restore-disconnected**

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Context

[Tree] configure mobile-gateway profile authentication-database entry wpp restore-disconnected

Description

This command restores the initial profiles (initial SLA profile and initial subscriber profile) when a WPP session disconnects.

The **no** form of this command specifies that a disconnected session is removed.

Default

no restore-disconnected

4.2.4.141 shutdown

Syntax

shutdown

Context

[Tree] configure mobile-gateway profile authentication-database entry wpp shutdown

Description

This command administratively disables the entity. When disabled, an entity does not change, reset, or remove any configuration settings or statistics. Many entities must be explicitly enabled using the **no shutdown** command.

The operational state of the entity is disabled as well as the operational state of any entities contained within. Many objects must be shut down before they may be deleted.

4.2.4.142 wpp-radius-authentication

Syntax

wpp-radius-authentication *name*

no wpp-radius-authentication

Context

[Tree] configure mobile-gateway profile authentication-database entry wpp wpp-radius-authentication

Description

This command configures a reference to the RADIUS authentication profile that is used for the RADIUS authentication triggered by the WPP portal. The RADIUS authentication profile is defined using the **radius-authentication-profile** command in the **configure mobile-gateway profile bng** context (see radius-authentication-profile).

The **no** form of this command removes the configuration.

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Default

no wpp-radius-authentication

Parameters

name

Specifies the RADIUS authentication profile name, up to 32 characters.

4.2.4.143 match

Syntax

match *match-id* [**attribute** *attr*]

no match *match-id*

Context

[Tree] configure mobile-gateway profile authentication-database match

Description

This command configures one or more match attributes in the authentication database match configuration. An entry configuration must contain configurations for all non-optional match attributes to be a matched entry. Match attributes that are optional may be included or not in the matched entry configuration.

The MAG-c performs a lookup in all authentication database entries. To authenticate and create a session, the MAG-c uses a session's corresponding match attribute values to match against the entry configurations. If there are multiple matched entries, the system chooses the entry that has the highest number of configured match values. If the number of match values is the same, the system chooses the entry based on the match criteria order.

Example:

In the following match configuration, c1, c2, and c3 can be any supported match attribute:

- match 1 attribute c1 (optional)
- match 2 attribute c2 (optional)
- match 3 attribute c3 (optional)

When there are multiple matches, the system chooses the following entries in preference order:

1. entry e1 with match criteria “c1 v1; c2 v2; c3 v3”
2. entry e2 with match criteria “c1 v1; c2 v2”
3. entry e3 with match criteria “c2 v2; c3 v3”
4. entry e4 with match criteria “c3 v3”

Some match attributes specify a list instead of a direct attribute. When the received session setup message contains attributes that are part of a list, the MAG-c looks up to which list the received attribute belongs and uses the name of the matching list in the ADB match criteria.

The **no** form of this command removes the specified match configuration.

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Parameters

match-id

Specifies the match ID.

Values: 1 to 7

attr

Specifies a matching attribute.

Values:

- apn – specifies the APN as a match attribute; MAG-c obtains its value from a previous authentication step, or receives it directly for FWA sessions
- charging-characteristics – specifies the charging characteristics (CC) as a match attribute; MAG-c uses the CC value as signaled from HSS or UDM
- circuit-id – specifies the circuit ID as a match attribute; MAG-c obtains its value from the following sources:
  - DHCPv4: option 82 sub-option 1
  - DHCPv6: option 18
  - PPPoE: BBF vendor-specific tag 1
- client-id – specifies the client ID as a match attribute
- c-vlan – specifies the operator VLAN tag as a match attribute
- derived-id – specifies the derived ID as a match attribute
- l2-access-id – specifies the Layer 2 access ID as a match attribute
- imsi-mcc – specifies the IMSI MCC as a match attribute; MAG-c derives the MCC value from the IMSI for FWA sessions
- imsi-mnc – specifies the IMSI MNC value as a match attribute; MAG-c derives the MNC value from the IMSI for FWA sessions
- imei-tac – specifies the IMEI TAC value as a match attribute; MAG-c derives the TAC value, used to identify specific device vendors or models, from the IMEI for FWA sessions
- pdn-type – specifies the PDN/PDU Session type as signaled during FWA session setup as a match attribute
- mac – specifies the MAC address of the session as a match attribute
- remote-id – specifies the remote ID as a match attribute; MAG-c obtains its value from the following sources:
  - DHCPv4: option 82 sub-option 2
  - DHCPv6: option 37
  - PPPoE: BBF vendor-specific tag 2
- s-nssai-sd – specifies the S-NSSAI Slice Differentiator (SD) as a match attribute
- s-nssai-sst – specifies the S-NSSAI Slice/Service Type (SST) as a match attribute
- source-ip-prefix – specifies the source IP address prefix as a match attribute
- s-vlan – specifies the service VLAN tag as a match attribute

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- up-ip – specifies the BNG-UP IP address as a match attribute
- username-domain – specifies the username domain as a match attribute
- username – specifies the PPPoE PAP/CHAP username as a match attribute
- up-group – specifies the UP group as a match attribute
- up-node-id – specifies the UP node ID as a match attribute
- vendor-class – specifies the vendor class as a match attribute; MAG-c obtains its value from the following sources:
  - DHCPv4: option 60
  - DHCPv6: option 16
- tai-mcc – specifies the TAI MCC value as a match attribute
- tai-mnc – specifies the TAI MNC value as a match attribute
- tai-tac – specifies the TAI TAC value as a match attribute
- tai-list – specifies the TAI value as a match attribute via a list match
- cell-id-list – specifies the ECGI (4G) or NCGI (5G) value as a match attribute via a list match

4.2.4.144 apn-format

Syntax

apn-format *form*

no apn-format

Context

[Tree] configure mobile-gateway profile authentication-database match apn-format

Description

This command specifies the format to match APNs.

The **no** form of this command reverts to the default.

Default

apn-format selected

Parameters

form

Specifies the APN format.

Values:

- real – specifies to use the real, unmodified APN as signaled during the FWA session setup, including the OI if it is present
- real-ni-only – specifies to use the real APN as signaled during the FWA session setup, but without the OI if it is present

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- selected – specifies to use the selected APN as is (returned after initial authentication); if no selected APN is available, the system falls back to the real-ni-only option

4.2.4.145 optional

Syntax

[**no**] **optional**

Context

[Tree] configure mobile-gateway profile authentication-database match optional

Description

This command enables the match criteria as optional, so that entries are not required to specify it as a match criterion.

The **no** form of this command removes the optional match configuration.

Default

no optional

4.2.4.146 string-mask

Syntax

[**no**] **string-mask**

Context

[Tree] configure mobile-gateway profile authentication-database match string-mask

Description

This command enables an optional string mask for masking the Layer 2 access ID.

The **no** form of this command disables the string-mask configuration for the match.

Default

string-mask

4.2.4.147 prefix

Syntax

prefix length *mask-length*

prefix string *mask-string*

no prefix

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Context

[Tree] configure mobile-gateway profile authentication-database match string-mask prefix

Description

This command configures a prefix mask for the Layer 2 access ID.

The **no** form of this command removes the configuration.

Default

no prefix

Parameters

mask-length

Specifies to remove the specified number of bytes from beginning of the session's Layer 2 access ID.

Values: 1 to 127

mask-string

Specifies to remove the specified string if the beginning of the session's Layer 2 access ID matches, up to 127 characters.

Note: For a string match, the wildcard character "*" can be used as a match criteria.

4.2.4.148 suffix

Syntax

suffix length *mask-length*

suffix string *mask-string*

no suffix

Context

[Tree] configure mobile-gateway profile authentication-database match string-mask suffix

Description

This command configures a suffix mask for the Layer 2 access ID.

The **no** form of this command removes the configuration.

Default

no suffix

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Parameters

mask-length

Specifies to remove the specified number of bytes from end of the session's Layer 2 access ID.

Values: 1 to 127

mask-string

Specifies to remove the specified string if the end of the session's Layer 2 access ID matches, up to 127 characters.

Note: For a string match, the wildcard character "*" can be used as a match criteria.

4.2.4.149 shutdown

Syntax

shutdown

Context

[Tree] configure mobile-gateway profile authentication-database shutdown

Description

This command administratively disables the entity. When disabled, an entity does not change, reset, or remove any configuration settings or statistics. Many entities must be explicitly enabled using the **no shutdown** command.

The operational state of the entity is disabled as well as the operational state of any entities contained within. Many objects must be shut down before they may be deleted.

4.2.5 configure mobile-gateway profile bng command descriptions

4.2.5.1 bng

Syntax

bng

Context

[Tree] configure mobile-gateway profile bng

Description

This command enables the context for configuring BNG parameters.

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Default

bng

4.2.5.2 cp-nat-profile

Syntax

[**no**] **cp-nat-profile** *name*

Context

[Tree] configure mobile-gateway profile bng cp-nat-profile

Description

This command configures a BNG CUPS CP NAT profile. A CP NAT profile is a container for NAT specific parameters and is used to associate IPoE and PPPoE sessions with NAT.

The **no** form of this command removes the configuration.

Parameters

name

Specifies the CP NAT profile name, up to 32 characters.

4.2.5.3 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile bng cp-nat-profile description

Description

This command enables a text description stored in the configuration file for a configuration context. The **description** command associates a text string with a configuration context to help identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Default

no description

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Parameters

description-string

Specifies the description character string. Allowed values are any string up to 80 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.5.4 nat-access-mode

Syntax

nat-access-mode *access-mode*

Context

[Tree] configure mobile-gateway profile bng cp-nat-profile nat-access-mode

Description

This command configures the NAT access mode.

Parameters

access-mode

Specifies the NAT access mode.

Values: auto | bridged

4.2.5.5 nat-pool

Syntax

[**no**] **nat-pool** *pool-name*

Context

[Tree] configure mobile-gateway profile bng cp-nat-profile nat-pool

Description

This command configures a NAT pool. A NAT pool is container that holds NAT parameters primarily concerned with outside IP addresses, port ranges, NAT mode of operation within the pool (1:1 or NAPT) and location (routing context) of the pool.

The **no** form of this command removes the configuration.

Parameters

pool-name

Specifies the NAT pool name, up to 32 characters.

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4.2.5.6 description

Syntax

description description-string

no description

Context

[Tree] configure mobile-gateway profile bng cp-nat-profile nat-pool description

Description

This command enables a text description stored in the configuration file for a configuration context. The **description** command associates a text string with a configuration context to help identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Default

no description

Parameters

description-string

Specifies the description character string. Allowed values are any string up to 80 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.5.7 laa-pool

Syntax

laa-pool network-realm *reference* **name** *pool-name*

no laa-pool

Context

[Tree] configure mobile-gateway profile bng cp-nat-profile nat-pool laa-pool

Description

This command configures the local address assignment (LAA) pool for the NAT pool. The LAA pool determines the NAT prefixes from which an outside IP address and port block are selected in the configured NAT pool. The outside NAT prefix is installed in the outside routing context specified by the network-realm.

The **no** form of this command removes the configuration.

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Parameters

reference

Specifies the outside routing context for NAT; points to an existing network-realm; up to 80 characters.

pool-name

Specifies the name of an existing LAA pool; the NAT outside prefixes are defined in the following context.

```
configure mobile-gateway pdn local-address-assignment
```

4.2.5.8 mode

Syntax

mode *nat-mode*

Context

[Tree] configure mobile-gateway profile bng cp-nat-profile nat-pool mode

Description

This command configures the NAT mode of operation. The two modes are mutually exclusive in the same NAT pool.

Default

mode napt

Parameters

nat-mode

Specifies the NAT mode.

Values: one-to-one | napt

- one-to-one – inside and outside IP addresses are translated in 1:1 fashion; no port translation
- napt – each inside IP address is translated into an outside IP address and a port block range; allows sharing of the same outside IP address by multiple subscribers

4.2.5.9 port-forwarding-range

Syntax

port-forwarding-range *range-end*

Context

[Tree] configure mobile-gateway profile bng cp-nat-profile nat-pool mode port-forwarding-range

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Description

This command configures the end port of the shared port forwarding range.

Default

port-forwarding-range 1023

Parameters

range-end

Specifies the end port of the port forwarding range.

Values: 1023 to 65535

4.2.5.10 port-limits

Syntax

port-limits

Context

[Tree] configure mobile-gateway profile bng cp-nat-profile nat-pool mode port-limits

Description

Commands in this context configure the forwarding of ports for a NAT session.

4.2.5.11 forwarding

Syntax

forwarding *limit*

no forwarding

Context

[Tree] configure mobile-gateway profile bng cp-nat-profile nat-pool mode port-limits forwarding

Description

This command configures the maximum number of ports that can be forwarded for a NAT session.

The no form of this command removes the configuration.

Default

no forwarding

Parameters

limit

Specifies the maximum number of ports that can be forwarded for a NAT session.

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Values: 1 to 64

4.2.5.12 port-reservation

Syntax

port-reservation ports *ports-per-block*

port-reservation blocks *num-blocks*

no port-reservation

Context

[Tree] configure mobile-gateway profile bng cp-nat-profile nat-pool mode port-reservation

Description

This command configures the size of the port block. The port block size can be configured explicitly by specifying the number of ports in each port block, or implicitly by specifying the number of port ranges per outside IP address. This command can be configured only when the NAT mode equals NAPT.

The **no** form of this command reverts to the default.

Default

port-reservation blocks 128

Parameters

ports-per-block

Specifies the number of ports per port block.

Values: 1 to 32256

num-block

Specifies the number of port blocks per outside IP address.

Values: 1 to 64512

4.2.5.13 subscriber-limit

Syntax

subscriber-limit *subscriber-limit*

no subscriber-limit

Context

[Tree] configure mobile-gateway profile bng cp-nat-profile nat-pool mode subscriber-limit

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Description

This command specifies the maximum number of subscribers permitted per outside IP address. When the port-block extensions for a NAT subscriber are enabled, the port space for an outside IP address is divided in the following partitions, from the start to the end of the port space, in the specified order:

1. **well-known port range**
2. **static port forwarding range**
   The static port forwarding range is enabled by configuration.
3. **port range reserved for the first (initial) port blocks of each subscriber**
   The configured number of NAT subscribers per an outside IP address multiplied by the configured size of the first (initial) port-block determines the size of the port partition reserved for initial port-blocks.
4. **port range reserved for extended port blocks**
   This port range includes whatever is left after the previous three port ranges. The port partition reserved for extended port blocks begins at the end of the port partition reserved for the initial port blocks and continues until the end of the ports space (port 65535).

The **no** form of this command removes the configuration.

Default

no subscriber-limit

Parameters

subscriber-limit

Specifies the maximum number of subscribers per outside IP address.

Values: 2 to 2000

4.2.5.14 up-nat-policy

Syntax

up-nat-policy *name*

no up-nat-policy

Context

[Tree] configure mobile-gateway profile bng cp-nat-profile nat-pool up-nat-policy

Description

This command references an existing up-nat-policy which is configured on the BNG-UP. The up-nat-policy defines NAT parameters associated with the subscribers, such as ALGs and protocol timers.

The **no** form of this command removes the configuration.

Default

no up-nat-policy

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Parameters

name

Specifies the name of the up-nat-policy defined on the BNG-UP; up to 32 characters.

4.2.5.15 dhcp-profile

Syntax

[**no**] **dhcp-profile** *name*

Context

[Tree] configure mobile-gateway profile bng dhcp-profile

Description

This command configures a DHCP protocol profile.

The **no** form of this command removes the configuration.

Parameters

name

Specifies the DHCP profile name, up to 32 characters.

4.2.5.16 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile bng dhcp-profile description

Description

This command enables a text description stored in the configuration file for a configuration context. The **description** command associates a text string with a configuration context to help identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Default

no description

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Parameters

description-string

Specifies the description character string. Allowed values are any string up to 80 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.5.17 options

Syntax

options

Context

[Tree] configure mobile-gateway profile bng dhcp-profile options

Description

This command enables the context for configuring options to include in DHCP messages that are sent toward a DHCP client.

Default

options

4.2.5.18 option

Syntax

option *option-number* **address** *ip-address* [*ip-address*]

option *option-number* **string** *ascii-string*

option *option-number* **hex** *hex-string*

[**no**] **option** *option-number*

Context

[Tree] configure mobile-gateway profile bng dhcp-profile options option

Description

This command configures the specified option. Specific option numbers cannot be set because they are controlled by the application. If for specific options (for example, DNS) specific per-session overrides exist, those overrides are signaled, and only the remaining DHCP profile options are signaled.

The **no** form of this command removes the configuration.

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Parameters

option-number

Specifies the action that is applied to a match.

Values: 2 | 4 to 52 | 55 to 254

ip-address

Specifies the IPv4 address, up to four IPv4 addresses can be specified.

Values: a.b.c.d

ascii-string

Specifies the ASCII string, up to 127 characters.

hex-string

Specifies the hex value.

Values: 0x0 to 0xFFFFFFFF (maximum of 254 hex nibbles)

4.2.5.19 relay-agent-options

Syntax

[**no**] **relay-agent-options**

Context

[Tree] configure mobile-gateway profile bng dhcp-profile options relay-agent-options

Description

Commands in this context configure DHCP relay-agent-information (option 82) options.

The **no** form of this command removes the configuration.

4.2.5.20 action

Syntax

action drop

action keep

action replace

no action

Context

[Tree] configure mobile-gateway profile bng dhcp-profile options relay-agent-options action

Description

This command configures the action for the DHCP relay packet concerning the relay-agent-information option (option 82).

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Default

action keep

Parameters

drop

Keyword to drop the received DHCP packet if it contains option 82, and to forward it otherwise.

keep

Keyword to keep the existing option 82 in the received packet without change.

replace

Keyword to replace the options in the received packet with the options configured in the context. If an option is not configured in the context, the corresponding option in the received packet is removed.

4.2.5.21 circuit-id

Syntax

circuit-id access-identifier

circuit-id string *ascii string*

circuit-id hex *hex string*

circuit-id mac

circuit-id upf-identifier

no circuit-id

Context

[Tree] configure mobile-gateway profile bng dhcp-profile options relay-agent-options circuit-id

Description

This command enables sending the circuit-id option in the DHCP relay packet.

The **no** form of this command disables sending the circuit-id option in the DHCP relay packet.

Default

no circuit-id

Parameters

access-identifier

Keyword to use the access identifier of the session as the circuit ID. The format is "*up-id*|*l2-access-id*|*vlan-tag*", where *up-id* is the UP node ID or in case of UP redundancy, the UP group name . For example, in case UP redundancy is not enabled, for a session on BNG-UP “UPF-1”, port 1/2/3, with QinQ tag 300:400, the circuit ID is “UPF-1|1/2/3|300:400”.

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ascii string

Specifies the circuit ID as an ASCII string, up to 80 characters.

hex string

Specifies the circuit ID as a hexadecimal string.

Values: 0x0 to 0xFFFFFFFF...(max 254 hex nibbles)

upf-identifier

Keyword to use the session BNG-UP identifier as the circuit ID. In case of BNG-UP redundancy enabled sessions, the used value is the UP group.

mac

Keyword to use the MAC address of the session as the circuit ID.

4.2.5.22 remote-id

Syntax

remote-id access-identifier

remote-id string *ascii string*

remote-id hex *hex string*

remote-id mac

remote-id upf-identifier

no remote-id

Context

[Tree] configure mobile-gateway profile bng dhcp-profile options relay-agent-options remote-id

Description

This command enables sending the remote-id option in the DHCP relay packet.

The **no** form of this command disables sending the remote-id option in the DHCP relay packet.

Default

no remote-id

Parameters

access-identifier

Keyword to use the access identifier of the session as the remote ID. The format is "*up-id*|*l2-access-id*|*vlan-tag*", where *up-id* is the UP node ID or in case of UP redundancy, the UP group name. For example, in case UP redundancy is not enabled, for a session on BNG-UP “UPF-1”, port 1/2/3, with QinQ tag 300:400, the remote ID is “UPF-1|1/2/3|300:400”.

ascii string

Specifies the remote ID as an ASCII string, up to 80 characters.

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hex string

Specifies the remote ID as a hexadecimal string.

Values: 0x0 to 0xFFFFFFFF...(max 254 hex nibbles)

mac

Keyword to use the MAC address of the session as the remote ID.

upf-identifier

Keyword to use the session BNG-UP identifier as the remote ID. In case of BNG-UP redundancy enabled sessions, the used value is the UP group.

4.2.5.23 dhcpv6-profile

Syntax

[**no**] **dhcpv6-profile** *name*

Context

[Tree] configure mobile-gateway profile bng dhcpv6-profile

Description

This command configures a DHCPv6 protocol profile.

The **no** form of this command removes the profile.

Parameters

name

Specifies the DHCPv6 profile name, up to 32 characters.

4.2.5.24 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile bng dhcpv6-profile description

Description

This command enables a text description stored in the configuration file for a configuration context. The **description** command associates a text string with a configuration context to help identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

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Default

no description

Parameters

description-string

Specifies the description character string. Allowed values are any string up to 80 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.5.25 options

Syntax

options

Context

[Tree] configure mobile-gateway profile bng dhcpv6-profile options

Description

Commands in this context configure the options to be included in the DHCPv6 messages that are sent to a DHCPv6 client.

Default

options

4.2.5.26 option

Syntax

[**no**] **option** *option-number*

option *option-number* **address** *ipv6-address* [*ipv6-address*...(up to 4 max)]

option *option-number* **hex** *hex-string*

option *option-number* **number** *number*

option *option-number* **string** *ascii-string*

Context

[Tree] configure mobile-gateway profile bng dhcpv6-profile options option

Description

This command configures a specific DHCPv6 option to be included in the DHCPv6 message with the specified content. If no content is provided the option is included as an empty option. This can be used to signal a flag to the client.

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The **no** form of this command removes the option from the profile.

Parameters

option-number

Identifies the number of the option.

Values: 6 to 8 | 10 to 11 | 14 to 17 | 19 to 43 | 49 to 65535

ipv6-address

Specifies the IPv6 address to be included in the option; up to four IPv6 addresses can be specified; addresses are sent in the order they are specified.

Values: up to 64 characters

ascii-string

Specifies the ASCII string.

Values: up to 127 characters

hex-string

Specifies the exact byte contents of the option as a hexadecimal string.

Values: 0x0 to 0xFFFFFFFF... (maximum of 254 hex nibbles)

4.2.5.27 relay-agent-options

Syntax

[**no**] **relay-agent-options**

Context

[Tree] configure mobile-gateway profile bng dhcpv6-profile options relay-agent-options

Description

This command configures DHCPv6 relay options.

The **no** form of this command removes the configuration.

4.2.5.28 interface-id

Syntax

interface-id access-identifier

interface-id string *ascii string*

interface-id copy

interface-id hex *hex string*

interface-id mac

interface-id upf-identifier

no interface-id

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Context

[Tree] configure mobile-gateway profile bng dhcpv6-profile options relay-agent-options interface-id

Description

This command enables sending the interface-id option in the DHCPv6 relay packet.

The **no** form of this command disables sending the interface-id option in the DHCPv6 relay packet.

Default

no interface-id

Parameters

access-identifier

Keyword to use the access identifier of the session as the interface ID. The format is "*up-id*|*l2-access-id*|*vlan-tag*", where *up-id* is the UP node ID or in case of UP redundancy, the UP group name. For example, in case UP redundancy is not enabled, for a session on BNG-UP “UPF-1”, port 1/2/3, with QinQ tag 300:400, the interface ID is “UPF-1|1/2/3|300:400”.

ascii string

Specifies the interface ID as an ASCII string, up to 80 characters.

copy

Keyword to copy the interface ID in the received DHCPv6 relay message to the outbound DHCPv6 message.

hex string

Specifies the interface ID as a hexadecimal string.

Values: 0x0 to 0xFFFFFFFF...(max 254 hex nibbles)

mac

Keyword to use the MAC address of the session as the interface ID.

upf-identifier

Keyword to use the session BNG-UP identifier as the interface ID. In case of BNG-UP redundancy enabled sessions, the used value is the UP group.

4.2.5.29 remote-id

Syntax

remote-id access-identifier

remote-id string *ascii string*

remote-id client-id

remote-id copy

remote-id hex *hex string*

remote-id mac

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no remote-id

Context

[Tree] configure mobile-gateway profile bng dhcpv6-profile options relay-agent-options remote-id

Description

This command enables sending the remote-id option in the DHCPv6 relay packet.

The **no** form of this command disables sending the remote-id option in the DHCPv6 relay packet.

Parameters

access-identifier

Keyword to use the access identifier of the session as the remote ID. The format is "*up-id*|*l2-access-id*|*vlan-tag*", where *up-id* is the UP node ID or in case of UP redundancy, the UP group name. For example, in case UP redundancy is not enabled, for a session on BNG-UP “UPF-1”, port 1/2/3, with QinQ tag 300:400, the remote ID is “UPF-1|1/2/3|300:400”.

ascii string

Specifies the remote ID as an ASCII string, up to 80 characters.

client-id

Keyword to use the client-id option in the received DHCPv6 message from the client as the remote ID toward the server.

copy

Keyword to copy the remote ID in the received DHCPv6 relay message to the outbound DHCPv6 message.

hex string

Specifies the remote ID as a hexadecimal string.

Values: 0x0 to 0xFFFFFFFF...(max 254 hex nibbles)

mac

Keyword to use the MAC address of the session as the remote ID.

4.2.5.30 entry-point

Syntax

[**no**] **entry-point** *name*

Context

[Tree] configure mobile-gateway profile bng entry-point

Description

This command configures a BNG entry point or enters an existing BNG entry point. The entry point is the starting point of authentication process.

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The **no** form of this command removes the configuration.

Parameters

name

Specifies the BNG entry point name, up to 32 characters.

4.2.5.31 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile bng entry-point description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Default

no description

Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.5.32 entry

Syntax

[**no**] **entry** *name*

Context

[Tree] configure mobile-gateway profile bng entry-point entry

Description

This command configures a BNG entry or enters an existing BNG entry. Each entry consists of two parts.

- match configuration — the system uses attributes of the triggering packet to match the configured criteria

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- session attributes — the system uses session attributes, such as **authentication-flow** in the most matched entry, to authenticate and create the session

The **no** form of this command removes the configuration.

Parameters

name

Specifies the BNG entry name, up to 32 characters.

4.2.5.33 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile bng entry-point entry description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Default

no description

Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.5.34 ipoe

Syntax

ipoe

Context

[Tree] configure mobile-gateway profile bng entry-point entry ipoe

Description

This command enables the context for configuring IPoE parameters of the entry point entry.

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Default

ipoe

4.2.5.35 allow-data-trigger

Syntax

[**no**] **allow-data-trigger**

Context

[Tree] configure mobile-gateway profile bng entry-point entry ipoe allow-data-trigger

Description

This command configures IPoE session creation from data-trigger packets sent over the default IBCP tunnel. If not configured, data-trigger packets are not processed and log messages are generated to the error history.

The **no** form of this command disables the IPoE session creation.

Default

no allow-data-trigger

4.2.5.36 authentication-flow

Syntax

authentication-flow

Context

[Tree] configure mobile-gateway profile bng entry-point entry ipoe authentication-flow

Description

This command enables the IPoE authentication flow context of the entry point entry.

Default

authentication-flow

4.2.5.37 adb

Syntax

adb *adb-name* [*adb-name*]

no adb

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Context

[Tree] configure mobile-gateway profile bng entry-point entry ipoe authentication-flow adb

Description

This command configures the IPoE authentication flow that the system looks up in the specified authentication-databases; using the specified order for authenticating the IPoE session.

The **no** form of this command removes the configuration.

Parameters

adb-name

Specifies from one to three ADB names, up to 32 characters each.

4.2.5.38 ipoe-profile

Syntax

ipoe-profile *name*

no ipoe-profile

Context

[Tree] configure mobile-gateway profile bng entry-point entry ipoe ipoe-profile

Description

This command configures the IPoE profile that is used for creating new IPoE session.

The **no** form of this command removes the configuration.

Default

no ipoe-profile

Parameters

name

Specifies the IPoE name, up to 32 characters.

4.2.5.39 match

Syntax

match

Context

[Tree] configure mobile-gateway profile bng entry-point entry match

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Description

Commands in this context configure the match attribute values for the entry.

4.2.5.40 l2-access-id

Syntax

l2-access-id *string*

no l2-access-id

Context

[Tree] configure mobile-gateway profile bng entry-point entry match l2-access-id

Description

This command configures the value of the Layer 2 access ID that the entry-point entry expects to match when system matches the session to the entry. The value specified can be either an exact match or a partial match if the **string-mask** is configured in the entry-point match configuration.

The **no** form of this command removes the configuration.

Default

no l2-access-id

Parameters

string

Specifies the Layer 2 access ID name, up to 64 characters.

4.2.5.41 up-group

Syntax

up-group *name*

no up-group

Context

[Tree] configure mobile-gateway profile bng entry-point entry match up-group

Description

This command configures the name of the UP group to match the session to the entry. The matching value can be either an exact match or a partial match if the following command is configured in the entry-point match configuration for the UP group.

```
configure mobile-gateway profile bng entry-point match string-mask
```


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The MAG-c derives the UP group by comparing the incoming packet's Layer 2 access ID, S-tag, and C-tag to the UP group configuration in the following context.

```
configure mobile-gateway pdn bng up-group
```

The **no** form of this command removes the configuration.

Default

no up-group

Parameters

name

Specifies the UP group name, up to 32 characters.

4.2.5.42 up-ip

Syntax

up-ip *ip-address*

no up-ip

Context

[Tree] configure mobile-gateway profile bng entry-point entry match up-ip

Description

This command configures the value of the UP IP address that the entry-point entry expects to match when system matches the session to the entry.

The **no** form of this command removes the configuration.

Default

no up-ip

Parameters

ip-address

Specifies the UP IP address.

Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D

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4.2.5.43 up-node-id

Syntax

up-node-id *node-id*

no up-node-id

Context

[Tree] configure mobile-gateway profile bng entry-point entry match up-node-id

Description

This command configures the value of the UP node ID to match the session to the entry. The matching value can be either an exact match or a partial match if the following command is configured in the entry-point match configuration for the UP node ID.

```
configure mobile-gateway profile bng entry-point match string-mask
```

The UP node ID is not explicitly present in incoming IBCP packets. The MAG-c derives the UP node ID from the PFCP association to which the IBCP tunnel is tied. If this command configures an IP address, it only matches the packet if the PFCP signaled node ID equals the configured IP address, even if the configuration matches the incoming IBCP source IP address.

The **no** form of this command removes the configuration.

Default

no up-node-id

Parameters

node-id

Specifies the UP node ID as an IP address or a name, up to 255 characters.

4.2.5.44 vlan

Syntax

[**no**] **vlan**

Context

[Tree] configure mobile-gateway profile bng entry-point entry match vlan

Description

This command enables the VLAN configuration context that the entry-point entry expects to match when system matches the session to the entry.

The **no** form of this command disables the VLAN configuration context.

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Default

vlan

4.2.5.45 c-vlan

Syntax

c-vlan start *tag* **end** *tag*

no c-vlan

Context

[Tree] configure mobile-gateway profile bng entry-point entry match vlan c-vlan

Description

This command configures a customer VLAN (inner VLAN) range for matching the entry-point entry. If the customer VLAN of a trigger packet falls within the specified range, a match occurs.

The **no** form of this command removes the configuration.

Default

no c-vlan

Parameters

start *tag*

Specifies the start of the inner VLAN range.

Values: 1 to 4096

end *tag*

Specifies the end of the inner VLAN range.

Values: 1 to 4096

4.2.5.46 s-vlan

Syntax

s-vlan start *tag* **end** *tag*

no s-vlan

Context

[Tree] configure mobile-gateway profile bng entry-point entry match vlan s-vlan

Description

This command configures a service VLAN (outer VLAN) range for matching the entry-point entry. If the customer VLAN of a trigger packet falls within the specified range, a match occurs.

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The **no** form of this command removes the configuration.

Default

no s-vlan

Parameters

start *tag*

Specifies the start of the outer VLAN range.

Values: 1 to 4096

end *tag*

Specifies the end of the outer VLAN range.

Values: 1 to 4096

4.2.5.47 multiple-sessions-per-mac

Syntax

multiple-sessions-per-mac limit *number* **discriminator** *attribute*

no multiple-sessions-per-mac

Context

[Tree] configure mobile-gateway profile bng entry-point entry multiple-sessions-per-mac

Description

This command configures a maximum limit for the number of session per MAC address and a discriminator to differentiate between different sessions from same MAC address.

The **no** form of this command removes the configuration and disallows multiple sessions per MAC address.

Default

no multiple-sessions-per-mac

Parameters

number

Specifies the maximum number of sessions per MAC address.

Values: 2 to 8191

attribute

Specifies a discriminator for distinguishing between different sessions on the same MAC address.

Values: circuit-id | remote-id

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4.2.5.48 pppoe

Syntax

pppoe

Context

[Tree] configure mobile-gateway profile bng entry-point entry pppoe

Description

This command enables the context for configuring a PPPoE related configuration for the entry-point entry.

Default

pppoe

4.2.5.49 authentication-flow

Syntax

authentication-flow

Context

[Tree] configure mobile-gateway profile bng entry-point entry pppoe authentication-flow

Description

This command enables the context for configuring PPPoE authentication flow for the entry-point entry.

Default

authentication-flow

4.2.5.50 padi-adb

Syntax

padi-adb *adb-name* [*adb-name*]

no padi-adb

Context

[Tree] configure mobile-gateway profile bng entry-point entry pppoe authentication-flow padi-adb

Description

This command configures the PPPoE PADI authentication flow that the system looks up in the specified authentication-databases; using the specified order upon receiving a PPPoE PADI packet.

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The **no** form of this command removes the configuration.

Default

no padi-adb

Parameters

adb-name

Specifies the ADB name, up to 32 characters, up to three ADB names can be specified.

4.2.5.51 pap-chap-adb

Syntax

pap-chap-adb *adb-name* [*adb-name*]

no pap-chap-adb

Context

[Tree] configure mobile-gateway profile bng entry-point entry pppoe authentication-flow pap-chap-adb

Description

This command configures the PPPoE PAP/CHAP authentication flow that the system looks up in the specified authentication-databases; using the specified order for PPPoE PAP/CHAP authentication.

The **no** form of this command removes the configuration.

Default

no pap-chap-adb

Parameters

adb-name

Specifies the ADB name, up to 32 characters; up to three ADB names can be specified.

4.2.5.52 pppoe-profile

Syntax

pppoe-profile *name*

no pppoe-profile

Context

[Tree] configure mobile-gateway profile bng entry-point entry pppoe pppoe-profile

Description

This command configures the PPPoE profile.

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The **no** form of this command removes the configuration.

Default

no pppoe-profile

Parameters

name

Specifies the PPPOE profile name, up to 32 characters.

4.2.5.53 session-id

Syntax

session-id

Context

[Tree] configure mobile-gateway profile bng entry-point entry pppoe session-id

Description

This command enables the context for configuring a PPPoE session ID for the entry-point entry.

Default

session-id

4.2.5.54 allocation-scope

Syntax

allocation-scope *scope*

no allocation-scope

Context

[Tree] configure mobile-gateway profile bng entry-point entry pppoe session-id allocation-scope

Description

This command configures the PPPoE session ID allocation scope. The allocated PPPoE session ID is unique within the specified scope.

The **no** form of this command removes the configuration.

Default

allocation-scope l2-circuit-mac

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Parameters

scope

Specifies the PPPoE session ID allocation scope type.

Values: l2-circuit | l2-circuit-mac

4.2.5.55 random

Syntax

[**no**] **random**

Context

[Tree] configure mobile-gateway profile bng entry-point entry pppoe session-id random

Description

This command configures the system to allocate PPPoE session IDs randomly within the specified scope.

The **no** form of this command configures the system to allocate PPPoE session IDs incrementally.

Default

no random

4.2.5.56 python-policy

Syntax

python-policy *policy-name*

no python-policy

Context

[Tree] configure mobile-gateway profile bng entry-point entry python-policy

Description

This command configures a Python policy for access protocols like PPPoE.

Default

no python-policy

Parameters

policy-name

Specifies the policy name, up to 32 characters.

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4.2.5.57 session-limits

Syntax

session-limits

Context

[Tree] configure mobile-gateway profile bng entry-point entry session-limits

Description

Commands in this context configure the maximum number of sessions within a specific scope.

Note: Limits can be changed at any time but are only applied to new sessions. Existing sessions are not removed when the session limits decrease.

4.2.5.58 per-l2-access-id

Syntax

per-l2-access-id *number*

per-l2-access-id infinite

Context

[Tree] configure mobile-gateway profile bng entry-point entry session-limits per-l2-access-id

Description

This command configures the maximum number of sessions for each learned Layer 2 access ID.

Default

per-l2-access-id infinite

Parameters

number

Specifies the maximum number of sessions.

Values: 1 to 1048576

infinite

Keyword to specify that there is no limit for the number of sessions.

4.2.5.59 per-l2-circuit

Syntax

per-l2-circuit *number*

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per-l2-circuit infinite

Context

[Tree] configure mobile-gateway profile bng entry-point entry session-limits per-l2-circuit

Description

This command configures the maximum number of sessions for each learned Layer 2 circuit.

Note: A Layer 2 circuit (l2-circuit) is the combination of a Layer 2 access ID (l2-access-id; for example, a port) and any VLANs learned on the Layer 2 access ID.

Default

per-l2-circuit infinite

Parameters

number

Specifies the maximum number of sessions.

Values: 1 to 1048576

infinite

Keyword to specify that there is no limit for the number of sessions.

4.2.5.60 per-up

Syntax

per-up *number*

per-up infinite

Context

[Tree] configure mobile-gateway profile bng entry-point entry session-limits per-up

Description

This command configures the maximum number of sessions for each learned BNG-UP.

Default

per-up infinite

Parameters

number

Specifies the maximum number of sessions.

Values: 1 to 1048576

infinite

Keyword to specify that there is no limit for the number of sessions.

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4.2.5.61 session-lockout-profile

Syntax

session-lockout-profile *profile-name*

[**no**] **session-lockout-profile**

Context

[Tree] configure mobile-gateway profile bng entry-point entry session-lockout-profile

Description

This command references a session lockout profile. Session lockout is enabled for the sessions that match this BNG EP entry. The **session-lockout-profile** command in the following context specifies the session lockout profile.

```
configure mobile-gateway profile bng
```

The **no** form of this command removes the session lockout profile from the BNG EP entry. Session lockout is disabled for the sessions that match this BNG EP entry.

Default

no session-lockout-profile

Parameters

profile-name

Specifies the name of the session lockout profile, up to 32 characters.

4.2.5.62 shutdown

Syntax

[**no**] **shutdown**

Context

[Tree] configure mobile-gateway profile bng entry-point entry shutdown

Description

This command administratively disables the entity. When disabled, an entity does not change, reset, or remove any configuration settings or statistics. Many entities must be explicitly enabled using the **no shutdown** command.

The operational state of the entity is disabled as well as the operational state of any entities contained within. Many objects must be shut down before they may be deleted.

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4.2.5.63 subscriber-identification

Syntax

subscriber-identification {**per-session** | **multi-session**}

Context

[Tree] configure mobile-gateway profile bng entry-point entry subscriber-identification

Description

This command configures how to identify a subscriber.

Default

subscriber-identification per-session

Parameters

per-session

Keyword to specify that every session is a different subscriber.

multi-session

Keyword to specify that a subscriber can contain multiple sessions, according to the **multi-session-key** configuration.

4.2.5.64 multi-session-key

Syntax

[**no**] **multi-session-key**

Context

[Tree] configure mobile-gateway profile bng entry-point entry subscriber-identification multi-session-key

Description

This command configures the information that is included in the multi-session key. This information is used to group sessions into a subscriber.

The **no** form of this command removes the configuration.

Default

no multi-session-key

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4.2.5.65 c-vlan

Syntax

[**no**] **c-vlan**

Context

[Tree] configure mobile-gateway profile bng entry-point entry subscriber-identification multi-session-key c-vlan

Description

This command configures the **multi-session-key** to include the customer VLAN (inner VLAN).

The **no** form of this command removes the customer VLAN from the **multi-session-key**.

Default

no c-vlan

4.2.5.66 circuit-id

Syntax

[**no**] **circuit-id**

Context

[Tree] configure mobile-gateway profile bng entry-point entry subscriber-identification multi-session-key circuit-id

Description

This command configures the **multi-session-key** to include the circuit ID.

The **no** form of this command removes the circuit ID from the **multi-session-key**.

Default

no circuit-id

4.2.5.67 string-mask

Syntax

[**no**] **string-mask**

Context

[Tree] configure mobile-gateway profile bng entry-point entry subscriber-identification multi-session-key circuit-id string-mask

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Description

This command enables the context for configuring an optional string mask for masking the circuit ID.

The **no** form of this command disables the context.

Default

no string-mask

4.2.5.68 prefix

Syntax

prefix length *mask-length*

prefix string *mask-string*

no prefix

Context

[Tree] configure mobile-gateway profile bng entry-point entry subscriber-identification multi-session-key circuit-id string-mask prefix

Description

This command configures a prefix mask for the circuit ID.

The **no** form of this command removes the configuration.

Default

no prefix

Parameters

mask-length

Specifies to remove the specified amount of bytes from beginning of the session's circuit ID.

Values: 1 to 127

mask-string

Specifies to remove the specified string if the beginning of the session's circuit ID matches, up to 127 characters.

Note: For a string match, the wildcard character "*" can be used as a match criteria.

4.2.5.69 suffix

Syntax

suffix length *mask-length*

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suffix string *mask-string*

no suffix

Context

[Tree] configure mobile-gateway profile bng entry-point entry subscriber-identification multi-session-key circuit-id string-mask suffix

Description

This command configures a prefix mask for circuit ID.

The **no** form of this command removes the configuration.

Default

no suffix

Parameters

mask-length

Specifies to remove the specified amount of bytes from end of the session's circuit ID.

Values: 1 to 127

mask-string

Specifies to remove the specified string if the end of the session's circuit ID matches, up to 127 characters.

Note: For a string match, the wildcard character "*" can be used as a match criteria.

4.2.5.70 l2-access-id

Syntax

[**no**] **l2-access-id**

Context

[Tree] configure mobile-gateway profile bng entry-point entry subscriber-identification multi-session-key l2-access-id

Description

This command configures the **multi-session-key** to include the Layer 2 access ID.

The **no** form of this command removes the Layer 2 access ID from the **multi-session-key**.

Default

no l2-access-id

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4.2.5.71 mac

Syntax

[**no**] **mac**

Context

[Tree] configure mobile-gateway profile bng entry-point entry subscriber-identification multi-session-key mac

Description

This command configures the **multi-session-key** to include the MAC address.

The **no** form of this command removes the MAC address from the **multi-session-key**.

Default

no mac

4.2.5.72 remote-id

Syntax

[**no**] **remote-id**

Context

[Tree] configure mobile-gateway profile bng entry-point entry subscriber-identification multi-session-key remote-id

Description

This command configures the **multi-session-key** to include the remote ID.

The **no** form of this command removes the remote ID from the **multi-session-key**.

Default

no remote-id

4.2.5.73 string-mask

Syntax

[**no**] **string-mask**

Context

[Tree] configure mobile-gateway profile bng entry-point entry subscriber-identification multi-session-key remote-id string-mask

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Description

This command enables the context for configuring an optional string mask for masking the remote ID.

The **no** form of this command disables the context.

Default

no string-mask

4.2.5.74 prefix

Syntax

prefix length *mask-length*

prefix string *mask-string*

no prefix

Context

[Tree] configure mobile-gateway profile bng entry-point entry subscriber-identification multi-session-key remote-id string-mask prefix

Description

This command configures a prefix mask for the remote ID.

The **no** form of this command removes the configuration.

Default

no prefix

Parameters

mask-length

Specifies to remove the specified amount of bytes from beginning of the session's remote ID.

Values: 1 to 127

mask-string

Specifies to remove the specified string if the beginning of the session's remote ID matches, up to 127 characters.

Note: For a string match, the wildcard character "*" can be used as a match criteria.

4.2.5.75 suffix

Syntax

suffix length *mask-length*

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suffix string *mask-string*

no suffix

Context

[Tree] configure mobile-gateway profile bng entry-point entry subscriber-identification multi-session-key remote-id string-mask suffix

Description

This command configures a prefix mask for remote ID.

The **no** form of this command removes the configuration.

Default

no suffix

Parameters

mask-length

Specifies to remove the specified amount of bytes from end of the session's remote ID.

Values: 1 to 127

mask-string

Specifies to remove the specified string if the end of the session's remote ID matches, up to 127 characters.

Note: For a string match, the wildcard character "*" can be used as a match criteria.

4.2.5.76 s-vlan

Syntax

[**no**] **s-vlan**

Context

[Tree] configure mobile-gateway profile bng entry-point entry subscriber-identification multi-session-key s-vlan

Description

This command configures the **multi-session-key** to include the subscriber VLAN (outer VLAN).

The **no** form of this command removes the subscriber VLAN from the **multi-session-key**.

Default

no s-vlan

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4.2.5.77 session-limit

Syntax

session-limit *limit*

Context

[Tree] configure mobile-gateway profile bng entry-point entry subscriber-identification session-limit

Description

This command configures the maximum number of sessions per subscriber.

Note: To change the session limit, you must first administratively disable the BNG entry point using the **shutdown** command in the following context.

```
configure mobile-gateway profile bng entry-point
```

The changed limit is applied only to new sessions. Existing sessions are not removed when the session limit decreases.

Default

session-limit 256

Parameters

limit

Specifies the maximum number of sessions.

Values: 2 to 256

4.2.5.78 match

Syntax

match *match-id* **[attribute** *attr***]**

no match *match-id*

Context

[Tree] configure mobile-gateway profile bng entry-point match

Description

This command configures one or more match attributes in the entry-point match configuration. An entry configuration must contain configurations for all non-optional match attributes to be a matched entry. Match attributes that are optional may be included or not in the matched entry configuration.

The **no** form of this command removes the specified match configuration.

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Parameters

match-id

Specifies the match ID.

Values: 1 to 4

attr

Specifies a matching attribute.

Values:

- c-vlan – specifies the operator VLAN tag as a match attribute
- l2-access-id – specifies the Layer 2 access ID as a match attribute
- s-vlan – specifies the service VLAN tag as a match attribute
- up-ip – specifies the BNG-UP IP address as a match attribute
- up-group – specifies the UP group as a match attribute
- up-node-id – specifies the UP node ID as a match attribute

4.2.5.79 optional

Syntax

[**no**] **optional**

Context

[Tree] configure mobile-gateway profile bng entry-point match optional

Description

This command configures the match attribute as optional. Match attributes that are optional may be included or not in a matched entry configuration.

The **no** form of this command removes the configuration.

Default

no optional

4.2.5.80 string-mask

Syntax

[**no**] **string-mask**

Context

[Tree] configure mobile-gateway profile bng entry-point match string-mask

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Description

This command enables an optional string mask for masking the match attribute.

The **no** form of this command disables the string-mask configuration for the match attribute.

Default

no string-mask

4.2.5.81 prefix

Syntax

prefix length *mask-length*

prefix string *mask-string*

no prefix

Context

[Tree] configure mobile-gateway profile bng entry-point match string-mask prefix

Description

This command configures a prefix mask for the match attribute.

The **no** form of this command removes the configuration.

Default

no prefix

Parameters

mask-length

Specifies to remove the specified number of bytes from the start of the value before comparing it with the end of the match attribute's value.

Values: 1 to 127

mask-string

Specifies to remove the specified string from the start of the value before comparing it with the end of the match attribute's value, up to 127 characters.

Note: The wildcard character "*" can be used in the mask string.

4.2.5.82 suffix

Syntax

suffix length *mask-length*

suffix string *mask-string*

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no suffix

Context

[Tree] configure mobile-gateway profile bng entry-point match string-mask suffix

Description

This command configures a suffix mask for the match attribute.

The **no** form of this command removes the configuration.

Default

no suffix

Parameters

mask-length

Specifies to remove the specified number of bytes from the end of the session value before comparing the session value with the start of the match attribute's value.

Values: 1 to 127

mask-string

Specifies to remove the specified string from the end of the session value before comparing the session value with the start of the match attribute's value, up to 127 characters.

Note: The wildcard character "*" can be used in the mask string.

4.2.5.83 shutdown

Syntax

[**no**] **shutdown**

Context

[Tree] configure mobile-gateway profile bng entry-point shutdown

Description

This command administratively disables the entity. When disabled, an entity does not change, reset, or remove any configuration settings or statistics. Many entities must be explicitly enabled using the **no shutdown** command.

The operational state of the entity is disabled as well as the operational state of any entities contained within. Many objects must be shut down before they may be deleted.

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4.2.5.84 fsg-profile

Syntax

[**no**] **fsg-profile** *name*

Context

[Tree] configure mobile-gateway profile bng fsg-profile

Description

This command creates a specific FSG profile. Commands in the specific FSG context configure the FSG behavior for the specified FSG profile name.

The **no** form of this command removes the specified FSG profile.

Parameters

name

Specifies the name, up to 32 characters. The first character in the name cannot be an underscore (_) or a number.

4.2.5.85 active-standby-selection

Syntax

active-standby-selection

Context

[Tree] configure mobile-gateway profile bng fsg-profile active-standby-selection

Description

Commands in this context configure the selection method for the active and standby BNG-UPs.

4.2.5.86 active-change-without-failure

Syntax

active-change-without-failure always

active-change-without-failure initial-only *[60..900]*

active-change-without-failure never

no active-change-without-failure

Context

[Tree] configure mobile-gateway profile bng fsg-profile active-standby-selection active-change-without-failure

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Description

This command configures whether the active BNG-UP can be changed if it did not fail.

Note: The health and the failure health threshold that is configured in the following context determine the failure of the BNG-UP.

```
configure mobile-gateway profile bng fsg-profile health-calculation failure-threshold
```

The **no** form of this command reverts to the default.

Default

active-change-without-failure always

Parameters

always

Keyword to specify that the standby BNG-UP can always become active, even if the current active BNG-UP did not fail. This is known as the revertive mode, and is often combined with the following command.

```
configure mobile-gateway pdn bng up-group up preferred
```

initial-only *[60..900]*

Keyword followed by a time-value in seconds during which the **always** mode applies. The timer starts after the PFCP association for the first BNG-UP is set up. When the timer expires, the **never** mode applies.

Values: 60 to 900

never

Keyword to specify that the current active BNG-UP remains active until it fails. This is known as the non-revertive mode.

4.2.5.87 failure-lockout

Syntax

failure-lockout *seconds*

no failure-lockout

Context

[Tree] configure mobile-gateway profile bng fsg-profile active-standby-selection failure-lockout

Description

This command configures how long a BNG-UP is locked out after an FSG failure; for example, an explicit FSG create or modify error response or receiving an FSG oper down notification from the BNG-UP.

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During lockout, a BNG-UP cannot become active or standby. If the BNG-UP has an active or standby role, the MAG-c removes that role from the BNG-UP. When the lockout time expires, the MAG-c removes the lockout state, which acts as a recovery trigger for FSG reselection.

The **no** form of this command reverts to the default.

Default

failure-lockout 60

Parameters

seconds

Specifies the lockout timer in seconds.

Values: 30 to 3600

4.2.5.88 hold-off-on-degradation

Syntax

hold-off-on-degradation *milliseconds*

no hold-off-on-degradation

Context

[Tree] configure mobile-gateway profile bng fsg-profile active-standby-selection hold-off-on-degradation

Description

This command configures the hold timer before reselecting a BNG-UP after a degradation event. By default, the hold timer is disabled to immediately execute potential switchovers because of failure.

When a degradation event occurs while a hold timer is running because of another degradation or recovery event, the new hold timer is only applied if it is shorter than the already running one.

See "Active/standby selection triggers" in the MAG-c Control Plane Function Guide for more information about the timer and the degradation events that trigger an active/standby selection.

The **no** form of this command reverts to the default, which is disabled.

Default

hold-off-on-degradation 0

Parameters

milliseconds

Specifies the hold timer for degradation events in milliseconds.

Values: 0 to 100000

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4.2.5.89 hold-off-on-recovery

Syntax

hold-off-on-recovery *milliseconds*

no hold-off-on-recovery

Context

[Tree] configure mobile-gateway profile bng fsg-profile active-standby-selection hold-off-on-recovery

Description

This command configures the hold timer before reselecting a BNG-UP after a recovery event.

When a degradation event occurs while a hold timer is running because of another degradation or recovery event, the new hold timer is only applied if it is shorter than the already running one.

The **no** form of this command reverts to the default.

See "Active/standby selection triggers" in the MAG-c Control Plane Function Guide for more information about the timer and the recovery events that trigger an active/standby selection.

Default

hold-off-on-recovery 5000

Parameters

milliseconds

Specifies the hold timer for recovery events in milliseconds.

Values: 5000 to 300000

4.2.5.90 auto-revert-rebalance

Syntax

auto-revert-rebalance time-of-day [**max-difference** *percentage*] *hours-minutes*

no auto-revert-rebalance

Context

[Tree] configure mobile-gateway profile bng fsg-profile auto-revert-rebalance

Description

This command configures a time of day at which the MAG-c is scheduled to automatically execute a revert and a rebalance action. See the following command for more information about these actions.

```
clear mobile-gateway pdn bearer-context up-group
```

The **no** form of this command disables the automatic revert and rebalance actions.

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Default

no auto-revert-rebalance

Parameters

percentage

Specifies the target difference in percentage points between the least and most loaded BNG-UPs to calibrate the rebalance action.

Values: 2 to 5

hours-minutes

Specifies the time of day, in hours and minutes, at which the automatic revert and rebalance actions are to be executed.

Values: time – hh:mm

4.2.5.91 default-standby-mode

Syntax

default-standby-mode {warm | hot}

no default-standby-mode

Context

[Tree] configure mobile-gateway profile bng fsg-profile default-standby-mode

Description

This command configures the default standby mode for the sessions in the FSG.

The **no** form of this command reverts to the default.

Default

default-standby-mode hot

Parameters

warm | hot

Keyword to specify the standby mode.

Values:

- warm – specifies that the MAG-c creates the sessions on the standby BNG-UP only after a switch-over happens
- hot – specifies that the MAG-c pre-creates the sessions on the standby BNG-UP

Default: hot

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4.2.5.92 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile bng fsg-profile description

Description

This command associates a text string with a configuration context to help identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Default

no description

Parameters

description-string

Specifies the description. Allowed values are any string up to 80 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.5.93 health-calculation

Syntax

health-calculation

Context

[Tree] configure mobile-gateway profile bng fsg-profile health-calculation

Description

Commands in this context configure the calculation of per-BNG-UP and -FSG aggregate health.

4.2.5.94 aggregation-mode

Syntax

aggregation-mode *mode*

no aggregation-mode

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Context

[Tree] configure mobile-gateway profile bng fsg-profile health-calculation aggregation-mode

Description

This command configures how to aggregate the Layer 2 access ID and network realm health values.

Note: The MAG-c takes all Layer 2 access IDs and network realms that are configured to be monitored into consideration. For BNG-UPs that did not sent a health value, the MAG-c assumes a health value of 0%.

The **no** form of this command reverts to the default.

Default

aggregation-mode lowest

Parameters

mode

Specifies the aggregation mode.

Values:

- lowest – specifies to use the lowest monitored health value
- average – specifies to use the arithmetic mean of all monitored health values

4.2.5.95 failure-threshold

Syntax

failure-threshold *[1..100]*

no failure-threshold

Context

[Tree] configure mobile-gateway profile bng fsg-profile health-calculation failure-threshold

Description

This command configures the threshold to declare a BNG-UP failed. If the health of an active BNG-UP is below the threshold, the MAG-c tries to make another BNG-UP active even if non-revertive settings are applied.

The **no** form of this command reverts to the default.

Default

failure-threshold 1

Parameters

[1..100]

Specifies the minimal health value to consider a BNG-UP not failed.

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Values: 1 to 100

4.2.5.96 include-l2-access-ids

Syntax

[**no**] **include-l2-access-ids**

Context

[Tree] configure mobile-gateway profile bng fsg-profile health-calculation include-l2-access-ids

Description

This command includes the Layer 2 access IDs in the aggregate health calculation. By default, the MAG-c includes all Layer 2 access IDs defined for the BNG-UP in the UP group from which the FSG is created.

The **no** form of this command excludes the Layer 2 access IDs from the aggregate health calculation.

Default

include-l2-access-ids

4.2.5.97 network-realm

Syntax

[**no**] **network-realm** *realm*

Context

[Tree] configure mobile-gateway profile bng fsg-profile health-calculation network-realm

Description

This command configures to monitor the specified network realm. A network realm is also called a network instance and corresponds usually to a service name on a BNG-UP.

The **no** form of this command disables the monitoring of the specified network realm.

Parameters

realm

Specifies the name of the network realm to be monitored, up to 80 characters.

4.2.5.98 mac-prefix

Syntax

mac-prefix *mac-prefix*

no mac-prefix

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Context

[Tree] configure mobile-gateway profile bng fsg-profile mac-prefix

Description

This command configures the MAC prefix from which a per-FSG MAC is derived.

The **no** form of this command reverts to the default.

Default

mac-prefix 02:00:5e:00

Parameters

mac-prefix

Specifies the MAC prefix.

Values: aa:bb:cc:dd (32 bits)

4.2.5.99 upf-fsg-template

Syntax

upf-fsg-template *name*

no upf-fsg-template

Context

[Tree] configure mobile-gateway profile bng fsg-profile upf-fsg-template

Description

This command configures the FSG template to apply on the BNG-UP.

The **no** form of this command removes the configuration.

Default

no upf-fsg-template

Parameters

name

Specifies the name of the BNG-UP FSG template, up to 32 characters.

4.2.5.100 ipoe-profile

Syntax

[**no**] **ipoe-profile** *name*

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Context

[Tree] configure mobile-gateway profile bng ipoe-profile

Description

This command configures a profile for IPoE sessions.

The **no** form of this command removes the IPoE profile name from the configuration.

Parameters

name

Specifies the IPoE profile name, up to 32 characters.

4.2.5.101 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile bng ipoe-profile description

Description

This command enables a text description stored in the configuration file for a configuration context. The **description** command associates a text string with a configuration context to help identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Default

no description

Parameters

description-string

Specifies the description character string. Allowed values are any string up to 80 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.5.102 dot1p

Syntax

dot1p *dot1p-priority*

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Context

[Tree] configure mobile-gateway profile bng ipoe-profile dot1p

Description

This command configures the IEEE 802.1p priority value assigned to the control packets sent to the IPoE session.

Default

dot1p 7

Parameters

dot1p-priority

Specifies the dot1p priority value.

Values: 0 to 7

4.2.5.103 dscp

Syntax

dscp *dscp-name*

Context

[Tree] configure mobile-gateway profile bng ipoe-profile dscp

Description

This command configures the Ethernet dot1p value for any IPoE control plane messages sent by the BNG CPF, independent of the protocol.

Default

dscp nc2

Parameters

dscp-name

Specifies a DSCP name.

Values: be | ef | cp1 | cp2 | cp3 | cp4 | cp5 | cp6 | cp7 | cp9 | cs1 | cs2 | cs3 | cs4 | cs5 | nc1 | nc2 | af11 | af12 | af13 | af21 | af22 | af23 | af31 | af32 | af33 | af41 | af42 | af43 | cp11 | cp13 | cp15 | cp17 | cp19 | cp21 | cp23 | cp25 | cp27 | cp29 | cp31 | cp33 | cp35 | cp37 | cp39 | cp41 | cp42 | cp43 | cp44 | cp45 | cp47 | cp49 | cp50 | cp51 | cp52 | cp53 | cp54 | cp55 | cp57 | cp58 | cp59 | cp60 | cp61 | cp62 | cp63

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4.2.5.104 require-chaddr-same-as-l2

Syntax

[**no**] **require-chaddr-same-as-l2**

Context

[Tree] configure mobile-gateway profile bng ipoe-profile require-chaddr-same-as-l2

Description

This command enables the verification of the client MAC address in the DHCP chaddr field. The chaddr field is equal to the source Ethernet MAC address. This is only checked if the triggering packet for the session is DHCPv4, and it is not checked for any subsequent messages.

The **no** form of this command disables the verification of the client MAC address in the DHCP chaddr field.

Default

require-chaddr-same-as-l2

4.2.5.105 l2tp-group

Syntax

l2tp-group *name*

no l2tp-group *name*

Context

[Tree] configure mobile-gateway profile bng l2tp-group

Description

This command configures a group of L2TP tunnels for PPPoE LAC connectivity.

The **no** form of this command removes the group from the configuration.

Parameters

name

Specifies the L2TP group name, up to 32 characters.

4.2.5.106 avp-hiding

Syntax

avp-hiding {**never** | **sensitive** | **always**}

no avp-hiding

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Context

[Tree] configure mobile-gateway profile bng l2tp-group avp-hiding

Description

This command configures whether the H bit in the header of L2TP AVPs must be set. If this is not configured, the BNG-UP chooses the hiding level.

The **no** form of this command removes the configuration.

Note: This command only applies to AVPs which may have the H bit set, that is, some AVPs can never have the H bit set, regardless of the configuration set with this command.

Parameters

never

Keyword to never set the H bit.

sensitive

Keyword to set the H bit only for AVPs that contain sensitive information.

always

Keyword to set the H bit for all AVPs.

4.2.5.107 challenge

Syntax

challenge {**never** | **always**}

no challenge

Context

[Tree] configure mobile-gateway profile bng l2tp-group challenge

Description

This command configures whether the tunnel authentication (challenge-response) must be performed. If this is not configured, the BNG-UP chooses whether to perform the tunnel authentication.

The **no** form of this command removes the configuration.

Parameters

never

Keyword to never perform tunnel authentication.

always

Keyword to always perform tunnel authentication.

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4.2.5.108 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile bng l2tp-group description

Description

This command enables a text description stored in the configuration file for a configuration context. The **description** command associates a text string with a configuration context to help identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Default

no description

Parameters

description-string

Specifies the description character string. Allowed values are any string up to 80 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.5.109 destruct-timeout

Syntax

destruct-timeout *seconds*

no destruct-timeout

Context

[Tree] configure mobile-gateway profile bng l2tp-group destruct-timeout

Description

This command configures the time in seconds that operational data of a disconnected tunnel persists on the BNG-UP. If this is not configured, the BNG-UP chooses the time to keep operational data.

The **no** form of this command removes the configuration.

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Parameters

seconds

Specifies the timeout in seconds.

Values: 60 to 86400

4.2.5.110 hello-interval

Syntax

hello-interval infinite

hello-interval *seconds*

no hello-interval

Context

[Tree] configure mobile-gateway profile bng l2tp-group hello-interval

Description

This command configures the interval for sending Hello messages to the L2TP peer. If this is not configured, the BNG-UP chooses the interval.

The **no** form of this command removes the configuration.

Parameters

infinite

Keyword to specify an infinite interval; that is, Hello messages are not sent.

seconds

Specifies the interval in seconds.

Values: 10 to 3600

4.2.5.111 idle-timeout

Syntax

idle-timeout infinite

idle-timeout *seconds*

no idle-timeout

Context

[Tree] configure mobile-gateway profile bng l2tp-group idle-timeout

Description

This command configures the time in seconds before an established tunnel without active sessions is disconnected. If this is not configured, the BNG-UP chooses the timeout.

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The **no** form of this command removes the configuration.

Parameters

infinite

Keyword to specify an infinite timeout; that is, an established tunnel is held up and never disconnected.

seconds

Specifies the timeout in seconds.

Values: 0 to 3600

4.2.5.112 local-name

Syntax

local-name *name*

no local-name

Context

[Tree] configure mobile-gateway profile bng l2tp-group local-name

Description

This command configures the LAC hostname that the BNG-UP sends in L2TP messages. If this is not configured, the BNG-UP chooses the hostname.

The **no** form of this command removes the name from the configuration.

Parameters

name

Specifies the LAC hostname, up to 64 characters.

4.2.5.113 max-retries-established

Syntax

max-retries-established *max*

no max-retries-established

Context

[Tree] configure mobile-gateway profile bng l2tp-group max-retries-established

Description

This command configures the number of retries allowed for established tunnels before their control connection goes down. If this is not configured, the BNG-UP chooses the number of retries.

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The **no** form of this command removes the configuration.

Parameters

max

Specifies the number of retries.

Values: 2 to 7

4.2.5.114 max-retries-non-established

Syntax

max-retries-non-established *max*

no max-retries-non-established

Context

[Tree] configure mobile-gateway profile bng l2tp-group max-retries-non-established

Description

This command configures the number of retries allowed before a non-established tunnel is considered unreachable. If this is not configured, the BNG-UP chooses the number of retries.

The **no** form of this command removes the configuration.

Parameters

max

Specifies the number of retries.

Values: 2 to 7

4.2.5.115 password

Syntax

password *password* [**hash** | **hash2**]

no password

Context

[Tree] configure mobile-gateway profile bng l2tp-group password

Description

This command configures a shared, salt-encrypted secret for the tunnel authentication and the AVP hiding. If this is not configured, the BNG-UP chooses the password.

The **no** form of this command removes the configuration.

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Parameters

password

Specifies the password, up to 64 characters.

hash | hash2

Specifies the version of the hash algorithm used for the encryption of the secret. If the **hash** or **hash2** keyword is not used, the secret is assumed to be in an unencrypted clear text form.

Note: For security purposes, all keys are automatically stored in an encrypted hash form in the configuration. The configuration in the `system>security>hash-control` context defines the hash form when the password is configured in clear text format (that is, **hash** or **hash2** is not specified).

4.2.5.116 receive-window-size

Syntax

receive-window-size *window*

no receive-window-size

Context

[Tree] configure mobile-gateway profile bng l2tp-group receive-window-size

Description

This command configures the receive window size that is offered to the remote peer. The remote peer can send the specified number of control messages before waiting for an acknowledgment. If this is not configured, the BNG-UP chooses the window size.

The **no** form of this command removes the configuration.

Parameters

window

Specifies the receive window size.

Values: 4 to 1024

4.2.5.117 selection-algorithm

Syntax

selection-algorithm *type*

no selection-algorithm

Context

[Tree] configure mobile-gateway profile bng l2tp-group selection-algorithm

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Description

This command configures how sessions are assigned within a set of tunnels with the same preference level. If this is not configured, the BNG-UP chooses the algorithm.

For more information about the preference level, see the following command.

```
configure mobile-gateway profile bng l2tp-group tunnel preference
```

The **no** form of this command removes the configuration.

Parameters

type

Specifies the type of the selection algorithm.

Values:

- existing-first — keyword to first attempt using an existing tunnel
- weighted — keyword to equally distribute sessions using a fixed order; that is, when two tunnels have an equal number of sessions, a round-robin algorithm with a fixed internal order is used
- weighted-random — keyword to equally distribute sessions in a random fashion; that is, when two tunnels have an equal number of sessions, a random tunnel is chosen

4.2.5.118 session-limit

Syntax

session-limit unlimited

session-limit *limit*

no session-limit

Context

[Tree] configure mobile-gateway profile bng l2tp-group session-limit

Description

This command configures the maximum number of sessions that can be set up within the group. The limit is enforced on the BNG-UP. If this is not configured, the BNG-UP chooses the session limit.

The **no** form of this command removes the configuration.

Parameters

unlimited

Keyword to specify that there is no explicit limit; the system level L2TP limits on the BNG-UP restrict the number of sessions.

limit

Specifies the session limit.

Values: 1 to 250000

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4.2.5.119 tunnel

Syntax

tunnel *name*

no tunnel *name*

Context

[Tree] configure mobile-gateway profile bng l2tp-group tunnel

Description

This command configures an L2TP tunnel.

The **no** form of this command removes the tunnel from the configuration.

Parameters

name

Specifies the L2TP tunnel name, up to 32 characters.

4.2.5.120 avp-hiding

Syntax

avp-hiding {**never** | **sensitive** | **always**}

no avp-hiding

Context

[Tree] configure mobile-gateway profile bng l2tp-group tunnel avp-hiding

Description

This command configures whether the H bit in the header of L2TP AVPs must be set. If this is not configured, the BNG-UP chooses the hiding level.

The **no** form of this command removes the configuration.

Note: This command only applies to AVPs which may have the H bit set, that is, some AVPs can never have the H bit set, regardless of the configuration set with this command.

Parameters

never

Keyword to never set the H bit.

sensitive

Keyword to set the H bit only for AVPs that contain sensitive information.

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always

Keyword to set the H bit for all AVPs.

4.2.5.121 challenge

Syntax

challenge {**never** | **always**}

no challenge

Context

[Tree] configure mobile-gateway profile bng l2tp-group tunnel challenge

Description

This command configures whether the tunnel authentication (challenge-response) must be performed. If this is not configured, the BNG-UP chooses whether to perform the tunnel authentication.

The **no** form of this command removes the configuration.

Parameters

never

Keyword to never perform tunnel authentication.

always

Keyword to always perform tunnel authentication.

4.2.5.122 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile bng l2tp-group tunnel description

Description

This command enables a text description stored in the configuration file for a configuration context. The **description** command associates a text string with a configuration context to help identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Default

no description

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Parameters

description-string

Specifies the description character string. Allowed values are any string up to 80 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.5.123 destruct-timeout

Syntax

destruct-timeout *seconds*

no destruct-timeout

Context

[Tree] configure mobile-gateway profile bng l2tp-group tunnel destruct-timeout

Description

This command configures the time in seconds that operational data of a disconnected tunnel persists on the BNG-UP. If this is not configured, the BNG-UP chooses the time to keep operational data.

The **no** form of this command removes the configuration.

Parameters

seconds

Specifies the timeout in seconds.

Values: 60 to 86400

4.2.5.124 hello-interval

Syntax

hello-interval infinite

hello-interval *seconds*

no hello-interval

Context

[Tree] configure mobile-gateway profile bng l2tp-group tunnel hello-interval

Description

This command configures the interval for sending Hello messages to the L2TP peer. If this is not configured, the BNG-UP chooses the interval.

The **no** form of this command removes the configuration.

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Parameters

infinite

Keyword to specify an infinite interval; that is, Hello messages are not sent.

seconds

Specifies the interval in seconds.

Values: 10 to 3600

4.2.5.125 idle-timeout

Syntax

idle-timeout infinite

idle-timeout *seconds*

no idle-timeout

Context

[Tree] configure mobile-gateway profile bng l2tp-group tunnel idle-timeout

Description

This command configures the time in seconds before an established tunnel without active sessions is disconnected. If this is not configured, the BNG-UP chooses the timeout.

The **no** form of this command removes the configuration.

Parameters

infinite

Keyword to specify an infinite timeout; that is, an established tunnel is held up and never disconnected.

seconds

Specifies the timeout in seconds.

Values: 0 to 3600

4.2.5.126 local-address

Syntax

local-address *ip-address*

no local-address

Context

[Tree] configure mobile-gateway profile bng l2tp-group tunnel local-address

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Description

This command configures the local IP address to initiate the tunnel.

The **no** form of this command removes the local address.

Parameters

ip-address

Specifies an IPv4 address.

Values: a.b.c.d

4.2.5.127 local-name

Syntax

local-name *name*

no local-name

Context

[Tree] configure mobile-gateway profile bng l2tp-group tunnel local-name

Description

This command configures the LAC hostname that the BNG-UP sends in L2TP messages. If this is not configured, the BNG-UP chooses the hostname.

The **no** form of this command removes the name from the configuration.

Parameters

name

Specifies the LAC hostname, up to 64 characters.

4.2.5.128 max-retries-established

Syntax

max-retries-established *max*

no max-retries-established

Context

[Tree] configure mobile-gateway profile bng l2tp-group tunnel max-retries-established

Description

This command configures the number of retries allowed for established tunnels before their control connection goes down. If this is not configured, the BNG-UP chooses the number of retries.

The **no** form of this command removes the configuration.

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Parameters

max

Specifies the number of retries.

Values: 2 to 7

4.2.5.129 max-retries-non-established

Syntax

max-retries-non-established *max*

no max-retries-non-established

Context

[Tree] configure mobile-gateway profile bng l2tp-group tunnel max-retries-non-established

Description

This command configures the number of retries allowed before a non-established tunnel is considered unreachable. If this is not configured, the BNG-UP chooses the number of retries.

The **no** form of this command removes the configuration.

Parameters

max

Specifies the number of retries.

Values: 2 to 7

4.2.5.130 password

Syntax

password *password* [**hash** | **hash2**]

no password

Context

[Tree] configure mobile-gateway profile bng l2tp-group tunnel password

Description

This command configures a shared, salt-encrypted secret for the tunnel authentication and the AVP hiding. If this is not configured, the BNG-UP chooses the password.

The **no** form of this command removes the configuration.

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Parameters

password

Specifies the password, up to 64 characters.

hash | hash2

Specifies the version of the hash algorithm used for the encryption of the secret. If the **hash** or **hash2** keyword is not used, the secret is assumed to be in an unencrypted clear text form.

Note: For security purposes, all keys are automatically stored in an encrypted hash form in the configuration. The configuration in the `system>security>hash-control` context defines the hash form when the password is configured in clear text format (that is, **hash** or **hash2** is not specified).

4.2.5.131 preference

Syntax

preference *value*

Context

[Tree] configure mobile-gateway profile bng l2tp-group tunnel preference

Description

This command configures the relative preference of the tunnel for selection purposes. The selection algorithm defines how to select tunnels with the same preference.

Parameters

value

Specifies the preference, with 0 indicating the highest preference.

Values: 0 to 16777215

4.2.5.132 receive-window-size

Syntax

receive-window-size *window*

no receive-window-size

Context

[Tree] configure mobile-gateway profile bng l2tp-group tunnel receive-window-size

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Description

This command configures the receive window size that is offered to the remote peer. The remote peer can send the specified number of control messages before waiting for an acknowledgment. If this is not configured, the BNG-UP chooses the window size.

The **no** form of this command removes the configuration.

Parameters

window

Specifies the receive window size.

Values: 4 to 1024

4.2.5.133 remote-address

Syntax

remote-address *ip-address*

no remote-address

Context

[Tree] configure mobile-gateway profile bng l2tp-group tunnel remote-address

Description

This command configures the remote IP address of the peer. The tunnel is initiated toward the configured peer.

The **no** form of this command removes the remote address.

Parameters

ip-address

Specifies an IPv4 address.

Values: a.b.c.d

4.2.5.134 remote-name

Syntax

remote-name *name*

no remote-name

Context

[Tree] configure mobile-gateway profile bng l2tp-group tunnel remote-name

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Description

This command configures the expected hostname of the L2TP peer. If the L2TP signaled value does not match the expected value, the setup fails. If this is not configured, the BNG-UP determines whether to perform a hostname check.

The **no** form of this command removes the name from the configuration.

Parameters

name

Specifies the peer hostname, up to 64 characters.

4.2.5.135 session-limit

Syntax

session-limit unlimited

session-limit *limit*

no session-limit

Context

[Tree] configure mobile-gateway profile bng l2tp-group tunnel session-limit

Description

This command configures the maximum number of sessions that can be set up within the tunnel. The limit is applied on the BNG-UP. If this is not configured, the BNG-UP chooses the session limit.

The **no** form of this command removes the configuration.

Parameters

unlimited

Keyword to specify that there is no explicit limit; the system level L2TP limits on the BNG-UP restrict the number of sessions.

limit

Specifies the session limit.

Values: 1 to 65535

4.2.5.136 shutdown

Syntax

shutdown

no shutdown

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Context

[Tree] configure mobile-gateway profile bng l2tp-group tunnel shutdown

Description

This command administratively disables the tunnel. Shutting down an L2TP tunnel excludes the tunnel from the grouped tunnels signaled in PFCP when setting up a LAC session (for example, the tunnel is excluded from the BNG-UP tunnel selection).

The **no** form of this command enables the tunnel.

4.2.5.137 use-df-bit

Syntax

use-df-bit *set*

no use-df-bit

Context

[Tree] configure mobile-gateway profile bng l2tp-group tunnel use-df-bit

Description

This command configures whether the DF bit in the L2TP IP header is set. If this is not configured, the BNG-UP chooses whether to set the DF bit.

The *no* form of this command removes the configuration.

Parameters

set

Specifies whether to set the DF bit.

Values:

- true – keyword to specify that the DF bit is set
- false – keyword to specify that the DF bit is not set

4.2.5.138 use-df-bit

Syntax

use-df-bit *set*

no use-df-bit

Context

[Tree] configure mobile-gateway profile bng l2tp-group use-df-bit

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Description

This command configures whether the DF bit in the L2TP IP header is set. If this is not configured, the BNG-UP chooses whether to set the DF bit.

The *no* form of this command removes the configuration.

Parameters

set

Specifies whether to set the DF bit.

Values:

- true – keyword to specify that the DF bit is set
- false – keyword to specify that the DF bit is not set

4.2.5.139 pppoe-profile

Syntax

[**no**] **pppoe-profile** *pppoe-profile-name*

Context

[Tree] configure mobile-gateway profile bng pppoe-profile

Description

This command configures a BNG PPPoE profile.

The **no** form of this command removes the profile name from the configuration.

Default

no pppoe-profile

Parameters

pppoe-profile-name

Specifies the PPPoE profile name, up to 32 characters.

4.2.5.140 authentication

Syntax

authentication

Context

[Tree] configure mobile-gateway profile bng pppoe-profile authentication

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Description

Commands in this context configure authentication for the PPP profile.

4.2.5.141 chap-challenge-length

Syntax

chap-challenge-length min *minimum-length* **max** *maximum-length*

no chap-challenge-length

Context

[Tree] configure mobile-gateway profile bng pppoe-profile authentication chap-challenge-length

Description

The command configures the length of the CHAP challenge that is sent to the PPPoE client which is chosen randomly between the configured minimum and maximum length.

Default

chap-challenge-length min 32 max 64

Parameters

minimum-length

Specifies the minimum length of the CHAP challenge generated by the system.

Values: 8 to 64

maximum-length

Specifies the maximum length of the CHAP challenge generated by the system.

Values: 8 to 64

4.2.5.142 method

Syntax

method {**pap** | **chap** | **pref-chap** | **pref-pap**}

no method

Context

[Tree] configure mobile-gateway profile bng pppoe-profile authentication method

Description

This command configures the authentication protocol to use to authenticate the session.

The **no** form of this command reverts to the default value.

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Default

method pref-chap

Parameters

pap

Keyword to only attempt authentication with PAP.

chap

Keyword to only attempt authentication with CHAP.

pref-chap

Keyword to negotiate the first CHAP followed by PAP upon failure.

pref-pap

Keyword to negotiate the first PAP followed by CHAP upon failure.

4.2.5.143 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile bng pppoe-profile description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Default

no description

Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.5.144 discovery

Syntax

discovery

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Context

[Tree] configure mobile-gateway profile bng pppoe-profile discovery

Description

Commands in this context configure PPPoE discovery signaling.

Default

discovery

4.2.5.145 ac-name

Syntax

ac-name *name*

no ac-name

Context

[Tree] configure mobile-gateway profile bng pppoe-profile discovery ac-name

Description

This command configures the Access Concentrator (AC) name that is sent in PPPoE Active Discovery Offer (PADO) messages.

The **no** form of this command removes the name from the configuration.

Default

no ac-name

Parameters

name

Specifies the AC name, up to 128 characters.

4.2.5.146 generate-ac-cookie

Syntax

[**no**] **generate-ac-cookie**

Context

[Tree] configure mobile-gateway profile bng pppoe-profile discovery generate-ac-cookie

Description

This command enables the use of AC-Cookie tags during the PPPoE discovery phase that is included in PADO messages.

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The **no** form of this command disables the generation of AC-Cookie tags.

Default

generate-ac-cookie

4.2.5.147 dot1p-value

Syntax

dot1p-value *dot1p-value*

no dot1p-value

Context

[Tree] configure mobile-gateway profile bng pppoe-profile dot1p-value

Description

This command configures the Ethernet dot1p value for any PPPoE control plane messages sent by the CPF. The **no** form of this command reverts to the default value.

Default

dot1p-value 7

Parameters

dot1p-value

Specifies the Ethernet dot1p value for any PPPoE control plane messages.

Values: 0 to 7

4.2.5.148 lcp

Syntax

lcp

Context

[Tree] configure mobile-gateway profile bng pppoe-profile lcp

Description

Commands in this context configure PPPoE LCP signaling.

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4.2.5.149 keep-alive

Syntax

keep-alive

Context

[Tree] configure mobile-gateway profile bng pppoe-profile lcp keep-alive

Description

Commands in this context handle LCP keepalive parameters. These parameters are sent to the UP in case LCP Keepalive Offload is enabled.

4.2.5.150 ignore-magic-numbers

Syntax

[**no**] **ignore-magic-numbers**

Context

[Tree] configure mobile-gateway profile bng pppoe-profile lcp keep-alive ignore-magic-numbers

Description

This command disables checking the Magic-Number field in the LCP Echo-Request and skips Echo-Reply messages.

The **no** form of this command enables checking the Magic-Number field.

Default

no ignore-magic-numbers

4.2.5.151 interval

Syntax

interval *seconds*

no interval

Context

[Tree] configure mobile-gateway profile bng pppoe-profile lcp keep-alive interval

Description

This command configures the interval at which keepalive messages are sent to the PPPoE client.

The **no** form of this command disables the interval, that is, the BNG receives periodic LCP keepalives.

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Default

interval 30

Parameters

seconds

Specifies the time interval, in seconds, at which keepalives are transmitted.

Values: 4 to 300

4.2.5.152 tries

Syntax

tries *tries*

no tries

Context

[Tree] configure mobile-gateway profile bng pppoe-profile lcp keep-alive tries

Description

This command configures the number LCP keepalive messages that are tried before the client is considered down.

The **no** form of this command reverts to the default value.

Default

tries 3

Parameters

tries

Specifies the number of keepalive messages that are tried before the related client is considered down.

Values: 1 to 5

4.2.5.153 max-mtu

Syntax

max-mtu *mtu-bytes*

no max-mtu

Context

[Tree] configure mobile-gateway profile bng pppoe-profile lcp max-mtu

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Description

This command configures the maximum MTU that to be installed on the BNG-UP. This is combined with the Maximum Receive Unit (MRU) received from the PPPoE Client. If the Client's MRU is smaller than or equal to the MTU byes then that value is installed as the UP MTU. If the value is larger, the configured value is installed as the UP MTU.

The **no** form of this command reverts to the default value.

Default

max-mtu 1492

Parameters

mtu-bytes

Specifies the maximum MTU size, in bytes.

Values: 512 to 9154

4.2.5.154 mru

Syntax

mru *mru-bytes*

no mru

Context

[Tree] configure mobile-gateway profile bng pppoe-profile lcp mru

Description

This command configures the MRU that is signaled toward the PPPoE client.

The **no** form of this command reverts to the default value.

Default

mru 1492

Parameters

mru-bytes

Specifies the MRU, in bytes.

Values: 512 to 9154

4.2.5.155 renegotiation

Syntax

renegotiation {**ignore** | **terminate-pppoe-session**}

no renegotiation

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Context

[Tree] configure mobile-gateway profile bng pppoe-profile lcp renegotiation

Description

This command specifies whether LCP renegotiation messages are silently ignored or terminate the PPPoE session. The **no** form of this command reverts to the default value.

Default

renegotiation terminate-pppoe-session

Parameters

ignore

Keyword to ignore LCP renegotiation messages.

terminate-pppoe-session

Keyword to specify that LCP renegotiation messages terminate the PPPoE session.

4.2.5.156 require-max-payload-tag

Syntax

[**no**] **require-max-payload-tag**

Context

[Tree] configure mobile-gateway profile bng pppoe-profile lcp require-max-payload-tag

Description

This command enables the max-payload-tag as a requirement to send or accept MRUs larger than 1492.

The **no** form of this command disables the requirement.

Default

require-max-payload-tag

4.2.5.157 padi-removes-existing-session

Syntax

[**no**] **padi-removes-existing-session**

Context

[Tree] configure mobile-gateway profile bng pppoe-profile padi-removes-existing-session

Description

This command enables an incoming PADI to remove an existing conflicting PPPoE session.

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The **no** form of this command does not remove the existing session.

Default

no padi-removes-existing-session

4.2.5.158 ra-profile

Syntax

[**no**] **ra-profile** *name*

Context

[Tree] configure mobile-gateway profile bng ra-profile

Description

This command enables the specified RA profile.

The **no** form of this command removes the profile name.

Parameters

name

Specifies the RA profile name, up to 32 characters.

4.2.5.159 advertisement-interval

Syntax

advertisement-interval

Context

[Tree] configure mobile-gateway profile bng ra-profile advertisement-interval

Description

This command enables the context for configuring the minimum and maximum advertisement interval for RA messages. Messages are periodically sent with an interval chosen randomly between the minimum and maximum.

4.2.5.160 max

Syntax

max *seconds*

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Context

[Tree] configure mobile-gateway profile bng ra-profile advertisement-interval max

Description

This command sets the maximum advertisement interval.

Default

max 600

Parameters

seconds

Specifies the interval in seconds.

Values: 4 to 1800

4.2.5.161 min

Syntax

min auto

min *seconds*

Context

[Tree] configure mobile-gateway profile bng ra-profile advertisement-interval min

Description

This command sets the minimum advertisement interval either to a fixed value or to a percentage of the maximum advertisement interval.

Default

min auto

Parameters

auto

Keyword to set the minimum interval to 33% of the maximum interval.

seconds

Specifies the interval in seconds.

Values: 4 to 1800

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4.2.5.162 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile bng ra-profile description

Description

This command enables a text description stored in the configuration file for a configuration context. The **description** command associates a text string with a configuration context to help identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Default

no description

Parameters

description-string

Specifies the description character string. Allowed values are any string up to 80 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.5.163 force-unicast-mac

Syntax

[**no**] **force-unicast-mac**

Context

[Tree] configure mobile-gateway profile bng ra-profile force-unicast-mac

Description

This command enables sending of RA messages to the unicast MAC address of the session.

The **no** form of this command disables sending of RA messages to the unicast MAC address of the session. In this case, RA messages are sent to the all-nodes multicast MAC address (33:33:00:00:00:01).

Default

force-unicast-mac

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4.2.5.164 options

Syntax

options

Context

[Tree] configure mobile-gateway profile bng ra-profile options

Description

This command enables the context for configuring options to include in RA messages to the IPv6 client.

4.2.5.165 hop-limit

Syntax

hop-limit *limit*

Context

[Tree] configure mobile-gateway profile bng ra-profile options hop-limit

Description

This command specifies the value of the Hop Limit field of the IPv6 header of the outgoing RA message.

Default

hop-limit 255

Parameters

limit

Specifies the value of the hop limit.

Values: 1 to 255

4.2.5.166 mtu

Syntax

mtu *bytes*

mtu not-included

Context

[Tree] configure mobile-gateway profile bng ra-profile options mtu

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Description

This command specifies whether to include the MTU option in the RA message, and if included, what value it contains.

Default

mtu not-included

Parameters

bytes

Specifies the MTU value in bytes.

Values: 1280 to 9212

not-included

Keyword to not include the MTU option in the RA message.

4.2.5.167 on-link

Syntax

[**no**] **on-link**

Context

[Tree] configure mobile-gateway profile bng ra-profile options on-link

Description

This command specifies whether to set the on-link flag in any SLAAC prefix included in the RA message.

Default

on-link

4.2.5.168 other-configuration

Syntax

[**no**] **other-configuration**

Context

[Tree] configure mobile-gateway profile bng ra-profile options other-configuration

Description

This command specifies whether to set the other-configuration flag in the RA message.

Default

no other-configuration

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4.2.5.169 reachable-time

Syntax

reachable-time *milliseconds*

Context

[Tree] configure mobile-gateway profile bng ra-profile options reachable-time

Description

This command specifies the reachable time included in the RA message. A zero value means that the router does not specify a value, and that the client can choose a value based on local configurations.

Default

reachable-time 0

Parameters

milliseconds

The time in milliseconds for a node to assume that a neighbor is reachable, after receiving a reachability confirmation.

Values: 0 to 3600000

4.2.5.170 retransmit-timer

Syntax

retransmit-timer *milliseconds*

Context

[Tree] configure mobile-gateway profile bng ra-profile options retransmit-timer

Description

This command specifies the retransmit timer included in the RA message. A zero value means that the router does not specify a value, and that the client can choose a value based on local configurations.

Default

retransmit-timer 0

Parameters

milliseconds

Retransmission time between NS messages.

Values: 0 to 1800000

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4.2.5.171 router-lifetime

Syntax

router-lifetime auto

router-lifetime *seconds*

Context

[Tree] configure mobile-gateway profile bng ra-profile options router-lifetime

Description

This command specifies the router lifetime to include in the RA message. The router lifetime defines the validity period of the default router after receiving the RA message. It can be set either to a fixed value in seconds, or automatically to three times the maximum router advertisement interval.

Default

router-lifetime auto

Parameters

seconds

Specifies the router lifetime in seconds.

Values: 4 to 9000

4.2.5.172 radius-authentication-profile

Syntax

[**no**] **radius-authentication-profile** *name*

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile

Description

This command enables the specified RADIUS authentication profile. The RADIUS authentication profile defines system behavior when using the RADIUS server to authenticate BNG sessions.

The **no** form of this command removes the profile name.

Parameters

name

Specifies the RADIUS authentication profile name, up to 32 characters.

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4.2.5.173 apn-format

Syntax

apn-format *form*

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile apn-format

Description

This command specifies the APN format in RADIUS messages. The format applies to all attributes that reflect the APN; for example, Called-Station-Id and User-Name.

Default

apn-format selected

Parameters

form

Specifies the APN format.

Values:

- real – specifies to use the real, unmodified APN as signaled during the FWA session setup, including the OI if it is present
- real-ni-only – specifies to use the real APN as signaled during the FWA session setup, but without the OI if it is present
- selected – specifies to use the selected APN as is (returned after initial authentication); if no selected APN is available, the system falls back to the real-ni-only option

4.2.5.174 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile description

Description

This command associates a text string with a configuration context to help identify the content in the configuration file.

The **no** form of this command removes the string from the configuration.

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Default

no description

Parameters

description-string

Specifies the description. Allowed values are any string up to 80 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.5.175 ignore-unknown-attributes

Syntax

ignore-unknown-attributes

no ignore-unknown-attributes

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile ignore-unknown-attributes

Description

This command ignores unknown RADIUS attributes in a received RADIUS message.

The **no** form of this command rejects a message with unknown RADIUS attributes.

Default

no ignore-unknown-attributes

4.2.5.176 include-attribute

Syntax

[**no**] **include-attribute**

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile include-attribute

Description

This command enables RADIUS attributes to be included in the RADIUS Access-Request message. The **no** form of this command reverts to the default.

Default

no include-attribute

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4.2.5.177 access-loop-options

Syntax

[**no**] **access-loop-options**

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile include-attribute access-loop-options

Description

This command includes access loop information such as BBF access loop characteristics, DSL line state, and DSL type. The BBF access loop characteristics are returned as BBF-specific RADIUS attributes, where DSL line state and DSL type are returned as Nokia-specific RADIUS VSAs.

The **no** form of this command reverts to the default.

Default

no access-loop-options

4.2.5.178 acct-multi-session-id

Syntax

[**no**] **acct-multi-session-id**

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile include-attribute acct-multi-session-id

Description

This command includes the Acct-Multi-Session-Id in the Access-Request message.

The **no** form of this command reverts to the default.

Default

no acct-multi-session-id

4.2.5.179 acct-session-id

Syntax

[**no**] **acct-session-id**

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Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile include-attribute acct-session-id

Description

This command includes the Acct-Session-Id in the Access-Request message.

The **no** form of this command reverts to the default value.

Default

no acct-session-id

4.2.5.180 called-station-id

Syntax

[**no**] **called-station-id**

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile include-attribute called-station-id

Description

This command includes the APN as the Called-Station-Id attribute in the Access Request message for FWA sessions.

The **no** form of this command reverts to the default.

Default

no called-station-id

4.2.5.181 calling-station-id

Syntax

calling-station-id [*type*]

no calling-station-id

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile include-attribute calling-station-id

Description

This command includes the Calling-Station-Id in the Access-Request message.

The **no** form of this command reverts to the default.

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Default

no calling-station-id

Parameters

type

Specifies to include the string that is put in the RADIUS Calling-Station-Id attribute, if included in RADIUS authentication request messages.

Values: l2-circuit | mac-address | remote-id

4.2.5.182 circuit-id

Syntax

[**no**] **circuit-id**

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile include-attribute circuit-id

Description

This command includes the Agent-Circuit-Id in the Access-Request message.

The **no** form of this command reverts to the default.

Default

no circuit-id

4.2.5.183 dhcp-options

Syntax

[**no**] **dhcp-options**

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile include-attribute dhcp-options

Description

This command passes DHCPv4 options from the received DHCPv4 messages on the access ingress to the RADIUS server in the Access-Request message. The DHCPv4 options are carried in the ALU VSA Alc-ToServer-Dhcp-Options.

The **no** form of this command reverts to the default.

Default

no dhcp-options

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4.2.5.184 dhcp-vendor-class-id

Syntax

[**no**] **dhcp-vendor-class-id**

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile include-attribute dhcp-vendor-class-id

Description

This command includes the DHCP Vendor Class Identification option in the received DHCP packet, as Alc-DHCP-Vendor-Class-Id in the Access-Request message.

The **no** form of this command reverts to the default.

Default

no dhcp-vendor-class-id

4.2.5.185 dhcp6-options

Syntax

[**no**] **dhcp6-options**

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile include-attribute dhcp6-options

Description

This command passes DHCPv6 options from the received DHCPv6 messages on the access ingress, to the RADIUS server in the Access-Request message. The DHCPv6 options are carried in the ALU VSA Alc-ToServer-Dhcp6-Options.

The **no** form of this command reverts to the default.

Default

no dhcp6-options

4.2.5.186 gprs-negotiated-qos-profile

Syntax

[**no**] **gprs-negotiated-qos-profile**

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Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile include-attribute gprs-negotiated-qos-profile

Description

This command includes the HSS/UDM QoS values received in FWA setup messages as the 3GPP-GPRS-Negotiated-QoS-Profile attribute in the Access-Request message.

The **no** form of this command reverts to the default.

Default

no gprs-negotiated-qos-profile

4.2.5.187 imeisv

Syntax

[**no**] **imeisv**

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile include-attribute imeisv

Description

This command includes the IMEI value received in FWA setup messages as the 3GPP-IMEISV attribute in the Access-Request message.

The **no** form of this command reverts to the default.

Default

no imeisv

4.2.5.188 imsi

Syntax

[**no**] **imsi**

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile include-attribute imsi

Description

This command includes the IMSI received in FWA setup messages as the 3GPP-IMSI attribute in the Access-Request message.

The **no** form of this command reverts to the default.

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Default

no imsi

4.2.5.189 ipoe-hostname

Syntax

[**no**] **ipoe-hostname**

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile include-attribute ipoe-hostname

Description

This command includes the DHCPv4 option Host Name as Alc-IPoE-Hostname in the Access-Request message.

The **no** form of this command reverts to the default.

Default

no ipoe-hostname

4.2.5.190 mac-address

Syntax

[**no**] **mac-address**

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile include-attribute mac-address

Description

This command includes the session MAC address as the Alc-Client-Hardware-Addr in the Access-Request message.

The **no** form of this command reverts to the default.

Default

no mac-address

4.2.5.191 nas-identifier

Syntax

[**no**] **nas-identifier**

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Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile include-attribute nas-identifier

Description

This command includes the Nas-Identifier in the Access-Request message.

The **no** form of this command reverts to the default.

Default

no nas-identifier

4.2.5.192 nas-port-id

Syntax

nas-port-id [**prefix-string** *string*] **[suffix** *suffix-option*] [**suffix-string** *suffix*]

no nas-port-id

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile include-attribute nas-port-id

Description

This command includes the Nas-Port-Id in the Access-Request message.

The **no** form of this command reverts to the default.

Default

no nas-port-id

Parameters

string

Specifies that a user configurable string is added to the RADIUS NAS port attribute, up to eight characters.

suffix-option

Specifies the suffix type to be added to the RADIUS NAS port attribute.

Values: circuit-id | remote-id

suffix

Specifies the string, up to 64 characters, added as a suffix.

4.2.5.193 nas-port-type

Syntax

nas-port-type [*value*]

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no nas-port-type

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile include-attribute nas-port-type

Description

This command includes the Nas-Port-Type in the Access-Request message. The **no** form of this command reverts to the default.

Default

no nas-port-type

Parameters

value

Specifies the integer value for the Nas-Port-Type AVP.

Values: 0 to 255

4.2.5.194 pppoe-service-name

Syntax

[**no**] **pppoe-service-name**

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile include-attribute pppoe-service-name

Description

This command includes the PPPoE session's service name as the Alc-PPPoE- Service-Name in the Access-Request message.

The **no** form of this command reverts to the default.

Default

no pppoe-service-name

4.2.5.195 rat-type

Syntax

[**no**] **rat-type**

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile include-attribute rat-type

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Description

This command includes the RAT value received in FWA setup messages as the 3GPP-RAT-Type attribute in the Access-Request message.

The **no** form of this command reverts to the default.

Default

no rat-type

4.2.5.196 remote-id

Syntax

[**no**] **remote-id**

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile include-attribute remote-id

Description

This command includes the Agent-Remote-Id in the Access-Request message. The **no** form of this command reverts to the default.

Default

no remote-id

4.2.5.197 session-s-nssai

Syntax

[**no**] **session-s-nssai**

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile include-attribute session-s-nssai

Description

This command enables the inclusion of the 3GPP-Session-S-NSSAI attribute.

The **no** form of this command reverts to the default.

Default

no session-s-nssai

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4.2.5.198 supported-features

Syntax

[**no**] **supported-features**

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile include-attribute supported-features

Description

This command enables the inclusion of the 3GPP-Supported-Features Attribute.

The **no** form of this command reverts to the default.

Default

no supported-features

4.2.5.199 up-group

Syntax

[**no**] **up-group**

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile include-attribute up-group

Description

This command includes the UP group in the authentication message.

The **no** form of this command reverts to the default.

Default

no up-group

4.2.5.200 up-info

Syntax

[**no**] **up-info**

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile include-attribute up-info

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Description

This command includes various UP informational attributes such as source IP and Node ID in the authentication message.

The **no** form of this command reverts to the default.

Default

no up-info

4.2.5.201 user-location-info

Syntax

[**no**] **user-location-info**

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile include-attribute user-location-info

Description

This command includes the user location information received in FWA setup messages as the 3GPP-User-Location-Info attribute in the Access-Request message.

The **no** form of this command reverts to the default.

Default

no user-location-info

4.2.5.202 password

Syntax

password *secret* [**hash** | **hash2**]

no password

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile password

Description

This command includes the specified password as the User-Password in the access-request message.

The **no** form of this command removes reverts to the default.

Default

no password

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Parameters

secret

Specifies a text string, up to 64 characters, containing the password.

hash

Specifies that the key is entered in an encrypted form. If the **hash** or **hash2** parameter is not used, the key is assumed to be in an unencrypted, clear text form. For security, all keys are stored in encrypted form in the configuration file with the **hash** or **hash2** parameter specified.

hash2

Specifies that the key is entered in a more complex encrypted form that involves more variables than the key value alone, meaning that the **hash2** encrypted variable cannot be copied and pasted. If the **hash** or **hash2** parameter is not used, the key is assumed to be in an unencrypted, clear text form. For security, all keys are stored in encrypted form in the configuration file with the **hash** or **hash2** parameter specified.

4.2.5.203 radius-group

Syntax

radius-group *radius-group*

no radius-group

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile radius-group

Description

This command configures the RADIUS group to use for the radius-authentication-profile.

The **no** form of this command removes the RADIUS group configuration.

Default

no radius-group

Parameters

radius-group

Specifies the RADIUS group name, up to 32 characters.

4.2.5.204 user-name-format

Syntax

user-name-format

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Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile user-name-format

Description

Commands in this context configure how a user is represented to the RADIUS server.

4.2.5.205 ascii-converted-circuit-remote-id

Syntax

[**no**] **ascii-converted-circuit-remote-id**

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile user-name-format ascii-converted-circuit-remote-id

Description

This command converts the Agent-Circuit-Id and Agent-Remote-Id contained in the User-Name to an ASCII format as hex digits for transmission to the RADIUS server.

The **no** form of this command disables the conversion.

Default

no ascii-converted-circuit-remote-id

4.2.5.206 domain-operation

Syntax

domain-operation *operation* [**domain** *domain-string*]

no domain-operation

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile user-name-format domain-operation

Description

This command configures an optional domain name action for the User-Name format.

The **no** form of this command disables the domain operation.

Default

no domain-operation

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Parameters

operation

Specifies a domain name action.

Values:

- append – keyword to append the specified domain name to the User-Name
- default – keyword to append the specified domain name to the User-Name if there is no existing one
- replace – keyword to replace the existing domain name in User-Name with the specified one
- strip – keyword to remove the existing domain-name in User-Name

domain-string

Specifies the domain string, up to 128 characters.

4.2.5.207 fixed-wireless-access

Syntax

fixed-wireless-access

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile user-name-format fixed-wireless-access

Description

Commands in this context configure the username formatting for FWA users.

4.2.5.208 format

Syntax

format *form*

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile user-name-format fixed-wireless-access format

Description

This command specifies the username format for the FWA sessions. If a PAP/CHAP username is signaled during setup, this configuration is ignored and the signaled username is used.

Default

format imsi-apn

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Parameters

form

Specifies the username format for FWA users.

Values:

- imsi – keyword to use a text representation of the IMSI as username
- imsi-apn – keyword to use a text representation of the IMSI and APN as username, separated by an @ character
- msisdn – keyword to use a text representation of the MSISDN as username
- msisdn-apn – keyword to use a text representation of the MSISDN and APN as username, separated by an @ character

4.2.5.209 ipoe

Syntax

ipoe

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile user-name-format ipoe

Description

Commands in this context configure username formatting for IPoE users.

4.2.5.210 format

Syntax

format *form*

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile user-name-format ipoe format

Description

This command specifies the User-Name format for the IPoE session.

Default

format mac-address

Parameters

form

Specifies the username format for IPoE users.

Values:

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- circuit-id – keyword to use the Circuit-Id as User-Name
- client-vendor-options – keyword to use the <Client-Id option>@<Vendor-Class option> combination as User-Name
- mac-address – keyword to use the session MAC address as User-Name
- mac-circuit-id – keyword to use the <MAC-Address>::<Circuit-id> combination as User-Name
- remote-id – keyword to use the Remote-Id as User-Name
- data-trigger-source-ip

4.2.5.211 mac-format

Syntax

mac-format *mac-format*

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile user-name-format ipoe mac-format

Description

This command specifies the format of the MAC address in User-Name of IPoE session.

Default

mac-format "aa:"

Parameters

mac-format

Specifies the expected MAC address format.

Values: Only when the match is equal to, for example:

- ab for 00:0c:f1:99:85:b8
- XY- for 00-0C-F1-99-85-B8
- mmmm. for 0002.03aa.abff
- xx for 000cf19985b8

4.2.5.212 pppoe

Syntax

pppoe

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile user-name-format pppoe

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Description

Commands in this context configure username formatting for PPPoE users.

4.2.5.213 padi

Syntax

padi

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile user-name-format pppoe padi

Description

Commands in this context configure PPPoE PADI authentication User-Name formats.

4.2.5.214 format

Syntax

format *form*

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile user-name-format pppoe padi format

Description

This command specifies the User-Name format for the PPPoE session.

Default

format mac-address

Parameters

form

Specifies the User-Name format for PPPoE users.

Values:

- circuit-id – keyword to use the Circuit-Id as User-Name
- mac-address – keyword to use the session MAC address as User-Name
- remote-id – keyword to use the Remote-Id as User-Name

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4.2.5.215 mac-format

Syntax

mac-format *mac-format*

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile user-name-format pppoe padi mac-format

Description

This command specifies the format of the MAC address in User-Name of PPPoE PADI session.

Default

mac-format "aa:"

Parameters

mac-format

Specifies the MAC address format.

Values: Only when match is equal to, for example:

- ab for 00:0c:f1:99:85:b8
- XY- for 00-0C-F1-99-85-B8
- mmmm. for 0002.03aa.abff
- xx for 000cf19985b8

4.2.5.216 session-lockout-profile

Syntax

[**no**] **session-lockout-profile** *profile-name*

Context

[Tree] configure mobile-gateway profile bng session-lockout-profile

Description

This command specifies a session lockout profile that can be used to block a client after a specified number of session setup failures and established session disconnections (**failed-attempts**) within a specified time window (**attempt-window**). If a client is in the locked-out state, the BNG CPF drops all packets coming from the client. A locked-out client is unblocked when the specified block timer (**block**) expires or by using the **session-lockout** command in the **clear mobile-gateway bng** context.

The **no** form of this command removes the specified session lockout profile.

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Parameters

profile-name

Specifies the profile name, up to 32 characters.

4.2.5.217 attempt-window

Syntax

attempt-window *seconds*

Context

[Tree] configure mobile-gateway profile bng session-lockout-profile attempt-window

Description

This command specifies the time window in which the BNG CPF monitors the number of session setup failures and established session disconnections for a client. The client is blocked if that number exceeds the threshold (**failed-attempts**) within this time window.

Default

attempt-window 300

Parameters

seconds

Specifies the time window in seconds.

Values: 30 to 3600

4.2.5.218 block

Syntax

block *seconds*

Context

[Tree] configure mobile-gateway profile bng session-lockout-profile block

Description

This command defines the time during which a locked-out client stays in locked-out state. The BNG CPF drops all packets coming from the client during this time.

Default

block 600

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Parameters

seconds

Specifies the time in seconds.

Values: 60 to 86400

4.2.5.219 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile bng session-lockout-profile description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Default

no description

Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.5.220 failed-attempts

Syntax

failed-attempts *number*

Context

[Tree] configure mobile-gateway profile bng session-lockout-profile failed-attempts

Description

This command defines the number of session setup failures and established session disconnections within a specified time window (**attempt-window**) before the client is blocked.

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Default

failed-attempts 3

Parameters

number

Specifies the number of session setup failures.

Values: 2 to 16

4.2.5.221 wpp

Syntax

wpp

Context

[Tree] configure mobile-gateway profile bng wpp

Description

Commands in this context configure interface-related WPP parameters.

4.2.5.222 portal

Syntax

[**no**] **portal** *name*

Context

[Tree] configure mobile-gateway profile bng wpp portal

Description

This command configures a WPP portal.

The **no** form of this command removes the configuration.

Parameters

name

Specifies the name of the WPP portal, up to 32 characters.

4.2.5.223 ack-auth-retry-count

Syntax

ack-auth-retry-count *number*

no ack-auth-retry-count

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Context

[Tree] configure mobile-gateway profile bng wpp portal ack-auth-retry-count

Description

This command configures the number of retransmissions of an ACK_AUTH message.

The **no** form of this command reverts to the default.

Default

ack-auth-retry-count 5

Parameters

number

Specifies the number of ACK_AUTH retransmissions.

Values: 0 to 5

4.2.5.224 address

Syntax

address *ip-address* | *ipv6-address*

no address

Context

[Tree] configure mobile-gateway profile bng wpp portal address

Description

This command configures the IP address of the portal.

The **no** form of this command removes the configuration.

Default

no address

Parameters

ip-address **|** *ipv6-address*

Specifies an IPv4 or IPv6 unicast address.

Values:

- ip-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

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4.2.5.225 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile bng wpp portal description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Default

no description

Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.5.226 ntf-logout-retry-count

Syntax

ntf-logout-retry-count *number*

no ntf-logout-retry-count

Context

[Tree] configure mobile-gateway profile bng wpp portal ntf-logout-retry-count

Description

This command configures the number of retransmissions of an NTF_LOGOUT message.

The **no** form of this command reverts to the default.

Default

ntf-logout-retry-count 5

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Parameters

number

Specifies the number of NTF_LOGOUT retransmissions.

Values: 0 to 5

4.2.5.227 retry-interval

Syntax

retry-interval *seconds*

no retry-interval

Context

[Tree] configure mobile-gateway profile bng wpp portal retry-interval

Description

This command configures the time interval, in number of seconds, between two consecutive retransmissions.

The **no** form of this command reverts to the default.

Default

retry-interval 2

Parameters

seconds

Specifies the time interval in seconds.

Values: 1 to 20

4.2.5.228 router

Syntax

router *router-instance*

no router

Context

[Tree] configure mobile-gateway profile bng wpp portal router

Description

This command configures the routing instance through which the portal is reachable. This is a mandatory configuration for the portal.

The **no** form of this command removes the configuration.

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Default

no router

Parameters

router-instance

Specifies the routing instance, up to 32 characters.

4.2.5.229 secret

Syntax

secret *password* [**hash** | **hash2**]

no secret

Context

[Tree] configure mobile-gateway profile bng wpp portal secret

Description

This command configures the secret that is used by WPPv2 to authenticate the messages between the portal and the BRAS.

The **no** form of this command removes the secret from the configuration.

Default

no secret

Parameters

password

Specifies the secret, up to 64 characters.

hash | hash2

Specifies the version of the hash algorithm used for the encryption of the secret. If the **hash** or **hash2** keyword is not used, the secret is assumed to be in an unencrypted clear text form.

4.2.5.230 shutdown

Syntax

[**no**] **shutdown**

Context

[Tree] configure mobile-gateway profile bng wpp portal shutdown

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Description

This command administratively disables the entity. When disabled, an entity does not change, reset, or remove any configuration settings or statistics. Many entities must be explicitly enabled using the **no shutdown** command.

The operational state of the entity is disabled as well as the operational state of any entities contained within. Many objects must be shut down before they may be deleted.

4.2.5.231 source-address

Syntax

source-address *ip-address* | *ipv6-address*

no source-address

Context

[Tree] configure mobile-gateway profile bng wpp portal source-address

Description

This command configures the source IP address for sending WPP messages to the portal. The specified IP address must be an interface IP address in the routing instance (see router). This is a mandatory configuration for the portal.

The **no** form of this command removes the configuration.

Default

no source-address

Parameters

ip-address **|** *ipv6-address*

Specifies an IPv4 or IPv6 address.

Values:

- ip-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D

4.2.5.232 version

Syntax

version *version*

no version

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Context

[Tree] configure mobile-gateway profile bng wpp portal version

Description

This command configures the WPP protocol version that the portal uses.

The **no** form of this command reverts to the default.

Default

version 2

Parameters

version

Specifies the WPP protocol version.

Values: 1 to 2

4.2.5.233 portal-group

Syntax

[**no**] **portal-group** *name*

Context

[Tree] configure mobile-gateway profile bng wpp portal-group

Description

This command configures a WPP portal group.

The **no** form of this command removes the configuration.

Parameters

name

Specifies the name of the portal group, up to 32 characters.

4.2.5.234 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile bng wpp portal-group description

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Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Default

no description

Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.5.235 portal

Syntax

[**no**] **portal** *name*

Context

[Tree] configure mobile-gateway profile bng wpp portal-group portal

Description

This command adds a WPP portal to the portal group. The portal is defined using the **portal** command in the following context (see portal).

```
configure mobile-gateway profile bng wpp
```

Multiple instances of this command are allowed.

The **no** form of this command removes the specified portal from the portal group.

Parameters

name

Specifies the name of the portal, up to 32 characters.

4.2.5.236 realm

Syntax

realm *realm*

no realm

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Context

[Tree] configure mobile-gateway profile bng wpp portal-group realm

Description

This command specifies the network realm on the BNG-UP. BNG sessions within the realm are authenticated by the portals in the portal group. This is a mandatory configuration.

The **no** form of this command removes the configuration.

Parameters

realm

Specifies the name of the network realm on the BNG-UP, up to 80 characters.

4.2.5.237 shutdown

Syntax

[**no**] **shutdown**

Context

[Tree] configure mobile-gateway profile bng wpp portal-group shutdown

Description

This command administratively disables the entity. When disabled, an entity does not change, reset, or remove any configuration settings or statistics. Many entities must be explicitly enabled using the **no shutdown** command.

The operational state of the entity is disabled as well as the operational state of any entities contained within. Many objects must be shut down before they may be deleted.

4.2.6 configure mobile-gateway profile call-insight command descriptions

4.2.6.1 call-insight

Syntax

[**no**] **call-insight**

Context

[Tree] configure mobile-gateway profile call-insight

Description

Commands in this context configure call trace profile parameters.

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4.2.6.2 all-ues

Syntax

[**no**] **all-ues profile** *profile-name*

Context

[Tree] configure mobile-gateway profile call-insight all-ues

Description

This command configures a call trace profile to use when tracing all UEs. The profile includes configuration to support tracing of specified events, reference point interfaces to capture control messages related to the traced UE user traffic, data volume control, output file size, time limit, and output file format.

The **no** form of this command removes the profile.

Parameters

profile-name

Specifies the profile name, up to 32 characters.

4.2.6.3 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile call-insight all-ues description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

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4.2.6.4 events

Syntax

[**no**] **events** *events*

Context

[Tree] configure mobile-gateway profile call-insight all-ues events

Description

This command configures events capturing for advanced debugging capabilities. Only use events configuration if needed and as instructed by Nokia technical support.

The **no** form of this command disables the specified event or, if no event is provided disables all events.

Default

no events

Parameters

events

Specifies the events.

Values: all | acctmgr | apm | bmc | dcm | dhcp | dth | slaac | ga | gal | gtp | gtpv2 | gxc | gxl | ike | lrdm | mip | msngr | p mip | rfl | rol | s6b | sctp | sd | sessmgr | sigmgr | swm | sww | sta | rpy | dpy | pfcp | nserv

4.2.6.5 format

Syntax

format *format*

no format

Context

[Tree] configure mobile-gateway profile call-insight all-ues format

Description

This command configures the format for live output and for output toward locally stored PCAP files. The **pcap** format outputs packets as a close replica of the input packets, and are accompanied with additional metadata to help debugging. This format requires a plugin for most packet inspection tools. The **simulated-pcap** format does not generate additional metadata and changes some packet fields to produce a PCAP file that can be read by packet inspection tools without an additional plugin.

Default

format simulated-pcap

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Parameters

format

Specifies the output format.

Values:

- pcap – pcap requiring plugin
- simulated-pcap – pcap without plugin need

Default: simulated-pcap

4.2.6.6 live-output

Syntax

live-output *ip-addr* | *fqdn* [**port** *port*] [**router** *router-instance*]

no live-output

Context

[Tree] configure mobile-gateway profile call-insight all-ues live-output

Description

This command specifies to stream captured packets and events to the specified peer address. This automatically disables generating a locally stored PCAP file.

The **no** form of this command disables streaming of captured packets and events, and falls back to generating a locally stored PCAP file.

Default

no live-output

Parameters

ip-address

Specifies the address.

Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D

fqdn

Specifies the fully qualified domain name, up to 255 characters (per label max 63).

port

Specifies the port.

Values: 1 to 65535

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Default: 29770

router-instance

Specifies the router.

Values:

- router-name – "Base"
- service-id – 1 to 2147483647

Default: Base

4.2.6.7 path-management

Syntax

[**no**] **path-management** [**ref-point** *ref-point* | **sba-service** *sba-service*]

Context

[Tree] configure mobile-gateway profile call-insight all-ues path-management

Description

This command enables capturing of path management messages on a per reference point or SBI service basis. The special reference point or service **all** enables tracing of all ref-points or services respectively.

Note: the **sx-n4** ref-point includes any messages sent over IBCP, such as DHCP and PPPoE.

The **no** version of this command disables path-management capture for the specified reference point interfaces or SBI services. If no reference point or service is specified, all path management is disabled. If the special reference point or service **all** is specified, tracing is disabled for all ref-points or services respectively.

Default

no path-management ref-point all

no path-management sba-service all

Parameters

ref-point

Specifies the reference point.

Values: all | s11 | s5 | sx-n4

sba-service

Specifies the SBI service.

Values: all | nnrf-disc | nnrf-nfm

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4.2.6.8 ref-point

Syntax

ref-point *ref-point*

no ref-point [*ref-point*]

Context

[Tree] configure mobile-gateway profile call-insight all-ues ref-point

Description

This command configures on which interfaces to capture control messages related to the traced UE.

The **no** version of this command disables tracing the specified ref-point, or, if no ref-point is specified, disables tracing on all ref-points.

Default

no ref-point

Parameters

ref-point

Specifies the interface.

Values: all | radius | s11 | s5 | sx-n4

4.2.6.9 sba-service

Syntax

sba-service *sba-service*

no sba-service [*sba-service*]

Context

[Tree] configure mobile-gateway profile call-insight all-ues sba-service

Description

This command configures to trace a single SBI service when call-trace is started for a specific FWA UE.

The **no** form of this command falls back to the default to trace all services when executed without any parameters. When executed on a specific service, it removes tracing for that service.

Default

no sba-service

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Parameters

sba-service

Specifies the SBI service.

Values: all | namf-comm | nchf-convergedcharging | npcf-smpolicycontrol | nsmf-pdusession | nudm-sdm | nudm-uecm

4.2.6.10 size-limit

Syntax

size-limit *size-limit*

no size-limit

Context

[Tree] configure mobile-gateway profile call-insight all-ues size-limit

Description

This command configures the maximum data volume in output.

The **no** form of this command reverts to the default.

Default

size-limit 1000

Parameters

size-limit

Specifies the size limit in MB.

Values: 0 to 1000, 0 means unlimited

Default: 1000

4.2.6.11 time-limit

Syntax

time-limit *time-limit*

no time-limit

Context

[Tree] configure mobile-gateway profile call-insight all-ues time-limit

Description

This command configures the maximum time limit for output.

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Default

size-limit 86400

Parameters

time-limit

Specifies the time limit in seconds.

Values: 0 to 604800; 0 means unlimited

Default: 86400

4.2.6.12 ue

Syntax

[**no**] **ue** *profile-name*

Context

[Tree] configure mobile-gateway profile call-insight ue

Description

This command specifies a call trace profile for the UE. The profile includes configuration to support tracing of specified events, reference point interfaces to capture control messages related to the traced UE user traffic, data volume control, output file size, time limit, and output file format.

Default

ue "default"

Parameters

profile-name

Specifies a profile name, up to 32 characters.

4.2.6.13 debug-output

Syntax

[**no**] **debug-output**

Context

[Tree] configure mobile-gateway profile call-insight ue debug-output

Description

This command sends the call trace outputs to the debug logs. The messages are available in the corresponding log file and can be viewed on the router. Viewing messages on the router simplifies troubleshooting by eliminating the need to extract PCAP files from the router to view the messages.

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Default

no debug-output

4.2.6.14 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile call-insight ue description

Description

This command associates a text string with a configuration context to help identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.6.15 events

Syntax

[**no**] **events** *event*

Context

[Tree] configure mobile-gateway profile call-insight ue events

Description

This command configures events capturing for advanced debugging capabilities. Only use events configuration if needed and as instructed by Nokia technical support.

The **no** form of this command disables the specified event or, if no event is provided, disables all events.

Default

no events

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Parameters

event

Specifies the events.

Values: all | acctmgr | apm | bmc | dcm | dhcp | dth | slaac | ga | gal | gtp | gtpv2 | gxc | gxl | ike | lrdm | mip | msngr | pmip | rfl | rol | s6b | sctp | sd | sessmgr | sigmgr | swm | sww | sta | rpy | dpy | pfcp | nserv

4.2.6.16 format

Syntax

[**no**] **format** [**pcap** | **simulated-pcap**]

Context

[Tree] configure mobile-gateway profile call-insight ue format

Description

This command configures the format for live output and for output toward locally stored PCAP files. The **pcap** format outputs packets as a close replica of the input packets, and are accompanied with additional metadata to help debugging. This format requires a plugin for most packet inspection tools. The **simulated-pcap** format does not generate additional metadata and changes some packet fields to produce a PCAP file that can be read by packet inspection tools without an additional plugin.

Default

format simulated-pcap

Parameters

pcap

Keyword to specify a pcap requiring a plugin.

simulated-pcap

Keyword to specify a pcap without a plugin.

4.2.6.17 live-output

Syntax

[**no**] **live-output** *ip-address* | *fqdn* [**port** *port*] [**router** *router-instance*]

Context

[Tree] configure mobile-gateway profile call-insight ue live-output

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Description

This command specifies to stream captured packets and events to the specified peer address. This automatically disables generating a locally stored PCAP file. This command and the following command are mutually exclusive.

```
configure mobile-gateway profile call-insight ue debug-output
```

The **no** form of this command disables streaming of captured packets and events, and falls back to generating a locally stored PCAP file.

Parameters

ip-address

Specifies the address.

Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

fqdn

Specifies the fully qualified domain name, up to 255 characters.

port

Specifies the port.

Values: 1 to 65535

Default: 29770

router-instance

Specifies the router.

Values:

- router-name – base
- service-id – 1 to 2147483647

Default: Base

4.2.6.18 ref-point

Syntax

[**no**] **ref-point** *ref-point*

Context

[Tree] configure mobile-gateway profile call-insight ue ref-point

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Description

This command configures on which interfaces to capture control messages related to the traced UE.

Note: the **sx-n4** ref-point includes any messages sent over IBCP, such as DHCP and PPPoE.

The **no** form of this command disables tracing the specified ref-point, or, if no ref-point is specified, reverts to the default.

Default

ref-point all

Parameters

ref-point

Specifies the reference point type.

Values: all | radius | s11 | s5 | sx-n4

4.2.6.19 sba-service

Syntax

sba-service *service*

no sba-service

Context

[Tree] configure mobile-gateway profile call-insight ue sba-service

Description

This command configures to trace a single SBI service when call-trace is started for a specific FWA UE.

The **no** form of this command falls back to the default to trace all services when executed without any parameters. When executed on a specific service, it removes tracing for that service.

Default

sba-service all

Parameters

service

Specifies the service to be traced. If the special value all is specified, all services are traced.

Values: all | namf-comm | nchf-convergedcharging | npcf-smpolicycontrol | nsmf-pdusession | nudm-sdm | nudm-uecm

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4.2.6.20 size-limit

Syntax

[**no**] **size-limit** *size-limit*

Context

[Tree] configure mobile-gateway profile call-insight ue size-limit

Description

This command configures maximum data volume in output.

The **no** form of this command reverts to the default.

Default

size-limit 10

Parameters

size-limit

Specifies the size limit in MB.

Values: 0 to 1000, where 0 means unlimited

Default: 10

4.2.6.21 time-limit

Syntax

[**no**] **time-limit** *time-limit*

Context

[Tree] configure mobile-gateway profile call-insight ue time-limit

Description

This command configures the maximum time limit for output.

Default

time-limit 86400

Parameters

time-limit

Specifies the time limit in seconds.

Values: 0 to 604800; 0 means unlimited

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4.2.7 configure mobile-gateway profile charging command descriptions

4.2.7.1 charging

Syntax

charging

Context

[Tree] configure mobile-gateway profile charging

Description

Commands in this context configure the charging profile for the mobile gateway.

4.2.7.2 bng-charging

Syntax

[**no**] **bng-charging** *name*

Context

[Tree] configure mobile-gateway profile charging bng-charging

Description

This command configures the specified BNG charging profile.

The **no** form of this command removes the specified charging profile.

Parameters

name

Specifies the BNG charging profile name, up to 32 characters.

4.2.7.3 chf

Syntax

chf

Context

[Tree] configure mobile-gateway profile charging bng-charging chf

Description

Commands in this context configure CHF-based charging.

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4.2.7.4 chf-profile

Syntax

chf-profile *charging-profile-id*

no chf-profile

Context

[Tree] configure mobile-gateway profile charging bng-charging chf chf-profile

Description

This command configures the CHF profile for charging sessions that are set up with this profile. The CHF profile defines common communication options, such as transmission timers and error handling.

The **no** form of this command removes the profile and causes the MAG-c to use default values for all communication.

Default

no chf-profile

Parameters

charging-profile-id

Specifies the charging profile ID. Refers to a profile configured using the following command.

```
configure mobile-gateway profile charging chf-profile
```

Values: 0 to 255

4.2.7.5 chf-selection

Syntax

chf-selection

Context

[Tree] configure mobile-gateway profile charging bng-charging chf chf-selection

Description

Commands in this context configure CHF selection options.

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4.2.7.6 nf-id-list

Syntax

nf-id-list *list-name*

no nf-id-list

Context

[Tree] configure mobile-gateway profile charging bng-charging chf chf-selection nf-id-list

Description

This command configures an NF ID list for the CHF selection. This list is used when the PCF does not provide the CHF peer.

The **no** form of this command removes the NF ID list from the configuration. The CHF selection falls back to NRF-based discovery and the NF ID list configured with the following command.

```
configure mobile-gateway pdn apn charging nchf chf-selection nf-id-list
```

Default

no nf-id-list

Parameters

list-name

Specifies the NF ID list name, up to 32 characters. Refers to a list configured using the following command.

```
configure mobile-gateway profile list nf-id-list
```

4.2.7.7 fh-fallback

Syntax

fh-fallback

Context

[Tree] configure mobile-gateway profile charging bng-charging chf chf-selection fh-fallback

Description

Commands in this context configure the fallback CHF servers used during failure handling.

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4.2.7.8 chf-profile

Syntax

chf-profile *charging-profile-id*

no chf-profile

Context

[Tree] configure mobile-gateway profile charging bng-charging chf chf-selection fh-fallback chf-profile

Description

This command configures the CHF profile for the offline fallback charging servers used during failure handling.

The **no** form of this command removes the configured fallback CHF profile reference and reverts to the system default profile **chf-profile 0**. That is, when no other profile is configured, the MAG-c uses the default **chf-profile 0** profile. This is the system default profile and the user cannot modify it.

Default

chf-profile 0

Parameters

charging-profile-id

Specifies the charging profile ID to apply for the fallback CHF servers. Refers to a profile configured using the following command.

```
configure mobile-gateway profile charging chf-profile
```

Values: 0 to 255

Default: 0

4.2.7.9 nf-id-list

Syntax

nf-id-list *list-name*

no nf-id-list

Context

[Tree] configure mobile-gateway profile charging bng-charging chf chf-selection fh-fallback nf-id-list

Description

This command configures an NF ID list for the fallback CHF servers that are used during failure handling.

The **no** form of this command removes the NF ID list from the configuration.

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Default

no nf-id-list

Parameters

list-name

Specifies the NF ID list name, up to 32 characters. Refers to a list configured using the following command.

```
configure mobile-gateway profile list nf-id-list
```

4.2.7.10 default-charging-method

Syntax

default-charging-method {**online | offline | disabled**}

no default-charging-method

Context

[Tree] configure mobile-gateway profile charging bng-charging chf default-charging-method

Description

This command configures the default charging method that is signaled toward the PCF in the SMPolicyContextData field when the creation of an SM policy association is requested.

The **no** form of this command reverts to the default.

Default

default-charging-method disabled

Parameters

online | offline | disabled

Keywords to define the default charging method.

Values:

- online – sets both the **online** and **offline** boolean IEs toward the PCF to indicate that online charging is requested
- offline – sets the **offline** boolean IE toward the PCF to indicate that offline charging is requested
- disabled – no default charging method

Default: disabled

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4.2.7.11 dnn-format

Syntax

dnn-format {**real | real-ni-only | selected**}

no dnn-format

Context

[Tree] configure mobile-gateway profile charging bng-charging chf dnn-format

Description

This command configures the data network name (DNN) format used when sending the DNN to the CHF.

The **no** form of this command reverts to the default.

Default

dnn-format selected

Parameters

real | real-ni-only | selected

Keywords to configure the DNN format.

Values:

- real – specifies use of the real, unmodified DNN as signaled during the FWA session setup, including the OI if it is present
- real-ni-only – specifies use of the real DNN as signaled during the FWA session setup, but without the OI if it is present
- selected – specifies use of the selected DNN as is (returned after initial authentication). If no selected DNN is available, the system falls back to the **real-ni-only** option.

Default: selected

4.2.7.12 rating-group

Syntax

[**no**] **rating-group** *group-id*

rating-group *group-id* **custom-statistics-group** *name*

Context

[Tree] configure mobile-gateway profile charging bng-charging chf rating-group

Description

This command configures a static rating group (RG) that is used to report a specific custom statistic . The FWA-UP determines the custom statistic based on the custom statistics group.

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Adding a static RG to an in-use charging profile only affects new sessions. Existing sessions are not updated to use the new RG.

The **no** form of this command removes the static rating group.

Parameters

group-id

Specifies the rating group ID.

Values: 0 to 4294967295

name

Specifies the custom statistics group name, up to 32 characters.

4.2.7.13 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile charging bng-charging chf rating-group description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.7.14 session-charging

Syntax

session-charging

Context

[Tree] configure mobile-gateway profile charging bng-charging chf session-charging

Description

Commands in this context configure session charging options.

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4.2.7.15 final-unit-policy-rules

Syntax

final-unit-policy-rules

Context

[Tree] configure mobile-gateway profile charging bng-charging chf session-charging final-unit-policy-rules

Description

Commands in this context configure mappings between final unit actions returned by the CHF and predefined policy rules.

4.2.7.16 redirect

Syntax

redirect *base-policy-name*

no redirect

Context

[Tree] configure mobile-gateway profile charging bng-charging chf session-charging final-unit-policy-rules redirect

Description

This command specifies the name of the rule base policy to apply when a quota is exhausted and the CHF has indicated REDIRECT as the final unit action.

The **no** form of this command indicates no rule base policy is applied. The REDIRECT action is converted to a TERMINATE action.

Default

no redirect

Parameters

base-policy-name

Specifies the rule base policy name, up to 64 characters. Refers to a policy configured using the **configure mobile-gateway profile policy-options policy-rule-base** command.

4.2.7.17 rating-group

Syntax

rating-group *rating-group*

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no rating-group

Context

[Tree] configure mobile-gateway profile charging bng-charging chf session-charging rating-group

Description

This command configures the rating group (RG) for session charging. The RG must not overlap with any RGs provisioned by the PCF.

The **no** form of this command removes the RG from the configuration and disables session charging.

Default

no rating-group

Parameters

rating-group

Specifies the RG.

Values: 0 to 4294967295

4.2.7.18 shutdown

Syntax

shutdown

no shutdown

Context

[Tree] configure mobile-gateway profile charging bng-charging chf shutdown

Description

This command administratively disables the entity. When disabled, an entity does not change, reset, or remove any configuration settings or statistics. Many entities must be explicitly enabled using the **no shutdown** command.

The operational state of the entity is disabled as well as the operational state of any entities contained within. Many objects must be shut down before they may be deleted.

Default

shutdown

4.2.7.19 subscriber-identifier-format

Syntax

subscriber-identifier-format {**standard | identitytype**}

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no subscriber-identifier-format

Context

[Tree] configure mobile-gateway profile charging bng-charging chf subscriber-identifier-format

Description

This command configures the construction of the subscriberIdentifier IE for the ChargingDataRequest toward the CHF.

The **no** form of this command reverts to the default.

Default

subscriber-identifier-format standard

Parameters

standard | identitytype

Keyword to define the construction of the subscriberIdentifier IE.

Values:

- standard – the subscriberIdentifier contains a subscription permanent identifier (SUPI) as defined in TS 32.291
- identitytype – the subscriberIdentifier is signaled as a grouped IE containing a subscriberIdentityType sub-IE that is always set to "SUPI", and a supi sub-IE that is encoded as a SUPI as defined in TS 29.571.

Default: standard

4.2.7.20 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile charging bng-charging description

Description

This command associates a text string with a configuration context to help identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

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Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.7.21 radius

Syntax

radius

Context

[Tree] configure mobile-gateway profile charging bng-charging radius

Description

Commands in this context configure RADIUS-based charging for BNG.

4.2.7.22 interim-update-interval

Syntax

interim-update-interval *seconds*

no interim-update-interval

Context

[Tree] configure mobile-gateway profile charging bng-charging radius interim-update-interval

Description

This command configures the interim update interval for RADIUS BNG charging. If configured, this command takes priority over the following command for RADIUS BNG charging.

```
configure mobile-gateway profile radius-group interim-update-interval
```

This value can be changed while the profile is in use. For existing sessions, the new interval is only applied after sending the next interim update. Similarly, for existing sessions it is not possible to fall back to the configuration on the radius-group level (**no interim-update-interval**) and instead interim accounting is disabled for those sessions.

The **no** form of this command indicates the use of the interim interval of the linked RADIUS group.

Parameters

seconds

Specifies the interval, in seconds.

Values: 60 to 86400

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4.2.7.23 radius-group

Syntax

radius-group *name*

no radius-group

Context

[Tree] configure mobile-gateway profile charging bng-charging radius radius-group

Description

This command configures a RADIUS group to contain the servers to use for BNG charging. Any include attribute configuration under the RADIUS group is ignored.

The **no** form of this command unlinks the RADIUS group and disables RADIUS-based charging.

Default

no radius-group

Parameters

name

Specifies the RADIUS group name, up to 32 characters.

4.2.7.24 session

Syntax

session

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session

Description

Commands in this context configure RADIUS-based charging per session.

4.2.7.25 apn-format

Syntax

apn-format *form*

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session apn-format

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Description

This command specifies the APN format in RADIUS messages. The format applies to all attributes that reflect the APN; for example, Called-Station-Id and User-Name.

Default

apn-format selected

Parameters

form

Specifies the APN format.

Values:

- real – keyword to use the real, unmodified APN as signaled during the FWA session setup, including the OI if it is present
- real-ni-only – keyword to use the real APN as signaled during the FWA session setup, but without the OI if it is present
- selected – keyword to use the selected APN as is (returned after initial authentication); if no selected APN is available, the system falls back to the real-ni-only option

4.2.7.26 include-attribute

Syntax

[**no**] **include-attribute**

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute

Description

This command enables attributes to be included in session-level accounting messages. Attributes may be absent in messages even if they are configured, for example, when no data is available for the attribute or it is not applicable for that accounting message. See the *MAG-c RADIUS Attributes and IU Triggers* for more information.

Default

include-attribute

4.2.7.27 access-loop-options

Syntax

[**no**] **access-loop-options**

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Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute access-loop-options

Description

This command enables the inclusion of the following access loop option attributes:

- Actual-Data-Rate-Upstream
- Actual-Data-Rate-Downstream
- Minimum-Data-Rate-Upstream
- Minimum-Data-Rate-Downstream
- Attainable-Data-Rate-Upstream
- Attainable-Data-Rate-Downstream
- Maximum-Data-Rate-Upstream
- Maximum-Data-Rate-Downstream
- Minimum-Data-Rate-Upstream-Low-Power
- Minimum-Data-Rate-Downstream-Low-Power
- Maximum-Interleaving-Delay-Upstream
- Maximum-Interleaving-Delay-Downstream
- Actual-Interleaving-Delay-Upstream
- Actual-Interleaving-Delay-Downstream
- Access-Loop-Encapsulation

The **no** form of this command reverts to the default (disabled).

Default

no access-loop-options

4.2.7.28 acct-authentic

Syntax

[**no**] **acct-authentic**

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute acct-authentic

Description

This command enables the inclusion of the Account-Authentic attribute.

The **no** form of this command reverts to the default (disabled).

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Default

no acct-authentic

4.2.7.29 acct-delay-time

Syntax

[**no**] **acct-delay-time**

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute acct-delay-time

Description

This command enables the inclusion of the Account-Delay-Time attribute.

The **no** form of this command reverts to the default (disabled).

Default

no acct-delay-time

4.2.7.30 acct-triggered-reason

Syntax

[**no**] **acct-triggered-reason**

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute acct-triggered-reason

Description

This command enables the inclusion of the Alc-Account-Triggered-Reason attribute.

The **no** form of this command reverts to the default (disabled).

Default

no acct-triggered-reason

4.2.7.31 address-information

Syntax

[**no**] **address-information**

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Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute address-information

Description

This command enables the inclusion of the following attributes:

- Framed-IP-Address
- Framed-IP-Netmask
- Alc-Active-Addresses attribute

The **no** form of this command reverts to the default (disabled).

Default

no address-information

4.2.7.32 aggregate-statistics

Syntax

[**no**] **aggregate-statistics**

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute aggregate-statistics

Description

This command enables the inclusion of the following attributes:

- Acct-Input-Octets
- Acct-Output-Octets
- Acct-Input-Packets
- Acct-Input-Packets
- Acct-Output-Packets
- Acct-Input-Gigawords
- Acct-Output-Gigawords

The **no** form of this command reverts to the default (disabled).

Default

no aggregate-statistics

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4.2.7.33 called-station-id

Syntax

[no] called-station-id

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute called-station-id

Description

This command includes the Called-Station-Id attribute in the accounting messages.

The **no** form of this command reverts to the default.

Default

no called-station-id

4.2.7.34 calling-station-id

Syntax

calling-station-id [*type*]

no calling-station-id

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute calling-station-id

Description

This command configures the inclusion of the Calling-Station-Id attribute and specifies the type of session data from which the value is derived.

The **no** form of this command removes the configuration.

Default

calling-station-id l2-circuit

Parameters

type

Specifies the type of session data from which the value is derived.

Values: l2-circuit | mac-address | remote-id

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4.2.7.35 circuit-id

Syntax

[**no**] **circuit-id**

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute circuit-id

Description

This command enables the inclusion of the Agent-Circuit-Id attribute.

The **no** form of this command reverts to the default (disabled).

Default

no circuit-id

4.2.7.36 detailed-statistics

Syntax

[**no**] **detailed-statistics**

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute detailed-statistics

Description

This command enables the inclusion of the detailed statistics attributes.

The **no** form of this command reverts to the default (disabled).

Default

no detailed-statistics

4.2.7.37 dhcp-vendor-class-id

Syntax

[**no**] **dhcp-vendor-class-id**

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute dhcp-vendor-class-id

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Description

This command enables the inclusion of the Alc-DHCP-Vendor-Class-Id attribute.

The **no** form of this command reverts to the default (disabled).

Default

no dhcp-vendor-class-id

4.2.7.38 framed-protocol

Syntax

[**no**] **framed-protocol**

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute framed-protocol

Description

This command enables the inclusion of the Framed-Protocol attribute.

The **no** form of this command reverts to the default (disabled).

Default

no framed-protocol

4.2.7.39 imeisv

Syntax

[no] imeisv

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute imeisv

Description

This command includes the 3GPP-IMEISV attribute in the accounting messages.

The **no** form of this command reverts to the default.

Default

no imeisv

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4.2.7.40 imsi

Syntax

[no] imsi

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute imsi

Description

This command includes the 3GPP-IMSI attribute in the accounting messages.

The **no** form of this command reverts to the default.

Default

no imsi

4.2.7.41 lac-tunnel-info

Syntax

lac-tunnel-info [**tunnel-connection-format** *ascii-spec*]

no lac-tunnel-info

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute lac-tunnel-info

Description

This command enables the inclusion of information related to the L2TP tunnel for a LAC session.

The **no** form of this command reverts to the default (disabled).

Default

no lac-tunnel-info

Parameters

ascii-spec

Specifies the content of the Acct-Tunnel-Connection attribute. It must be a valid ASCII string where per-session replacements are done when generating the attribute. For example: "SERIALNBR=%n,TUNNEL:loc-%t,rem-%T,SESSION:loc-%s,rem-%S,CONNECTIONID:loc-%c,rem-%C"

Values:

- *char-specification* [*ascii-spec*]
  where

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char-specification – *ascii-char* | *char-origin*

ascii-char – a printable ASCII character

char-origin – %*origin*

- *origin* – n | s | S | t | T | c | C
  where

  n – call serial number

  s | S – local (s) or remote (S) session ID

  t | T – local (t) or remote (T) tunnel ID

  c | C – local (c) or remote (C) connection ID

Default: %n

4.2.7.42 mac-address

Syntax

[**no**] **mac-address**

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute mac-address

Description

This command enables the inclusion of the Alc-Client-Hardware-Addr attribute.

The **no** form of this command reverts to the default (disabled).

Default

no mac-address

4.2.7.43 nas-identifier

Syntax

[**no**] **nas-identifier**

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute nas-identifier

Description

This command enables the inclusion of the Nas-Identifier attribute.

The **no** form of this command reverts to the default (disabled).

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Default

no nas-identifier

4.2.7.44 nas-ip-address

Syntax

[**no**] **nas-ip-address**

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute nas-ip-address

Description

This command enables the inclusion of the NAS-IP-Address and NAS-IPv6-Address attributes.

The **no** form of this command reverts to the default (disabled).

Default

no nas-ip-address

4.2.7.45 nas-port-id

Syntax

nas-port-id [**prefix-string** *string*] [**suffix** *suffix-option*] [**suffix-string** *suffix-string*]

no nas-port-id

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute nas-port-id

Description

This command configures the Nas-Port-ID attribute and defines optional suffixes and prefixes to the value.

The **no** form of this command reverts to the default (disabled).

Parameters

string

Specifies the prefix string, up to eight characters.

suffix-option

Specifies the suffix option.

Values: circuit-id | remote-id

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suffix-string

Specifies the suffix string, up to 64 characters.

4.2.7.46 nas-port-type

Syntax

nas-port-type [*value*]

no nas-port-type

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute nas-port-type

Description

This command configures the Nas-Port-Type attribute with the configured value.

The **no** form of this command reverts to the default.

Default

nas-port-type

Parameters

value

Specifies the NAS port type value.

Values: 0 to 255

4.2.7.47 nat-port-range

Syntax

[**no**] **nat-port-range**

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute nat-port-range

Description

This command enables the inclusion of the **Alc-Nat-Port-Range** and **Alc-ISA-Event-Timestamp** attributes in RADIUS accounting. To enable NAT logging in RADIUS accounting, enable this command and the **acct-triggered-reason** command under the same context.

The **no** form of this command reverts to the default (disabled).

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Default

no nat-port-range

4.2.7.48 rat-type

Syntax

[**no**] **rat-type**

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute rat-type

Description

This command includes the 3GPP-RAT-Type attribute in the accounting messages.

The **no** form of this command reverts to the default.

Default

no rat-type

4.2.7.49 remote-id

Syntax

[**no**] **remote-id**

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute remote-id

Description

This command enables the inclusion of the Agent-Remote-Id attribute.

The **no** form of this command reverts to the default (disabled).

Default

no remote-id

4.2.7.50 service-type

Syntax

[**no**] **service-type**

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Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute service-type

Description

This command enables the inclusion of the Service-Type attribute.

The **no** form of this command reverts to the default (disabled).

Default

no service-type

4.2.7.51 session-s-nssai

Syntax

[**no**] **session-s-nssai**

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute session-s-nssai

Description

This command enables the inclusion of the 3GPP-Session-S-NSSAI attribute.

The **no** form of this command reverts to the default.

Default

no session-s-nssai

4.2.7.52 sla-profile

Syntax

[**no**] **sla-profile**

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute sla-profile

Description

This command enables the inclusion of the Alc-SLA-Prof-Str and Alc-SPI-Sharing attributes.

The **no** form of this command reverts to the default (disabled).

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Default

no sla-profile

4.2.7.53 static-port-forward

Syntax

[**no**] **static-port-forward**

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute static-port-forward

Description

This command enables the inclusion of the Static-Port-Forward attribute.

The **no** form of this command reverts to the default (disabled).

Default

no static-port-forward

4.2.7.54 subscriber-id

Syntax

[**no**] **subscriber-id**

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute subscriber-id

Description

This command enables the inclusion of the Alc-Subsc-ID-Str attribute.

The **no** form of this command reverts to the default (disabled).

Default

no subscriber-id

4.2.7.55 subscriber-profile

Syntax

[**no**] **subscriber-profile**

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Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute subscriber-profile

Description

This command enables the inclusion of the Alc-Subsc-Prof-Str attribute.

The **no** form of this command reverts to the default (disabled).

Default

no subscriber-profile

4.2.7.56 up-group

Syntax

[**no**] **up-group**

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute up-group

Description

This command enables the inclusion of the Alc-Up-Group attribute.

The **no** form of this command reverts to the default (disabled).

Default

no up-group

4.2.7.57 up-info

Syntax

[**no**] **up-info**

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute up-info

Description

This command enables the inclusion of various UP informational attributes such as the source IP address and the node ID.

The **no** form of this command reverts to the default (disabled).

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Default

no up-info

4.2.7.58 up-subscriber-id

Syntax

[**no**] **up-subscriber-id**

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute up-subscriber-id

Description

This command enables the inclusion of the UP-Subscriber-Id attribute.

The **no** form of this command reverts to the default (disabled).

Default

no up-subscriber-id

4.2.7.59 user-location-info

Syntax

[no] user-location-info

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute user-location-info

Description

This command includes the 3GPP-User-Location-Info attribute in the accounting messages.

The **no** form of this command reverts to the default.

Default

no user-location-info

4.2.7.60 user-name

Syntax

[**no**] **user-name**

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Context

[Tree] configure mobile-gateway profile charging bng-charging radius session include-attribute user-name

Description

This command enables the inclusion of the User-Name attribute.

The **no** form of this command reverts to the default (disabled).

Default

no user-name

4.2.7.61 shutdown

Syntax

[no] shutdown

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session shutdown

Description

This command administratively disables the entity. When disabled, an entity does not change, reset, or remove any configuration settings or statistics. Many entities must be explicitly enabled using the **no shutdown** command.

The operational state of the entity is disabled as well as the operational state of any entities contained within. Many objects must be shut down before they may be deleted.

4.2.7.62 update-triggers

Syntax

[**no**] **update-triggers**

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session update-triggers

Description

Commands in this context configure whether automatic triggers generate an Interim Update message. When possible, simultaneous triggers are combined in a single message.

Default

update triggers

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4.2.7.63 active-upf-change

Syntax

[**no**] **active-upf-change**

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session update-triggers active-upf-change

Description

This command configures the triggering of an IU message when the active BNG-UP changes. This is considered a non-critical trigger for the buffering of RADIUS messages.

The **no** form of this command removes the configuration.

Default

no active-upf-change

4.2.7.64 address-state-change

Syntax

[**no**] **address-state-change**

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session update-triggers address-state-change

Description

This command enables sending an interim update when an additional IP stack is set up or torn down for the session.

The **no** form of this command reverts to the default (disabled).

Default

no address-state-change

4.2.7.65 periodic

Syntax

[**no**] **periodic**

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Context

[Tree] configure mobile-gateway profile charging bng-charging radius session update-triggers periodic

Description

This command enables sending periodic interim updates. The applicable interval can be configured under the associated RADIUS group, the BNG charging profile, or provisioned via RADIUS.

The **no** form of this command disables sending periodic interim updates.

Default

periodic

4.2.7.66 user-location-change

Syntax

[**no**] **user-location-change**

Context

[Tree] configure mobile-gateway profile charging bng-charging radius session update-triggers user-location-change

Description

This command enables sending an interim update when a location change is detected for the session.

The **no** form of this command reverts to the default (disabled).

Default

no user-location-change

4.2.7.67 ccfh-profile

Syntax

[**no**] **ccfh-profile** *profile-id*

Context

[Tree] configure mobile-gateway profile charging ccfh-profile

Description

This command configures a credit control failure handling (CCFH) profile, which defines failure handling for credit control applications.

The **no** form of this command removes the CCFH profile from the configuration.

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Parameters

profile-id

Specifies the ID of the CCFH profile.

Values: 0 to 255

4.2.7.68 cc-failure-handling

Syntax

cc-failure-handling *action*

no cc-failure-handling

Context

[Tree] configure mobile-gateway profile charging ccfh-profile cc-failure-handling

Description

This command specifies the failure handling behavior for the initial charging data request. For subsequent charging messages, such as updates and termination, this configuration is only used if the charging server did not specify a value. For example, a CHF can provide a failure handling option in the failureHandling IE of a response message.

If the following command is set or the equivalent indicator is signaled from the charging server, the **retry-and-terminate** and **retry-and-ap-continue** options automatically fall back to **terminate** and **ap-continue** respectively.

```
configure mobile-gateway profile charging ccfh-profile disable-cc-session-failover
```

This command applies to all failures. For CHF, more specific overrides can be provisioned using the following commands:

- **per HTTP error code override**

  ```
  configure mobile-gateway profile charging ccfh-profile nchf-http-code
  ```

- **per application error cause code override**

  ```
  configure mobile-gateway profile charging ccfh-profile nchf-cause-code
  ```

The **no** form of this command reverts to the default.

Default

cc-failure-handling terminate

Parameters

action

Specifies the failure handling action.

Values:

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- ap-continue – continue with the session, but stop all charging functionality. Optionally, the MAG-c can periodically attempt to restart charging based on the following command.

  ```
  configure mobile-gateway profile charging ccfh-profile session-restore-retry-timer
  ```

  If charging cannot be restarted within the time specified by the following command, the session is terminated.

  ```
  configure mobile-gateway profile charging ccfh-profile fh-session-continue-timer
  ```

- terminate – terminate the session
- retry-and-terminate – try alternative peers if any are available. If alternative peers are not available or also result in failures, fall back to the behavior as defined by the **terminate** option.
- retry-and-ap-continue – try alternative peers if any are available. If alternative peers are not available or also result in failures, fall back to the behavior as defined by the **ap-continue** option.

4.2.7.69 disable-cc-session-failover

Syntax

[**no**] **disable-cc-session-failover**

Context

[Tree] configure mobile-gateway profile charging ccfh-profile disable-cc-session-failover

Description

This command configures that any retry failure handling actions fall back to their non-retry equivalent. This applies both to locally configured failure handling actions and actions received from the charging server, such as the CHF.

A CHF can override this local configuration by providing the sessionFailover IE in a Charging Data Response message.

The **no** form of this command keeps session failover as is and retry failure handling actions work as-is.

Default

no disable-cc-session-failover

4.2.7.70 fallback-session-continue-timer

Syntax

fallback-session-continue-timer *timer-value*

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no fallback-session-continue-timer

Context

[Tree] configure mobile-gateway profile charging ccfh-profile fallback-session-continue-timer

Description

This command defines how long a session remains up after fallback to the offline CHF is triggered.

The special value 0 disables the timer, causing the session not to terminate based on a timeout while using the offline CHF.

The **no** form of this command reverts to the default.

Default

fallback-session-continue-timer 30

Parameters

timer-value

Specifies how long the session remains up while using offline CHF, in minutes.

Values: 0 to 1440

Default: 30

4.2.7.71 fallback-volume-limit

Syntax

fallback-volume-limit *volume-limit*

no fallback-volume-limit

Context

[Tree] configure mobile-gateway profile charging ccfh-profile fallback-volume-limit

Description

This command defines how much data a session may use after fallback to offline CHF handling is triggered.

The special value 0 disables the volume limit, causing the session not to terminate based on a volume limit while on fallback to the offline CHF.

The **no** form of this command reverts to the default.

Default

fallback-volume-limit 0

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Parameters

volume-limit

Specifies the volume limit in kilobytes.

Values: 0 to 104857600; 0 disables the volume limit.

Default: 0

4.2.7.72 fh-session-continue-timer

Syntax

fh-session-continue-timer *fh-session-continue-timer*

no fh-session-continue-timer

Context

[Tree] configure mobile-gateway profile charging ccfh-profile fh-session-continue-timer

Description

This command defines how long a session is kept up when an **ap-continue** failure handling action is triggered. If a charging session is not reestablished by this time, a final charging session reestablishment attempt is made. If the final attempt is unsuccessful, the session is terminated. For more details on charging session reestablishment, see the following command.

```
configure mobile-gateway profile charging ccfh-profile session-restore-retry-timer
```

The special value 0 disables the timer, causing the session not to terminate based on a timeout.

The **no** form of this command reverts to the default.

Default

fh-session-continue-timer 30

Parameters

fh-session-continue-timer

Specifies the time to keep the session up, defined in minutes.

Values: 0 to 1440

Default: 30

4.2.7.73 fh-volume-limit

Syntax

fh-volume-limit *volume-limit*

no fh-volume-limit

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Context

[Tree] configure mobile-gateway profile charging ccfh-profile fh-volume-limit

Description

This command defines a limit for the data volume a session can consume when an **ap-continue** failure handling action is triggered. If a charging session is not reestablished before the maximum data volume is exhausted, the MAG-c performs a final charging session reestablishment attempt. If that final attempt is unsuccessful, the session is terminated.

The special value 0 disables the volume limit and session termination based on volume usage.

For more information about charging session reestablishment, see the following command.

```
configure mobile-gateway profile charging ccfh-profile session-restore-retry-timer
```

The **no** form of this command reverts to the default.

Default

fh-volume-limit 0

Parameters

volume-limit

Specifies the volume limit in kilobytes.

Values: 0 to 104857600; 0 disables the volume limit.

Default: 0

4.2.7.74 nchf-cause-code

Syntax

nchf-cause-code *application-error-code* **action** *action*

no nchf-cause-code *application-error-code*

Context

[Tree] configure mobile-gateway profile charging ccfh-profile nchf-cause-code

Description

This command specifies the failure handling behavior for a specific application error code when using the CHF as a charging server. When receiving an error, the failure handling behavior is picked up using the following priority:

1. If the error matches both a specific HTTP status code and application error, the behavior of the application error code is used.
2. If the error matches a specific application error, that behavior is used.
3. If the error matches a specific HTTP status code, that behavior is used.

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4. If none of the above apply, the failure handling behavior falls back to what is specified with the following command or its equivalent CHF override.

```
configure mobile-gateway profile charging ccfh-profile cc-failure-handling
```

Application error codes for Nchf_ConvergedCharging are defined in 3GPP TS 32.291 table 6.1.7.3-1, and common application error values are defined in 3GPP TS 29.500 table 5.2.7.2-1.

The **no** form of this command removes the code-specific failure handling for the specified application error code.

Parameters

application-error-code

Specifies the Nchf_ConvergedCharging application error, up to 32 characters.

action

Specifies the failure handling action.

Values:

- ap-continue – continue with the session, but stop all charging functionality. Optionally, the MAG-c can periodically attempt to restart charging based on the following command.

```
configure mobile-gateway profile charging ccfh-profile session-restore-retry-timer
```

If charging cannot be restarted within the time specified by the following command, the session is terminated.

```
configure mobile-gateway profile charging ccfh-profile fh-session-continue-timer
```

- terminate – terminate the session
- retry-and-terminate – try alternative peers if any are available. If alternative peers are not available or also result in failures, fall back to the behavior as defined by the **terminate** option.
- retry-and-ap-continue – try alternative peers if any are available. If alternative peers are not available or also result in failures, fall back to the behavior as defined by the **ap-continue** option.

4.2.7.75 nchf-http-code

Syntax

nchf-http-code *value action*

no nchf-http-code *value*

Context

[Tree] configure mobile-gateway profile charging ccfh-profile nchf-http-code

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Description

This command specifies the failure handling behavior for a specific HTTP status code when using the CHF as a charging server. See the following command for more information about the priorities between HTTP code and application error code failure handling overrides.

```
configure mobile-gateway profile charging ccfh-profile nchf-cause-code
```

HTTP status codes are defined in RFC 9110 section 15.

The **no** form of this command removes the code-specific failure handling for the specified HTTP status code.

Parameters

value

Specifies the three-digit HTTP status code value.

Values: 300 to 599

action

Specifies the failure handling action.

Values:

- ap-continue – continue with the session, but stop all charging functionality. Optionally, the MAG-c can periodically attempt to restart charging based on the following command.

  ```
  configure mobile-gateway profile charging ccfh-profile session-restore-retry-timer
  ```

  If charging cannot be restarted within the time specified by the following command, the session is terminated.

  ```
  configure mobile-gateway profile charging ccfh-profile fh-session-continue-timer
  ```

- terminate – terminate the session
- retry-and-terminate – try alternative peers if any are available. If alternative peers are not available or also result in failures, fall back to the behavior as defined by the **terminate** option.
- retry-and-ap-continue – try alternative peers if any are available. If alternative peers are not available or also result in failures, fall back to the behavior as defined by the **ap-continue** option.

4.2.7.76 session-restore-retry-timer

Syntax

session-restore-retry-timer *retry-timer*

no session-restore-retry-timer

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Context

[Tree] configure mobile-gateway profile charging ccfh-profile session-restore-retry-timer

Description

This command specifies a session restore retry timer. When an **ap-continue** failure handling is started, the MAG-c periodically attempts to reestablish a charging session according to this timer. When set to zero, the MAG-c does not attempt to reestablish a charging session periodically.

If charging is reestablished successfully, the MAG-c restarts all RGs for the charging session. Any usage and unused quotas from the previous session and from the failure handling period are discarded and not reported.

If a timer is also configured using the following command, the MAG-c attempts a final reestablishment for the charging session upon expiry, independent of the session restore retry timer.

```
configure mobile-gateway profile charging ccfh-profile fh-session-continue-timer
```

The **fh-session-continue-timer** must be configured higher than the **session-restore-retry-timer**, otherwise the latter is not used.

The **no** form of this command reverts to the default.

Default

session-restore-retry-timer 0

Parameters

retry-timer

Specifies the periodic timer used to attempt charging session reestablishment, in minutes.

Values: 0 to 60

Default: 0

4.2.7.77 chf-profile

Syntax

chf-profile *charging-profile-id*

no chf-profile *charging-profile-id*

Context

[Tree] configure mobile-gateway profile charging chf-profile

Description

This command configures a CHF profile, which defines the communication options for the Nchf_ConvergedCharging service.

The **no** form of this command removes the CHF profile from the configuration.

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Parameters

charging-profile-id

Specifies the ID of the CHF profile.

Values: 0 to 255

4.2.7.78 ccfh-profile

Syntax

ccfh-profile *profile-id*

no ccfh-profile

Context

[Tree] configure mobile-gateway profile charging chf-profile ccfh-profile

Description

This command defines the credit-control failure handling (CCFH) profile for charging sessions that are set up with this profile.

The **no** form of this command removes the CCFH profile and causes the MAG-c to use default values for all failure handling.

Default

no ccfh-profile

Parameters

profile-id

Specifies the CCFH profile ID. Refers to a profile configured using the following command.

```
configure mobile-gateway profile charging ccfh-profile
```

Values: 0 to 255

4.2.7.79 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile charging chf-profile description

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Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Default

no description

Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.7.80 sbi-srvc-operation

Syntax

sbi-srvc-operation

Context

[Tree] configure mobile-gateway profile charging chf-profile sbi-srvc-operation

Description

Commands in this context configure communication options to handle service operations.

4.2.7.81 retry-count

Syntax

retry-count *max*

no retry-count

Context

[Tree] configure mobile-gateway profile charging chf-profile sbi-srvc-operation retry-count

Description

This command configures the maximum number of times a message is retransmitted if there is no reply when the message is sent. The message is resent after the time configured by the following command elapses and until the maximum number of retries is reached. If the message times out after the last retry, failure handling is triggered.

```
configure mobile-gateway profile charging chf-profile sbi-srvc-operation transaction-timer
```


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The **no** form of this command configures that no retries are attempted.

Default

no retry-count

Parameters

max

Specifies the maximum number of retries to resend the message.

Values: 1 to 10

4.2.7.82 transaction-timer

Syntax

transaction-timer *value*

Context

[Tree] configure mobile-gateway profile charging chf-profile sbi-srvc-operation transaction-timer

Description

This command configures the transaction time used to send messages. If there is no reply during the transaction time, the message is resent until the retry count is reached, as configured by the following command. If the message times out again, the MAG-c considers the connection to the CHF down and triggers the failure handling.

```
configure mobile-gateway profile charging chf-profile sbi-srvc-operation retry-count
```

The **no** form of this command reverts to the default.

Default

transaction-timer 5000

Parameters

value

Specifies the transaction timer value, in milliseconds.

Values: 1000 to 20000

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4.2.8 configure mobile-gateway profile cloud-db command descriptions

4.2.8.1 cloud-db

Syntax

[**no**] **cloud-db** *profile-name*

Context

[Tree] configure mobile-gateway profile cloud-db

Description

This command configures a cloud database profile. It creates an interface with an external database used for storage of subscriber/PDN context.

The **no** form of this command removes the profile from the configuration.

Parameters

profile-name

Specifies a profile name, up to 32 characters.

4.2.8.2 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile cloud-db description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

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4.2.8.3 server

Syntax

[**no**] **server** *ip-addr* | *fqdn* [**port** *port*]

Context

[Tree] configure mobile-gateway profile cloud-db server

Description

This command configures a cloud database server for the external database.

The **no** form of this command removes the cloud database server from the configuration.

Parameters

ip-addr

Specifies the IPv4 or IPv6 address.

Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

fqdn

Specifies the Fully Qualified Domain Name, up to 255 characters.

port

Specifies the port number.

Values: 1 to 65535

Default: 5678

4.2.8.4 shutdown

Syntax

[**no**] **shutdown**

Context

[Tree] configure mobile-gateway profile cloud-db server shutdown

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Description

This command administratively disables the entity. When disabled, an entity does not change, reset, or remove any configuration settings or statistics. Many entities must be explicitly enabled using the **no shutdown** command.

The operational state of the entity is disabled as well as the operational state of any entities contained within. Many objects must be shut down before they may be deleted.

4.2.9 configure mobile-gateway profile dns-profile command descriptions

4.2.9.1 dns-profile

Syntax

dns-profile *profile-name*

no dns-profile *profile-name*

Context

[Tree] configure mobile-gateway profile dns-profile

Description

This command configures a DNS profile for the MAG-c. The DNS profile can be used in a DNS lookup related to MAG-c session management.

The **no** form of this command deletes the DNS profile.

Parameters

profile-name

Specifies the name of the DNS profile, up to 32 characters.

4.2.9.2 ip-dscp

Syntax

ip-dscp *value*

no ip-dscp

Context

[Tree] configure mobile-gateway profile dns-profile ip-dscp

Description

This command configures the IP DSCP/TOS value in the IP header of a DNS request. By default, the DSCP/TOS value for DNS lookup is nc2.

The **no** form of this command reverts to the default.

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Default

ip-dscp 56

Parameters

value

Specifies the DSCP/TOS value in the IP header.

Values: 0 to 63

4.2.9.3 ip-ttl

Syntax

no ip-ttl

ip-ttl *value*

Context

[Tree] configure mobile-gateway profile dns-profile ip-ttl

Description

This command configures the IP Time To Live (TTL) value in the IP header of a DNS request. By default, the TTL value for DNS lookup is 255.

The **no** form of this command reverts to the default.

Default

ip-ttl 255

Parameters

value

Specifies the TTL value in the IP header.

Values: 0 to 255

4.2.9.4 message-retransmit

Syntax

no message-retransmit

message-retransmit [**timeout** *seconds*] [**retry-count** *value*]

Context

[Tree] configure mobile-gateway profile dns-profile message-retransmit

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Description

This command configures the DNS request timeout and retry values for DNS lookup messages.

The **no** form of this command reverts to the default.

Default

message-retransmit timeout 5 retry-count 3

Parameters

seconds

Specifies the time, in seconds, before a DNS request message is retransmitted

Values: 1 to 30

value

Specifies the number of retries before a DNS request message to the server is considered failed.

Values: 1 to 8

4.2.9.5 primary-dns

Syntax

no primary-dns

primary-dns *ip-address*

Context

[Tree] configure mobile-gateway profile dns-profile primary-dns

Description

This command configures the primary IPv4 or IPv6 address of the DNS server.

The **no** form of this command removes the primary DNS server address from the DNS profile.

Parameters

ip-address

Specifies the IPv4 or IPv6 address of the primary DNS server.

Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D

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4.2.9.6 secondary-dns

Syntax

no secondary-dns

secondary-dns *ip-address*

Context

[Tree] configure mobile-gateway profile dns-profile secondary-dns

Description

This command configures the secondary IPv4 or IPv6 address of the DNS server.

The **no** form of this command removes the secondary DNS server address from the DNS profile.

Parameters

ip-address

Specifies the IPv4 or IPv6 address of the secondary DNS server.

Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D

4.2.9.7 tertiary-dns

Syntax

no tertiary-dns

tertiary-dns *ip-address*

Context

[Tree] configure mobile-gateway profile dns-profile tertiary-dns

Description

This command configures the tertiary IPv4 or IPv6 address of the DNS server.

The **no** form of this command removes the tertiary DNS server address from the DNS profile.

Parameters

ip-address

Specifies the IPv4 or IPv6 address of the tertiary DNS server.

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Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

4.2.10 configure mobile-gateway profile gtp command descriptions

4.2.10.1 gtp

Syntax

[**no**] **gtp** *profile-name*

Context

[Tree] configure mobile-gateway profile gtp

Description

Commands in this context configure GTP parameters.

Parameters

profile-name

Specifies the name of the GTP profile, up to 32 characters.

4.2.10.2 description

Syntax

description *long-description-string*

no description

Context

[Tree] configure mobile-gateway profile gtp description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

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Parameters

long-description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.10.3 gtpv2-session-rejection-cause

Syntax

gtpv2-session-rejection-cause

Context

[Tree] configure mobile-gateway profile gtp gtpv2-session-rejection-cause

Description

Commands in this context configure the supported features for the GTPv2 session rejection cause.

4.2.10.4 apn-shutdown

Syntax

apn-shutdown *cause-code-value*

no apn-shutdown

Context

[Tree] configure mobile-gateway profile gtp gtpv2-session-rejection-cause apn-shutdown

Description

This command defines the value for the Cause IE in the Create Session Response if the PDN connection activation is rejected because the APN is in shutdown state.

The **no** form of this command reverts to the default.

Note: This command requires a PDN shutdown.

Parameters

cause-code-value

Specifies the value for the Cause IE.

Values: 64 to 239

Default: 93 (APN access denied - no subscription)

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4.2.10.5 gw-suspend

Syntax

gw-suspend *cause-code-value*

no gw-suspend

Context

[Tree] configure mobile-gateway profile gtp gtpv2-session-rejection-cause gw-suspend

Description

This command defines the value for the GTPv2 Cause IE, if the gateway is in suspend state.

The **no** form of this command reverts to the default.

Note: This command requires a PDN shutdown.

Parameters

cause-code-value

Specifies the value for the Cause IE.

Values: 64 to 239

Default: 89 (service denied)

4.2.10.6 sx-connection-failure

Syntax

sx-connection-failure *cause-code-value*

no sx-connection-failure

Context

[Tree] configure mobile-gateway profile gtp gtpv2-session-rejection-cause sx-connection-failure

Description

This command defines the value for the Cause IE in the Create Session Response message if the PDN Connection Activation message is rejected because of PFCP connection failure.

The **no** form of this command reverts to the default.

Note: This command requires a PDN shutdown.

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Parameters

cause-code-value

Specifies the value for the Cause IE.

Values: 64 to 239

Default: 94 (Request message rejected — reason not specified)

4.2.10.7 ip-dscp

Syntax

ip-dscp *value*

no ip-dscp

Context

[Tree] configure mobile-gateway profile gtp ip-dscp

Description

This command specifies the DSCP value in the IP header.

The **no** form of this command reverts to the default.

Default

ip-dscp 56

Parameters

value

Specifies Differentiated Services Code Point (DSCP) value.

Values: 0 to 63

4.2.10.8 ip-ttl

Syntax

ip-ttl *value*

no ip-ttl

Context

[Tree] configure mobile-gateway profile gtp ip-ttl

Description

This command specifies the IP Time-To-Live (TTL) value for GTP signaling messages.

The **no** form of this command reverts to the default.

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Default

ip-ttl 255

Parameters

value

Specifies IP Time-To-Live (TTL) value.

Values: 1 to 255

4.2.10.9 keep-alive

Syntax

keep-alive [**interval** *interval*] [**retry-count** *retry-count*] [**timeout** *timeout*]

no keep-alive

Context

[Tree] configure mobile-gateway profile gtp keep-alive

Description

This command configures the keep alive timeout attributes for the GTP profile. Keep alive (GTPv2 Echo messages) are sent when a GTPv2 path comes up (one or more UEs attach). The keep alive interval timer is based on the attributes configured for **keep-alive**. The gateway sends a message at the time specified for **interval**. If a GTP-C Echo Response is not received within the time specified for **timeout**, the gateway retries the timeout wait period, for the number of times specified for **retry-count**. If the gateway hears a GTP-C Echo Response from the remote end, it aborts the retry procedure and restarts the keep alive interval timer for this peer. If no response is received before the end of the retry-timeout sequence, the path is declared to be down.

The **no** form of this command reverts to the default.

Default

keep-alive interval 60 retry-count 4 timeout 5

Parameters

interval

Specifies the keep alive message interval, in seconds.

Values: 0 | 60 to 600

retry-count

Specifies the number of retries.

Values: 1 to 15

timeout

Specifies the timeout interval, in seconds.

Values: 1 to 30

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4.2.10.10 message-retransmit

Syntax

message-retransmit [**timeout** *timeout*] [**retry-count** *value*] [**timeout-msec** *timeout-msec*]

no message-retransmit

Context

[Tree] configure mobile-gateway profile gtp message-retransmit

Description

This command configures the GTP message retransmit timeout and retry count values. Retransmit timeout consists of T3 and N3 values. T3 is the time period a network element waits before re-attempting to send a message, if there is no response to an initial message. T3 can be configured either in seconds (**timeout**) or milliseconds (**timeout-msec**). N3 is the maximum number of times a network element re-attempts to send a message. N3 can be configured by changing the value of *value*.

The **no** form of this command reverts to the default.

Parameters

timeout

Specifies the time period, in seconds, that a network element waits before resending a message if there is no response to an initial message. The **timeout** and **timeout-msec** parameters cannot be both set at the same time.

Values: 1 to 30

Default: 5

value

Specifies the number of times the NE re-attempts to send a message.

Values: 1 to 8

Default: 3

timeout-msec

Specifies the time period in milliseconds that a network element waits before resending a message if there is no response to the initial message. The **timeout** and **timeout-msec** parameters cannot be both set at the same time.

Values: 1000 to 30000 (increments of 100 milliseconds)

Default: 5000

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4.2.11 configure mobile-gateway profile http2 command descriptions

4.2.11.1 http2

Syntax

[**no**] **http2** *profile-name*

Context

[Tree] configure mobile-gateway profile http2

Description

This command configures a profile for HTTP/2 connections and commands in this context configure the common HTTP/2 and SBI parameters to use with HTTP/2 connections.

The **no** form of this command removes the specified profile from the configuration.

Parameters

profile-name

Specifies the HTTP/2 profile name, up to 32 characters.

4.2.11.2 connection-timer

Syntax

connection-timer *value*

no connection-timer

Context

[Tree] configure mobile-gateway profile http2 connection-timer

Description

This command configures the setup attempt frequency for a new HTTP/2 connection when not enough HTTP/2 connections are available to a peer.

The **no** form of this command reverts to the default.

Default

connection-timer 20

Parameters

value

Specifies the timer value, in seconds.

Values: 1 to 180

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4.2.11.3 fail-num-retries

Syntax

fail-num-retries *value*

no fail-num-retries

Context

[Tree] configure mobile-gateway profile http2 fail-num-retries

Description

This command configures the maximum number of times that an HTTP/2 client tries to send a message before failing the transaction service. This command, together with the **fail-retry-interval** command, only applies to HTTP/2 messages that are sent over an open HTTP/2 stream. Contrary to the configuration using the **request-timeout** command, this functionality does not take into account the time a service call is buffered while waiting for an available HTTP/2 stream when the stream limit is reached.

When set to 0, no retries are attempted and a single request timeout results in a failure.

The **no** form of this command reverts to the default.

Default

fail-num-retries 0

Parameters

value

Specifies the number of retries.

Values: 0 to 50

4.2.11.4 fail-retry-interval

Syntax

fail-retry-interval *value*

no fail-retry-interval

Context

[Tree] configure mobile-gateway profile http2 fail-retry-interval

Description

This command configures the time that an HTTP/2 client waits for an HTTP/2 response from a server before attempting to resend the message. See the **fail-num-retries** command for more information.

The **no** form of this command reverts to the default.

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Default

fail-retry-interval 5

Parameters

value

Specifies the retry interval in seconds.

Values: 1 to 50

4.2.11.5 ip-dscp

Syntax

ip-dscp *value*

no ip-dscp

Context

[Tree] configure mobile-gateway profile http2 ip-dscp

Description

This command configures the IPv4 DSCP or the IPv6 Traffic Class DS in the IP header for the HTTP2 signaling messages sent.

The **no** form of this command reverts to the default.

Default

ip-dscp 56

Parameters

value

Specifies the DSCP value or traffic class.

Values: 0 to 63

4.2.11.6 ping-period

Syntax

ping-period *value*

no ping-period

Context

[Tree] configure mobile-gateway profile http2 ping-period

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Description

This command defines the frequency of sending ping frames after a quiet period. The timer for sending ping frames is reset every time there is activity.

The **no** form of this command reverts to the default.

Default

ping-period 60

Parameters

value

Specifies the ping period value, in seconds.

Values: 1 to 60

4.2.11.7 python-policy

Syntax

python-policy *name*

no python-policy

Context

[Tree] configure mobile-gateway profile http2 python-policy

Description

This command configures a Python policy to apply on incoming and outgoing HTTP/2 frames.

The **no** form of this command removes the Python policy from the HTTP/2 profile.

Default

no python-policy

Parameters

name

Specifies the name of the referenced Python policy, up to 32 characters, as configured using the **configure python python-policy** command.

4.2.11.8 request-timeout

Syntax

request-timeout *time*

no request-timeout

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Context

[Tree] configure mobile-gateway profile http2 request-timeout

Description

This command configures the time that an HTTP/2 client waits for an HTTP/2 response before the whole service call is considered failed. In contrast to the configuration using the **fail-num-retries** and **fail-retry-interval** commands, this timeout takes into account the time the service call is spent buffered if the HTTP/2 connections reached the maximum outstanding streams.

The **no** form of this command reverts to the default.

Values: 5 to 30

Default

request-timeout 20

Parameters

time

Specifies the time, in seconds.

Values: 5 to 30

4.2.12 configure mobile-gateway profile list command descriptions

4.2.12.1 list

Syntax

list

Context

[Tree] configure mobile-gateway profile list

Description

Commands in this context configure list instances.

4.2.12.2 cell-id-list

Syntax

[**no**] **cell-id-list** *name*

Context

[Tree] configure mobile-gateway profile list cell-id-list

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Description

This command configures a list of e-UTRAN cell global identification (ECGI) and NR cell global identification (NCGI) values.

The **no** form of this command removes the configuration.

Parameters

name

Specifies the list name, up to 32 characters.

4.2.12.3 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile list cell-id-list description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Default

no description

Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.12.4 plmn

Syntax

[**no**] **plmn mcc** *mcc value* **mnc** *mnc value*

Context

[Tree] configure mobile-gateway profile list cell-id-list plmn

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Description

This command configures a new public land mobile network (PLMN) consisting of a mobile country code (MCC) and mobile network code (MNC).

The **no** form of this command removes the configuration.

Parameters

mcc value

Specifies the MCC value that identifies the PLMN.

Values: 000 to 999 (three digit number)

mnc value

Specifies the MNC value that identifies the PLMN.

Values: 00 to 999 (two or three digit number)

4.2.12.5 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile list cell-id-list plmn description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Default

no description

Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.12.6 eci

Syntax

eci *eci-value* [**end** *eci-value*]

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no eci *eci-value*

Context

[Tree] configure mobile-gateway profile list cell-id-list plmn eci

Description

This command adds a new e-UTRAN cell identity (ECI) to the PLMN. Together, the PLMN and the ECI form the ECGI. The user can provide an end ECI value to, optionally, specify a range of ECIs.

The **no** form of this command removes the configuration.

Parameters

eci-value

Specifies a valid ECI value as a seven-digit hexadecimal number.

Values: 0x0000000 to 0xFFFFFFF

4.2.12.7 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile list cell-id-list plmn eci description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Default

no description

Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

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4.2.12.8 nci

Syntax

nci *nci-value* [**end** *nci-value*]

no nci *nci-value*

Context

[Tree] configure mobile-gateway profile list cell-id-list plmn nci

Description

This command adds a new NR cell identity (NCI) to the PLMN. Together, the PLMN and the NCI form the NCGI. The user can provide an end NCI value to, optionally, specify a range of NCIs.

The **no** form of this command removes the configuration.

Parameters

nci-value

Specifies a valid NCI value as a nine-digit hexadecimal number.

Values: 0x000000000 to 0xFFFFFFFFF (nine hexadecimal nibbles)

4.2.12.9 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile list cell-id-list plmn nci description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Default

no description

Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

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4.2.12.10 nf-id-list

Syntax

[no] **nf-id-list** *list-name*

Context

[Tree] configure mobile-gateway profile list nf-id-list

Description

This command configures a list of Network Function (NF) instances.

The **no** form of this command removes the specified list from the configuration.

Parameters

list-name

Specifies the name of the NF ID list, up to 32 characters.

4.2.12.11 nf-prof-id

Syntax

[no] **nf-prof-id** *nf-id*

Context

[Tree] configure mobile-gateway profile list nf-id-list nf-prof-id

Description

This command adds a new NF instance with the specified NF profile parameters to the list of NF peers.

The **no** form of this command removes the NF instance from the list.

Parameters

nf-id

Specifies the internal ID of the NF peer.

Values: 1 to 4294967295

4.2.12.12 api-prefix

Syntax

api-prefix *api-prefix-value*

no api-prefix

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Context

[Tree] configure mobile-gateway profile list nf-id-list nf-prof-id api-prefix

Description

This command configures the API prefix to be used after the authority part of the API URI endpoint.

The **no** form of this command removes the API prefix.

Default

no api-prefix

Parameters

api-prefix-value

Specifies the API prefix, up to 64 characters.

4.2.12.13 enable

Syntax

[no] enable

Context

[Tree] configure mobile-gateway profile list nf-id-list nf-prof-id enable

Description

This command enables the NF profile. To enable the NF profile, the UUID of the NF profile must be configured using the **uuid** command in the profile. An FQDN or a list of IP addresses using the **fqdn** command or the **prioritized-address-list** command must also be configured.

The **no** form of this command disables the NF profile.

Default

no enable

4.2.12.14 fqdn

Syntax

fqdn *fqdn-sni-string*

no fqdn

Context

[Tree] configure mobile-gateway profile list nf-id-list nf-prof-id fqdn

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Description

This command configures an FQDN identifying this NF Instance. When a DNS client is provisioned under the **configure mobile-gateway pdn** context, the FQDN is used to retrieve the IP address for the NF instance using an A/AAAA DNS lookup. You must configure either the **fqdn** command or the **prioritized-address-list** command.

Default

no fqdn

Parameters

fqdn-sni-string

Specifies the FQDN name string, up to 255 characters.

4.2.12.15 nf-priority

Syntax

nf-priority *priority-value*

no nf-priority

Context

[Tree] configure mobile-gateway profile list nf-id-list nf-prof-id nf-priority

Description

This command configures the priority of this NF instance compared to other instances in the same list. To indicate a higher priority, use a lower priority value.

The **no** form of this command reverts to the default.

Default

nf-priority 65535

Parameters

priority-value

Specifies the priority value.

Values: 0 to 65535

4.2.12.16 prioritized-address-list

Syntax

prioritized-address-list *list-name*

no prioritized-address-list

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Context

[Tree] configure mobile-gateway profile list nf-id-list nf-prof-id prioritized-address-list

Description

This command configures a list of prioritized IP addresses used to reach this NF instance. This references a list configured using the **configure mobile-gateway profile list prioritized-ip-address-list** command. You must configure either the **prioritized-address-list** command or the **fqdn** command.

The no form of this command reverts to the default.

Default

no prioritized-address-list

Parameters

list-name

Specifies the list name, up to 32 characters.

4.2.12.17 uuid

Syntax

uuid *uuid*

no uuid

Context

[Tree] configure mobile-gateway profile list nf-id-list nf-prof-id uuid

Description

This command adds the NF instance ID in UUIDv4 canonical textual representation. You must configure the UUID.

The **no** form of this command removes the UUID from the configuration.

Default

no uuid

Parameters

uuid

Specifies the NF instance ID.

Values: UUID - xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx

x - [0..F]H

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4.2.12.18 plmn

Syntax

[**no**] **plmn** *list-name*

Context

[Tree] configure mobile-gateway profile list plmn

Description

This command configures a PLMN list. A PLMN list consists of a list of MCC and MNC IDs.

The **no** form of this command removes the list name from the configuration.

Parameters

list-name

Specifies the name of this PLMN list, up to 32 characters.

4.2.12.19 mcc

Syntax

[**no**] **mcc** *mcc-value* **mnc** *mnc-value*

Context

[Tree] configure mobile-gateway profile list plmn mcc

Description

This command specifies the MCC and MNC for this PLMN.

The **no** form of this command removes the values from the configuration.

Parameters

mcc-value

Specifies the MCC of this PLMN, three digit number.

Values: 000 to 999

mnc-value

Specifies the MNC of this PLMN, two or three digit number.

Values: 00 to 999

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4.2.12.20 prioritized-ip-address-list

Syntax

[**no**] **prioritized-ip-address-list** *list-name*

Context

[Tree] configure mobile-gateway profile list prioritized-ip-address-list

Description

This command creates a new prioritized IP address list.

The **no** form of this command removes the configured list.

Parameters

list-name

Specifies the name of the prioritized IP address list, up to 32 characters.

4.2.12.21 address

Syntax

address *{ip-address | fqdn}* [**priority** *value*] [**port** *port*]

no address *{ip-address | fqdn}* [**port** *port*]

Context

[Tree] configure mobile-gateway profile list prioritized-ip-address-list address

Description

This command configures an IP address in the configured prioritized IP address list. The address can optionally be assigned with a priority.

The **no** form of this command removes the IP address from the list.

Parameters

ip-address

Specifies the IP address.

Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D

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fqdn

Specifies the FQDN, up to 255 characters.

value

Specifies the priority.

Values: 0 to 8

Default: 8

port

Specifies the port.

Values: 0 to 65535

Default: 80

4.2.12.22 slice-instance-list

Syntax

[no] slice-instance-list *list-name*

Context

[Tree] configure mobile-gateway profile list slice-instance-list

Description

This command configures a list of slice instances.

The **no** form of this command removes the configured slice instance list.

Parameters

list-name

Specifies the list name, up to 32 characters.

4.2.12.23 slice-instance

Syntax

[no] slice-instance *name*

Context

[Tree] configure mobile-gateway profile list slice-instance-list slice-instance

Description

This command configures a single slice instance.

The **no** form of this command removes the slice instance from the list.

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Parameters

name

Specifies the name of the slice instance, up to 128 characters.

4.2.12.24 slice-list

Syntax

[**no**] **slice-list** *list-name*

Context

[Tree] configure mobile-gateway profile list slice-list

Description

A list of slices.

The **no** form of this command removes the configured slice list.

Parameters

list-name

Specifies the name of the list, up to 32 characters.

4.2.12.25 slice

Syntax

slice *name* [**sst** *sst-value* [**sd** *hex-string*]]

no slice *name*

Context

[Tree] configure mobile-gateway profile list slice-list slice

Description

This command configures a slice in the configured slice list. The slice must be associated with a Slice Service Type (SST). Optionally, the slice is associated with a Service Differentiator (SD). The SD is optional information that complements the SST to differentiate among multiple network slices of the same type.

The **no** form of this command removes the slice from the list.

Parameters

name

Specifies the name of the slice, up to 32 characters.

sst-value

Specifies the SST identifier for the created slice.

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Values: 0 to 255

Note: Values 0 to 127 are standardized and are defined in clause 5.15.2.2 of 3GPP TS 23.501. The most common standardized value is 1, which indicates eMBB (5G enhanced Mobile Broadband). Values from 128 to 255 correspond to operator-specific SSTs.

hex-string

Specifies the SD identifier for the created slice, representing the SD, a 3 octet string in hexadecimal representation.

Values: xxxxxx, x: [0..F]H

4.2.12.26 slice-instances

Syntax

slice-instances *list-name*

no slice-instances

Context

[Tree] configure mobile-gateway profile list slice-list slice slice-instances

Description

This command configures a list of slice instances which are instantiated for the specific slice. A slice instance can belong to lists of more than one slice.

The **no** form of this command removes the slice instances list.

Default

no slice-instances

Parameters

list-name

Specifies the name of the prioritized IP address list, up to 32 characters, as configured using the **configure mobile-gateway profile list slice-instance-list** command.

4.2.12.27 tai-list

Syntax

[**no**] **tai-list** *tai-list-name*

Context

[Tree] configure mobile-gateway profile list tai-list

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Description

This command configures a list of tracking area identity (TAI) values. The list can contain TAI values and TAI ranges.

The **no** form of this command removes the specified list from the configuration.

Parameters

tai-list-name

Specifies the list name, up to 32 characters.

4.2.12.28 tai

Syntax

no tai mcc *mcc value* **mnc** *mnc value* **tac** *tac value*

no tai mcc *mcc value* **mnc** *mnc value* **tac-range-start** *tac-range-start value* **tac-range-end** *tac-range-end value*

tai mcc *mcc value* **mnc** *mnc value* **tac** *tac value* [**priority** *priority-value*]

tai mcc *mcc value* **mnc** *mnc value* **tac-range-start** *tac-range-start value* **tac-range-end** *tac-range-end value* [**priority** *priority-value*]

Context

[Tree] configure mobile-gateway profile list tai-list tai

Description

This command adds a new TAI or TAI range to the list.

The **no** form of this command removes the specified TAI or TAI range from the list.

Parameters

mcc value

Specifies the MCC value of the TAI.

Values: 000 to 999

mnc value

Specifies the MNC value of the TAI.

Values: 00 to 999

tac value

Specifies the TAC value of the TAI. The TAC value and the TAC range are mutually exclusive.

Value: six-digit hexadecimal number

tac-range-start value

Specifies the start of the TAC for the TAI range. The TAC value and the TAC range are mutually exclusive.

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Values: six-digit hexadecimal number

tac-range-end value

Specifies the end of the TAC for the TAI range. The TAC value and the TAC range are mutually exclusive.

Values: six-digit hexadecimal number

priority-value

Specifies the priority that is signaled to the Network Repository Function (NRF) if this list is used for NRF registration.

Values: 0 to 65535

4.2.13 configure mobile-gateway profile n1-profile command descriptions

4.2.13.1 n1-profile

Syntax

[**no**] **n1-profile** *profile-name*

Context

[Tree] configure mobile-gateway profile n1-profile

Description

This command enables an N1 profile with the specified name and the commands in this context configure the attributes of the N1 profile.

The **no** form of this command removes the specified N1 profile.

Parameters

profile-name

Specifies the N1 profile name, up to 32 characters.

4.2.13.2 cause-code

Syntax

cause-code

Context

[Tree] configure mobile-gateway profile n1-profile cause-code

Description

Commands in this context configure the error codes that the SMF signals in specific session-deletion and session-setup failure scenarios.

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4.2.13.3 apn-shutdown

Syntax

apn-shutdown

Context

[Tree] configure mobile-gateway profile n1-profile cause-code apn-shutdown

Description

Commands in this context configure error codes that are signaled when the APN is shutdown.

4.2.13.4 5gsm-cause-code

Syntax

5gsm-cause-code *5gsm-cause-code*

no 5gsm-cause-code

Context

[Tree] configure mobile-gateway profile n1-profile cause-code apn-shutdown 5gsm-cause-code

Description

This command specifies the 5GSM Cause IE in the N1 PDU Session message when the APN is in shutdown state. 5GSM cause codes are defined in 3GPP TS 24.501 clause 9.11.4.2 and are described in more detail in Appendix B of the same specification.

The **no** form of this command reverts to the default.

Default

5gsm-cause-code 8 – Operator Determined Barring

Parameters

5gsm-cause-code

Specifies the N1 5GSM cause code value.

Values: 0 to 255

4.2.13.5 application-error-code

Syntax

application-error-code *application-error-code*

no application-error-code

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Context

[Tree] configure mobile-gateway profile n1-profile cause-code apn-shutdown application-error-code

Description

This command specifies the application error in the N11 Namf_Communication message when the APN is in shutdown state. The application error values for N11 are defined in 3GPP TS 29.502 table 6.1.7.3-1, and common application error values are defined in 3GPP TS 29.500 table 5.2.7.2-1.

The **no** form of this command reverts to the default.

Default

application-error-code DNN_NOT_SUPPORTED

Parameters

application-error-code

Specifies the application error, up to 64 characters.

4.2.13.6 http-status-code

Syntax

http-status-code *http-status-code*

no http-status-code

Context

[Tree] configure mobile-gateway profile n1-profile cause-code apn-shutdown http-status-code

Description

This command specifies the HTTP status code in the N11 Namf_Communication message when the APN is in shutdown state. HTTP status codes are defined in RFC 9110 section 15.

The **no** form of this command reverts to the default.

Default

http-status-code 403

Parameters

http-status-code

Specifies the HTTP status code.

Values:

- 400 – Bad Request
- 403 – Forbidden
- 404 – Not Found
- 500 – Internal Server Error

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- 503 – Service Unavailable
- 504 – Gateway Timeout

4.2.13.7 gw-suspend

Syntax

gw-suspend

Context

[Tree] configure mobile-gateway profile n1-profile cause-code gw-suspend

Description

Commands in this context configure error codes when the gateway is suspended.

4.2.13.8 5gsm-cause-code

Syntax

5gsm-cause-code *5gsm-cause-code*

no 5gsm-cause-code

Context

[Tree] configure mobile-gateway profile n1-profile cause-code gw-suspend 5gsm-cause-code

Description

This command specifies the 5GSM Cause IE in the N1 PDU Session message when the gateway is suspended. 5GSM cause codes are defined in 3GPP TS 24.501 clause 9.11.4.2 and described in more detail in appendix B of the same specification.

The **no** form of this command reverts to the default.

Default

5gsm-cause-code 8 – Operator Determined Barring

Parameters

5gsm-cause-code

Specifies the N1 5GSM cause code value.

Values: 0 to 255

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4.2.13.9 application-error-code

Syntax

application-error-code *application-error-code*

no application-error-code

Context

[Tree] configure mobile-gateway profile n1-profile cause-code gw-suspend application-error-code

Description

This command configures the application error in the N11 Namf_Communication message when the gateway is suspended. The application error values for N11 Namf_Communication are defined in 3GPP TS 29.502 table 6.1.7.3-1, and common application error values are defined in 3GPP TS 29.500 table 5.2.7.2-1.

The **no** form of this command reverts to the default.

Default

application-error-code NF_FAILOVER

Parameters

application-error-code

Specifies the application error, up to 64 characters.

4.2.13.10 http-status-code

Syntax

http-status-code *http-status-code*

no http-status-code

Context

[Tree] configure mobile-gateway profile n1-profile cause-code gw-suspend http-status-code

Description

This command specifies the HTTP status code in the N11 Namf_Communication message when the gateway is suspended. HTTP status code are defined in RFC 9110 section 15.

The **no** form of this command reverts to the default.

Default

http-status-code 500

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Parameters

http-status-code

Specifies the HTTP status code.

Values:

- 400 – Bad Request
- 403 – Forbidden
- 404 – Not Found
- 500 – Internal Server Error
- 503 – Service Unavailable
- 504 – Gateway Timeout

4.2.13.11 n1-t3591

Syntax

n1-t3591 *timeout* [**retry-count** *retry-count*]

no n1-t3591

Context

[Tree] configure mobile-gateway profile n1-profile n1-t3591

Description

This command configures the T3591 timer specified in 3GPP TS 24.501. The T3591 timer defines the retransmission timeout for the PDU SESSION MODIFICATION COMMAND message.

The **no** form of this command reverts to the default.

Default

n1-t3591 160 retry-count 4

Parameters

timeout

Specifies the timeout period in deciseconds.

Values: 10 to 300

retry-count

Specifies the number of retransmissions.

Values: 0 to 10

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4.2.13.12 n1-t3592

Syntax

n1-t3592 *timeout* [**retry-count** *retry-count*]

no n1-t3592

Context

[Tree] configure mobile-gateway profile n1-profile n1-t3592

Description

This command configures the T3592 timer specified in 3GPP TS 24.501. The T3592 timer defines the retransmission timeout for the PDU SESSION RELEASE COMMAND message.

The **no** form of this command reverts to the default.

Default

n1-t3592 160 retry-count 4

Parameters

timeout

Specifies the timeout period in deciseconds.

Values: 10 to 300

retry-count

Specifies the number of retransmissions.

Values: 0 to 10

4.2.14 configure mobile-gateway profile node-selection command descriptions

4.2.14.1 node-selection

Syntax

node-selection

Context

[Tree] configure mobile-gateway profile node-selection

Description

Commands in this context configure policies for the UPF node selection.

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4.2.14.2 abort

Syntax

abort

Context

[Tree] configure mobile-gateway profile node-selection abort

Description

This command ends the current policy editing session and discards the policy changes made during the session.

4.2.14.3 begin

Syntax

begin

Context

[Tree] configure mobile-gateway profile node-selection begin

Description

This command starts a policy editing session, which is required for all configuration changes under the following context.

```
configure mobile-gateway profile node-selection
```

Editing sessions are not interrupted by high availability activity switches or CLI session terminations, such as closing a Telnet session.

Use the following command to save the policy changes made during the session. Any modifications made during the editing session take effect when this command is issued.

```
configure mobile-gateway profile node-selection commit
```

Use the following command to discard the policy changes made during the session.

```
configure mobile-gateway profile node-selection abort
```

4.2.14.4 client-profile

Syntax

[**no**] **client-profile** *profile-name*

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Context

[Tree] configure mobile-gateway profile node-selection client-profile

Description

This command configures a client selection profile for policy-based UPF node selection.

The **no** form of this command removes the specified client profile.

Parameters

profile-name

Specifies the client profile name, up to 32 characters.

4.2.14.5 default-action

Syntax

default-action

Context

[Tree] configure mobile-gateway profile node-selection client-profile default-action

Description

Commands in this context configure the default action to apply if the session does not match any of the client profile entries.

4.2.14.6 set-target-profile

Syntax

set-target-profile *profile-name*

no set-target-profile

Context

[Tree] configure mobile-gateway profile node-selection client-profile default-action set-target-profile

Description

This command configures the default target profile to apply per client profile. The target profile defines the rules for the UPF node selection. If there is no default target profile configured and the session does not match any client-profile entries, the session is rejected.

Nokia recommends to configure at least a default target profile with no match criteria. This allows the system to fall back to the default UPF selection criteria.

The **no** form of this command removes the configuration.

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Parameters

profile-name

Specifies the target profile name, up to 32 characters.

4.2.14.7 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile node-selection client-profile description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.14.8 entry

Syntax

[**no**] **entry** *id*

Context

[Tree] configure mobile-gateway profile node-selection client-profile entry

Description

This command configures an entry for the client profile. A client profile can have up to 256 entries, with each entry matching the session parameters (for example, TAI or APN or both) to determine the target profile.

Each entry has a selection priority processing based on the numeric value of the ID associated with the entry. The parameters configured per entry are applied collectively. If no **match** parameters are configured within an entry, it is considered as matching all sessions.

Note:

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- An action and a target profile under the action must be present even if no match criteria are provided, else the MAG-c throws an error when committing the configuration.
- Nokia advises against entries without match criteria.

The **no** form of this command removes the specified entry.

Parameters

id

Specifies the ID.

Values: 0 to 294967295

4.2.14.9 action

Syntax

action

Context

[Tree] configure mobile-gateway profile node-selection client-profile entry action

Description

Commands in this context configure the action to apply if the session matches the client profile entry.

4.2.14.10 set-target-profile

Syntax

set-target-profile *profile-name*

no set-target-profile

Context

[Tree] configure mobile-gateway profile node-selection client-profile entry action set-target-profile

Description

This command configures the target profile to apply if the session matches the client profile entry. The target profile defines the rules for UPF node selection.

The **no** form of this command removes the configuration.

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Parameters

profile-name

Specifies an existing target profile name, up to 32 characters, that is previously configured using the following command.

```
configure mobile-gateway profile node-selection target-profile
```

4.2.14.11 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile node-selection client-profile entry description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.14.12 match

Syntax

match

Context

[Tree] configure mobile-gateway profile node-selection client-profile entry match

Description

Commands in this context configure the match criteria for the client profile entry.

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4.2.14.13 apn

Syntax

[**no**] **apn** *apn-name*

Context

[Tree] configure mobile-gateway profile node-selection client-profile entry match apn

Description

This command configures the APN name that the system uses to match the session to the client profile entry. The client selection policy applies the selection rule for the UPF node selection if the APN name of the session matches at least one APN name configured per entry. A maximum of five APNs can be configured per entry.

The **no** form of this command removes the specified APN name from the match criteria.

Parameters

apn-name

Specifies the APN name, up to 80 characters.

4.2.14.14 cell-id-list

Syntax

cell-id-list name

no cell-id-list

Context

[Tree] configure mobile-gateway profile node-selection client-profile entry match cell-id-list

Description

This command configures the list of e-UTRAN cell global identification (ECGI) and NR cell global identification (NCGI) values that the MAG-c uses to match the session to the client profile entry.

The **no** form of this command removes the configuration.

Default

no cell-id-list

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Parameters

name

Specifies the name of a list of ECGI and NCGI values that is configured using the following command, up to 32 characters.

```
configure mobile-gateway profile list cell-id-list
```

4.2.14.15 tai-list

Syntax

tai-list *list-name*

no tai-list

Context

[Tree] configure mobile-gateway profile node-selection client-profile entry match tai-list

Description

This command configures the list of tracking area identity (TAI) values that the MAG-c uses to match the session to the client profile entry.

The **no** form of this command removes the configuration.

Default

no tai-list

Parameters

list-name

Specifies the name of a TAI list that is configured using the following command, up to 32 characters.

```
configure mobile-gateway profile list tai-list
```

4.2.14.16 commit

Syntax

commit

Context

[Tree] configure mobile-gateway profile node-selection commit

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Description

This command saves the UPF node selection changes made during the current editing session. Any policy changes made during the editing session only take effect when they are committed. When the changes are successfully committed and no errors are detected during the commit or cross-reference verification against the existing policy configuration, the editing session is closed.

4.2.14.17 diff

Syntax

diff

Context

[Tree] configure mobile-gateway profile node-selection diff

Description

This command shows the changes done to the UPF node selection during an editing session.

4.2.14.18 group-label

Syntax

[**no**] **group-label** *profile-name*

Context

[Tree] configure mobile-gateway profile node-selection group-label

Description

This command configures the group-label profile for UPF node selection. The group label can identify a set of UPF nodes based on a common criterion.

The **no** form of this command removes the specified group label.

Parameters

profile-name

Specifies the group-label profile name, up to 32 characters.

4.2.14.19 description

Syntax

description *description-string*

no description

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Context

[Tree] configure mobile-gateway profile node-selection group-label description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.14.20 target-profile

Syntax

[**no**] **target-profile** *profile-name*

Context

[Tree] configure mobile-gateway profile node-selection target-profile

Description

This command configures the target profile for UPF node selection. The target profile applies individually to a client profile entry.

The **no** form of this command removes the specified target profile.

Parameters

profile-name

Specifies the profile name, up to 32 characters.

4.2.14.21 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile node-selection target-profile description

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Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.14.22 entry

Syntax

[**no**] **entry** *id*

Context

[Tree] configure mobile-gateway profile node-selection target-profile entry

Description

This command configures a target profile entry for UPF node selection. Each entry has a selection priority processing based on the numeric value of the ID associated with the entry.

The **no** form of this command removes the specified target profile entry.

Parameters

id

Specifies the entry ID.

Values: 0 to 4294967295

4.2.14.23 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile node-selection target-profile entry description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

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The **no** form of this command removes the description from the configuration.

Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.14.24 match

Syntax

match

Context

[Tree] configure mobile-gateway profile node-selection target-profile entry match

Description

Commands in this context configure the match criteria for the target profile entry.

4.2.14.25 apn

Syntax

apn client-apn

no apn

Context

[Tree] configure mobile-gateway profile node-selection target-profile entry match apn

Description

This command configures the system to use the client APN to match the session to the target profile entry.

The **no** form of this command removes the configuration from the match criteria.

4.2.14.26 group-label

Syntax

[**no**] **group-label** *group-name*

Context

[Tree] configure mobile-gateway profile node-selection target-profile entry match group-label

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Description

This command configures a set of group labels to determine eligible BNG-UPs by matching the configured group labels to the group labels in the UP peer list, configured in the following context.

```
configure mobile-gateway profile pfcp up-peer-list peer
```

A maximum of five group labels can be configured per entry.

The **no** form of this command removes the configuration from the match criteria.

Parameters

group-name

Specifies the group name, up to 32 characters.

4.2.14.27 threshold

Syntax

threshold *number surviving upfs*

no threshold

Context

[Tree] configure mobile-gateway profile node-selection target-profile entry threshold

Description

This command configures the minimum number of BNG-UPs that must be available under this target profile entry for the entry to be used for UPF selection.

Default

no threshold

Parameters

number surviving upfs

Specifies the minimum number of BNG-UPs that must be available.

Values: 0 to 8

4.2.15 configure mobile-gateway profile pcf-profile command descriptions

4.2.15.1 pcf-profile

Syntax

pcf-profile *profile-name*

no pcf-profile *profile-name*

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Context

[Tree] configure mobile-gateway profile pcf-profile

Description

This command configures a PCF profile that defines the failure-handling policy and feature support signaling when the Npcf_SMPolicyControl services are used.

The **no** form of this command removes the PCF profile from the configuration.

Parameters

profile-name

Specifies the name of the PCF profile, up to 32 characters.

4.2.15.2 ap-action

Syntax

ap-action {**keep-pcf-rules** | **keep-local-rules-only**}

Context

[Tree] configure mobile-gateway profile pcf-profile ap-action

Description

This command configures the PCC rules to keep when a failure-handling action of **ap-continue** is applied.

Default

ap-action keep-pcf-rules

Parameters

keep-pcf-rules

Keyword to indicate the last PCC rules received from the PCF are kept as-is until the session is terminated.

keep-local-rules-only

Keyword to indicate only the local any-to-any PCC rule is kept.

4.2.15.3 fh-session-no-response

Syntax

fh-session-no-response *action*

no fh-session-no-response

Context

[Tree] configure mobile-gateway profile pcf-profile fh-session-no-response

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Description

This command specifies failure handling behavior for messages that do not get a response subject to the retry-count and transaction-timer configuration.

The **no** form of this command reverts to the default.

Default

fh-session-no-response terminate

Parameters

action

Specifies the failure handling action.

Values:

- **retry-and-attempt-continue**
  Keyword to first try alternative peers if any are available, for the create operation only. If alternative peers are not available or still time out, try to continue the triggering procedure without removing the SM policy association. This may just fail the procedure or terminate the session depending on whether the procedure can continue without PCF interaction.
- **retry-and-ap-continue**
  Keyword to first try alternative peers if any are available, for the create operation only. If alternative peers are not available or still time out, continue with the session, but remove the SM policy association and fall back to the rules defined by the **ap-action** command.
- **terminate**
  Keyword to terminate the session.
- **retry-and-terminate**
  Keyword that is the same as **terminate**, but first tries alternative peers if any are available. It falls back to **terminate** for the update and delete operations.

4.2.15.4 fh-time-limit

Syntax

fh-time-limit *time-limit*

no fh-time-limit

Context

[Tree] configure mobile-gateway profile pcf-profile fh-time-limit

Description

This command is only applicable when failure handling is set to **ap-continue** and indicates the time limit during which a session is kept without an SM policy association. The special value 0 disables the time limit.

The **no** form of this command reverts to the default.

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Default

fh-time-limit 0

Parameters

time-limit

Specifies the time limit in minutes; the value 0 indicates that no time limit is applied.

Values: 0 to 2880 (48h)

4.2.15.5 fh-volume-limit

Syntax

fh-volume-limit *volume-limit*

no fh-volume-limit

Context

[Tree] configure mobile-gateway profile pcf-profile fh-volume-limit

Description

This command is only applicable when failure handling is set to **ap-continue** and indicates the data volume in kilobytes that a session can consume while it has no active SM policy association. The special value 0 disables the volume limit.

The **no** form of this command reverts to the default.

Default

fh-volume-limit 0

Parameters

volume-limit

Specifies the volume limit in kilobytes; the value 0 indicates that no volume limit is applied.

Values: 0 to 10000000

4.2.15.6 npcf-error-mapping-profile

Syntax

npcf-error-mapping-profile *profile-name*

no npcf-error-mapping-profile

Context

[Tree] configure mobile-gateway profile pcf-profile npcf-error-mapping-profile

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Description

This command applies an error-mapping profile that is used to map PCF application error codes to specific 5G Session Management error codes or 4G GTP error codes.

The **no** form of this command removes the profile.

Default

no npcf-error-mapping-profile

Parameters

profile-name

Specifies the error-mapping profile, up to 32 characters. Refers to a profile configured using the following command.

```
configure mobile-gateway profile sbi-error-mapping-profile
```

4.2.15.7 sbi-srvc-operation

Syntax

sbi-srvc-operation {**create** | **update** | **delete**}

no sbi-srvc-operation {**create** | **update** | **delete**}

Context

[Tree] configure mobile-gateway profile pcf-profile sbi-srvc-operation

Description

This command enters the context to configure SBI service operation specific failure handling.

The **no** form of this command removes the configuration for that operation and resets all values to the default.

Default

no sbi-srvc-operation

Parameters

create

Specifies the context for the create operation.

update

Specifies the context for the update operation.

delete

Specifies the context for the delete operation.

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4.2.15.8 http-status-code

Syntax

http-status-code *status-code-value* {**terminate** | **attempt-continue** | **ap-continue** | **retry-and-terminate** | **retry-and-ap-continue** } [**application-error** *app-error-code*]

no http-status-code *status-code-value* [**application-error** *app-error-code*]

Context

[Tree] configure mobile-gateway profile pcf-profile sbi-srvc-operation http-status-code

Description

This command configures the failure-handling behavior for a specific HTTP status code. Optionally, you can specify a more granular failure-handling behavior per status code and per application error. When an error is received, the following priority determines the failure handling behavior:

1. If the error matches a specific HTTP status code and application error, use that behavior.
2. If the error matches a specific HTTP status code without an application error, use that behavior.
3. If the error matches an HTTP status code 3xxx, HTTP status code 4xx, or HTTP status code 5xxx configuration with a specific application error, use that behavior.
4. Use the matching HTTP status code 3xxx, HTTP status code 4xx, or HTTP status code 5xxx configuration, or its default value.

RFC 9110 section 15 defines the HTTP status codes. 3GPP TS 29.512 table 5.7.3-1 defines the application error codes for Npcf_SMPolicyManagement, and 3GPP TS 29.500 table 5.2.7.2-1 defines common application error values.

The **no** form of this command removes the code specific failure handling for that HTTP status code and optional application error code.

Parameters

status-code-value

Specifies the 3-digit HTTP status code value.

Values: 300 to 599

application-error

Specifies the Npcf_SMPolicyManagement application error, up to 36 characters.

attempt-continue

Keyword to continue the triggering procedure without removing the SM policy association. This may just fail the procedure or terminate the session depending on whether the procedure can continue without PCF interaction.

ap-continue

Keyword to first try alternative peers, if any are available, for the create operation only. If alternative peers are unavailable or still time out, continue with the session, but remove the SM policy association and fall back to the rules as defined by the **ap-action** command.

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terminate

Keyword to terminate the session.

retry-and-terminate

Keyword that is the same as **terminate**, but first tries alternative peers if any are available. This falls back to **terminate** for the **update** and **delete** operations.

retry-and-ap-continue

Same as **ap-continue**, but first try alternative peers if any are available. This falls back to **terminate** for the **update** and **delete** operations.

app-error-code

Specifies the application error, up to 32 characters. It can be a standard application error or a customer-specified application error. The standard application errors are:

- INVALID_API
- INVALID_MSG_FORMAT
- INVALID_QUERY_PARAM
- MANDATORY_QUERY_PARAM_INCORRECT
- OPTIONAL_QUERY_PARAM_INCORRECT
- MANDATORY_QUERY_PARAM_MISSING
- MANDATORY_IE_INCORRECT
- OPTIONAL_IE_INCORRECT
- MANDATORY_IE_MISSING
- UNSPECIFIED_MSG_FAILURE
- MODIFICATION_NOT_ALLOWED
- SUBSCRIPTION_NOT_FOUND
- RESOURCE_URI_STRUCTURE_NOT_FOUND
- INCORRECT_LENGTH
- NF_CONGESTION_RISK
- INSUFFICIENT_RESOURCES
- UNSPECIFIED_NF_FAILURE
- SYSTEM_FAILURE
- USER_UNKNOWN
- ERROR_INITIAL_PARAMETERS
- ERROR_TRIGGER_EVENT
- ERROR_TRAFFIC_MAPPING_INFO_REJECTED
- ERROR_CONFLICTING_REQUEST
- POLICY_CONTEXT_DENIED

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4.2.15.9 http-status-code-3xx

Syntax

http-status-code-3xx {**terminate** | **attempt-continue** | **retry-and-terminate** | **ap-continue** | **retry-and-ap-continue**} [**application-error** *app-error-code*]

no http-status-code-3xx [**application-error** *app-error-code*]

Context

[Tree] configure mobile-gateway profile pcf-profile sbi-srvc-operation http-status-code-3xx

Description

This command configures the failure-handling behavior for any message with HTTP status codes 300 to 399. Optionally, a more granular per application-error failure-handling behavior for those codes can be specified. See the **http-status-code** command for more information about priority of configuration and error values.

The **no** form of this command either removes the application error specific failure handling if the **application-error** parameter is specified, or resets the generic code 300-399 failure handling to its default.

Default

http-status-code-3xx terminate

Parameters

application-error

Specifies the Npcf_SMPolicyManagement application error, up to 36 characters.

attempt-continue

Keyword to continue the triggering procedure without removing the SM policy association. This may just fail the procedure or terminate the session depending on whether the procedure can continue without PCF interaction.

ap-continue

Keyword to continue with the session but remove the SM policy association and fall back to the rules defined by the **ap-action** command.

terminate

Keyword to terminate the session.

retry-and-terminate

Keyword that is the same as **terminate**, but first try alternative peers if any are available. This falls back to **terminate** for the **update** and **delete** operations.

retry-and-ap-continue

Keyword that is the same as **ap-continue**, but first try alternative peers if any are available. This falls back to **terminate** for the **update** and **delete** operations.

app-error-code

Specifies the standard application errors, up to 32 characters.

- INVALID_API

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- INVALID_MSG_FORMAT
- INVALID_QUERY_PARAM
- MANDATORY_QUERY_PARAM_INCORRECT
- OPTIONAL_QUERY_PARAM_INCORRECT
- MANDATORY_QUERY_PARAM_MISSING
- MANDATORY_IE_INCORRECT
- OPTIONAL_IE_INCORRECT
- MANDATORY_IE_MISSING
- UNSPECIFIED_MSG_FAILURE
- MODIFICATION_NOT_ALLOWED
- SUBSCRIPTION_NOT_FOUND
- RESOURCE_URI_STRUCTURE_NOT_FOUND
- INCORRECT_LENGTH
- NF_CONGESTION_RISK
- INSUFFICIENT_RESOURCES
- UNSPECIFIED_NF_FAILURE
- SYSTEM_FAILURE
- USER_UNKNOWN
- ERROR_INITIAL_PARAMETERS
- ERROR_TRIGGER_EVENT
- ERROR_TRAFFIC_MAPPING_INFO_REJECTED
- ERROR_CONFLICTING_REQUEST
- POLICY_CONTEXT_DENIED

4.2.15.10 http-status-code-4xx

Syntax

http-status-code-4xx {**terminate** | **attempt-continue** | **retry-and-terminate** | **ap-continue** | **retry-and-ap-continue**} [**application-error** *app-error-code*]

no http-status-code-4xx [**application-error** *app-error-code*]

Context

[Tree] configure mobile-gateway profile pcf-profile sbi-srvc-operation http-status-code-4xx

Description

This command configures the failure-handling behavior for any message with HTTP status codes 400 to 499. Optionally, a more granular per application-error failure handling behavior for those codes can be

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specified. See the **http-status-code** command for more information about priority of configuration and error values.

The **no** form of this command either removes the application error specific failure handling if the **application-error** parameter is specified, or resets the generic code 400-499 failure handling to its default.

Default

http-status-code-4xx terminate

Parameters

attempt-continue

Keyword to continue the triggering procedure without removing the SM policy association. This may just fail the procedure or terminate the session depending on whether the procedure can continue without PCF interaction.

ap-continue

Keyword to continue with the session, but remove the SM policy association and fall back to the rules as defined by the **ap-action** command.

terminate

Keyword to terminate the session.

retry-and-terminate

Same as **terminate**, but first try alternative peers if any are available. This falls back to **terminate** for the **update** and **delete** operations.

retry-and-ap-continue

Same as **ap-continue**, but first try alternative peers if any are available. This falls back to **terminate** for the **update** and **delete** operations.

app-error-code

Standard application errors, up to 32 characters.

- INVALID_API
- INVALID_MSG_FORMAT
- INVALID_QUERY_PARAM
- MANDATORY_QUERY_PARAM_INCORRECT
- OPTIONAL_QUERY_PARAM_INCORRECT
- MANDATORY_QUERY_PARAM_MISSING
- MANDATORY_IE_INCORRECT
- OPTIONAL_IE_INCORRECT
- MANDATORY_IE_MISSING
- UNSPECIFIED_MSG_FAILURE
- MODIFICATION_NOT_ALLOWED
- SUBSCRIPTION_NOT_FOUND
- RESOURCE_URI_STRUCTURE_NOT_FOUND
- INCORRECT_LENGTH

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- NF_CONGESTION_RISK
- INSUFFICIENT_RESOURCES
- UNSPECIFIED_NF_FAILURE
- SYSTEM_FAILURE
- USER_UNKNOWN
- ERROR_INITIAL_PARAMETERS
- ERROR_TRIGGER_EVENT
- ERROR_TRAFFIC_MAPPING_INFO_REJECTED
- ERROR_CONFLICTING_REQUEST
- POLICY_CONTEXT_DENIED

4.2.15.11 http-status-code-5xx

Syntax

http-status-code-5xx {**terminate** | **attempt-continue** | **retry-and-terminate** | **ap-continue** | **retry-and-ap-continue**} [**application-error** *app-error-code*]

no http-status-code-5xx [**application-error** *app-error-code*]

Context

[Tree] configure mobile-gateway profile pcf-profile sbi-srvc-operation http-status-code-5xx

Description

This command specifies the failure handling behavior for any message with HTTP status codes 500 to 599. Optionally, a more granular per application-error failure handling behavior for those codes can be specified. See the **http-status-code** command for more information about priority of configuration and error values.

The **no** form of this command either removes the application error specific failure handling if the **application-error** parameter is specified, or resets the generic code 500-599 failure handling to its default.

Default

http-status-code-5xx terminate

Parameters

attempt-continue

Keyword to continue the triggering procedure without removing the SM policy association. This may just fail the procedure or terminate the session depending on whether the procedure can continue without PCF interaction.

ap-continue

Keyword to continue with the session, but remove the SM policy association and fall back to the rules as defined by the **ap-action** command.

terminate

Keyword to terminate the session.

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retry-and-terminate

Same as **terminate**, but first try alternative peers if any are available. This falls back to **terminate** for the **update** and **delete** operations.

retry-and-ap-continue

Same as **ap-continue**, but first try alternative peers if any are available. This falls back to **terminate** for the **update** and **delete** operations.

app-error-code

Standard application errors, up to 32 characters.

- INVALID_API
- INVALID_MSG_FORMAT
- INVALID_QUERY_PARAM
- MANDATORY_QUERY_PARAM_INCORRECT
- OPTIONAL_QUERY_PARAM_INCORRECT
- MANDATORY_QUERY_PARAM_MISSING
- MANDATORY_IE_INCORRECT
- OPTIONAL_IE_INCORRECT
- MANDATORY_IE_MISSING
- UNSPECIFIED_MSG_FAILURE
- MODIFICATION_NOT_ALLOWED
- SUBSCRIPTION_NOT_FOUND
- RESOURCE_URI_STRUCTURE_NOT_FOUND
- INCORRECT_LENGTH
- NF_CONGESTION_RISK
- INSUFFICIENT_RESOURCES
- UNSPECIFIED_NF_FAILURE
- SYSTEM_FAILURE
- USER_UNKNOWN
- ERROR_INITIAL_PARAMETERS
- ERROR_TRIGGER_EVENT
- ERROR_TRAFFIC_MAPPING_INFO_REJECTED
- ERROR_CONFLICTING_REQUEST
- POLICY_CONTEXT_DENIED

4.2.15.12 retry-count

Syntax

retry-count *max*

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no retry-count

Context

[Tree] configure mobile-gateway profile pcf-profile sbi-srvc-operation retry-count

Description

This command configures the maximum number of times a message is retransmitted if there is no reply after the message is sent. The message is resent after the time configured by the following command elapses and until the maximum number of retries is reached. If the message times out after the last retry, failure handling is triggered.

```
configure mobile-gateway profile pcf-profile sbi-srvc-operation transaction-timer
```

The **no** form of this command configures that no retries are attempted.

Default

no retry-count

Parameters

max

Specifies the maximum number of retries to resend the message.

Values: 1 to 10

4.2.15.13 transaction-timer

Syntax

transaction-timer *value*

Context

[Tree] configure mobile-gateway profile pcf-profile sbi-srvc-operation transaction-timer

Description

This command configures the transaction time used to send messages to the PCF. If there is no reply during the transaction time, the message is resent until the retry count configured by the following command is reached. If the message times out after the last retry, failure handling is triggered.

The following command configures the retry counter.

```
configure mobile-gateway profile pcf-profile sbi-srvc-operation retry-count
```

Default

transaction-timer 5000

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Parameters

value

Specifies the transaction timer value, in milliseconds.

Values: 1000 to 20000

4.2.15.14 supported-features

Syntax

supported-features

Context

[Tree] configure mobile-gateway profile pcf-profile supported-features

Description

Commands in this context configure supported features for the PCF profile. These features are signaled in the suppFeat IE when generating messages toward the PCF.

4.2.15.15 policy-decision-error-handling

Syntax

no policy-decision-error-handling

policy-decision-error-handling

Context

[Tree] configure mobile-gateway profile pcf-profile supported-features policy-decision-error-handling

Description

This command configures signaling of the PolicyDecisionErrorHandling feature within the suppFeat IE.

The **no** form of this command disables signaling of PolicyDecisionErrorHandling.

Default

no policy-decision-error-handling

4.2.15.16 resp-based-session-rel

Syntax

no resp-based-session-rel

resp-based-session-rel

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Context

[Tree] configure mobile-gateway profile pcf-profile supported-features resp-based-session-rel

Description

This command configures support to signal the RespBasedSessionRel feature within the suppFeat IE.

The **no** form of this command disables signaling of the RespBasedSessionRel feature.

Default

no resp-based-session-rel

4.2.15.17 session-rule-error-handling

Syntax

no session-rule-error-handling

session-rule-error-handling

Context

[Tree] configure mobile-gateway profile pcf-profile supported-features session-rule-error-handling

Description

This command configures signaling of the SessionRuleErrorHandling feature within the suppFeat IE.

The **no** form of this command disables signaling of the SessionRuleErrorHandling feature.

Default

no session-rule-error-handling

4.2.15.18 unlimited-multi-ipv6-prefix

Syntax

no unlimited-multi-ipv6-prefix

unlimited-multi-ipv6-prefix

Context

[Tree] configure mobile-gateway profile pcf-profile supported-features unlimited-multi-ipv6-prefix

Description

This command configures signaling of the MultiIpv6AddrPrefix feature within the suppFeat IE.

The **no** form of this command disables signaling of the MultiIpv6AddrPrefix feature.

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Default

no unlimited-multi-ipv6-prefix

4.2.16 configure mobile-gateway profile pcmd command descriptions

4.2.16.1 pcmd

Syntax

[**no**] **pcmd** *profile-name*

Context

[Tree] configure mobile-gateway profile pcmd

Description

This command specifies a new or existing PCMD profile that is used to configure the settings related to PCMD, including the report destination, report type, and transmission heartbeat. To modify or remove a PCMD profile, first remove all associations to the profile.

The **no** form of this command removes the PCMD profile and all associated configurations.

Parameters

profile-name

Specifies the unique, case-sensitive name for the PCMD profile, up to 32 characters.

4.2.16.2 data-report

Syntax

data-report

Context

[Tree] configure mobile-gateway profile pcmd data-report

Description

Commands in this context configure the PCMD data report generation, including the report type and collection period.

4.2.16.3 generation

Syntax

generation *generation-type*

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no generation

Context

[Tree] configure mobile-gateway profile pcmd data-report generation

Description

This command configures how PCMD data records are generated.

The **no** form of this command disables data record generation.

Default

no generation

Parameters

generation-type

Specifies the PCMD data record generation mode for the data report.

Value:

- event-based – keyword to generate PCMD data records according to charging events; requires charging functionality and configuration on the MAG-c

4.2.16.4 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile pcmd description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Default

no description

Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

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4.2.16.5 destination

Syntax

destination {*ip-addr* | *fqdn*} [**port** *port*] [**router** *router-instance*]

no destination

Context

[Tree] configure mobile-gateway profile pcmd destination

Description

This command configures the destination for the PCMD records.

The **no** form of this command removes the configured destination.

Parameters

ip-addr | *fqdn*

Specifies the IPv4 or IPv6 address or FQDN.

DNS resolution is performed only once, either when the PCMD profile is assigned to a PDN, or when the PDN is set to the no shutdown state.

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D
- fqdn – Fully qualified domain name, up to 255 characters or per-label maximum 63.

port-number

Specifies the port number.

Values: 1 to 65535

Default: 29780

router-instance

Specifies the router name or service ID.

Values: *router-name* | *service-id*

- *router-name* – Base
- *service-id* – 1 to 2147483647

Default: Base

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4.2.16.6 heartbeat

Syntax

heartbeat [**period** *period*]

no heartbeat

Context

[Tree] configure mobile-gateway profile pcmd heartbeat

Description

This command configures the PCMD heartbeat transmission.

The **no** form of this command disables the heartbeat transmission.

Default

heartbeat 10

Parameters

period

Specifies the PCMD heartbeat transmission period in seconds.

Values: 1 to 120 s

4.2.16.7 session-report

Syntax

session-report

Context

[Tree] configure mobile-gateway profile pcmd session-report

Description

Commands in this context configure the session report generation, such as the verbosity of the reports.

4.2.16.8 verbosity

Syntax

verbosity *verbosity-type*

no verbosity

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Context

[Tree] configure mobile-gateway profile pcmd session-report verbosity

Description

This command configures the type of session reports being sent, such as failure-only, extended, or standard containers.

The **no** form of this command reverts to the default.

Default

verbosity standard

Parameters

verbosity-type

Specifies the report type.

Values:

- **failure-only**
  Reports only failed cases that use the extended structure for PCMD records. The report contains mandatory, conditional, optional, and conditional-optional fields.
- **standard**
  Reports failed cases that use the extended structure of PCMD records and successful cases that use the basic structure of PCMD records. The report contains only mandatory and conditional fields.
- **extended**
  Reports both failed and successful cases that use the extended structure of PCMD records.

4.2.17 configure mobile-gateway profile pfcp command descriptions

4.2.17.1 pfcp

Syntax

pfcp

Context

[Tree] configure mobile-gateway profile pfcp

Description

Commands in this context configure a PFCP profile.

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4.2.17.2 pfcp-association-peer-list

Syntax

[**no**] **pfcp-association-peer-list** *profile-name*

Context

[Tree] configure mobile-gateway profile pfcp pfcp-association-peer-list

Description

This command creates a PFCP association peer list profile.

The **no** form of this command removes the profile from the configuration.

Parameters

profile-name

Specifies the name for the profile, up to 32 characters.

4.2.17.3 description

Syntax

description *long-description-string*

no description

Context

[Tree] configure mobile-gateway profile pfcp pfcp-association-peer-list description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Parameters

long-description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.17.4 node-id

Syntax

[**no**] **node-id** *node-id*

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Context

[Tree] configure mobile-gateway profile pfcp pfcp-association-peer-list node-id

Description

This multi-entry command configures a node ID string of the remote PFCP peer.

The **no** form of this command removes the specified node ID of the remote PFCP peer from the configuration.

Parameters

node-id

Specifies the node ID of the remote PFCP peer, up to 31 characters.

4.2.17.5 bfd-enable

Syntax

[**no**] **bfd-enable**

Context

[Tree] configure mobile-gateway profile pfcp pfcp-association-peer-list node-id bfd-enable

Description

This command enables the BFD association with the PFCP peer. The MAG-c uses the BFD state to determine the route convergence toward itself, before triggering a PFCP Association Setup Request toward the PFCP peers.

The **no** form of this command disables the BFD association with the PFCP peer.

Note:

- When this feature is used on the UP function, only a single IP address peer can be configured.
- To monitor the BFD status for PFCP interfaces, use the following command with the appropriate router ID.

```
show router bfd session
```

Note: For more information about the preceding command, see the SR OS documentation.

Default

no bfd-enable

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4.2.17.6 pfcp-peer

Syntax

[**no**] **pfcp-peer** *ipv4* | *ipv6*

Context

[Tree] configure mobile-gateway profile pfcp pfcp-association-peer-list pfcp-peer

Description

This multi-entry command configures the IPv4 or the IPv6 address of the remote PFCP peer.

The **no** form of this command removes the specified IPv4 or the IPv6 address of the remote PFCP peer from the configuration.

Parameters

ipv4 **|** *ipv6*

Specifies the peer's IP address.

Values:

- ipv4 – a.b.c.d
- ipv6 – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D

4.2.17.7 bfd-enable

Syntax

[**no**] **bfd-enable**

Context

[Tree] configure mobile-gateway profile pfcp pfcp-association-peer-list pfcp-peer bfd-enable

Description

This command enables the BFD association with the PFCP peer. The MAG-c uses the BFD state to determine route convergence toward itself, before triggering a PFCP Association Setup Request toward the PFCP peers.

The **no** form of this command disables the BFD association with the PFCP peer.

Note:

- When this feature is used on the UP function, only a single IP address peer can be configured.

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- To monitor the BFD status for PFCP interfaces, use the following command with the appropriate router ID.

```
show router bfd session
```

Note: For more information about the preceding command, see the SR OS documentation.

Default

no bfd-enable

4.2.17.8 pfcp-profile

Syntax

[**no**] **pfcp-profile** *profile-name*

Context

[Tree] configure mobile-gateway profile pfcp pfcp-profile

Description

This command creates a PFCP profile.

The **no** form of this command removes the profile from the configuration.

Default

pfcp-profile "default"

Parameters

profile-name

Specifies the name for the profile, up to 32 characters.

4.2.17.9 association-retry-timer

Syntax

association-retry-timer *retry-time*

Context

[Tree] configure mobile-gateway profile pfcp pfcp-profile association-retry-timer

Description

This command configures the retry time between sending an association request in case of a PFCP interface path fault or if the initial association setup request fails.

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Default

association-retry-timer 10

Parameters

retry-time

Specifies the time between retries for sending an association request, in seconds.

Values: 1 to 36000

4.2.17.10 audit-ip-dscp

Syntax

audit-ip-dscp *audit-ip-dscp-value*

no audit-ip-dscp

Context

[Tree] configure mobile-gateway profile pfcp pfcp-profile audit-ip-dscp

Description

This command configures PFCP audit messages to use the DSCP value specified for **audit-ip-dscp** instead of the configured **ip-dscp** value.

The **no** form of this command causes PFCP audit messages to use the configured **ip-dscp** value.

Default

no audit-ip-dscp

Parameters

audit-ip-dscp-value

Specifies the DSCP value sent in IPv4 and IPv6 PFCP audit messages.

Values: 0 to 63

4.2.17.11 description

Syntax

description *long-description-string*

no description

Context

[Tree] configure mobile-gateway profile pfcp pfcp-profile description

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Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Parameters

long-description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.17.12 heart-beat

Syntax

heart-beat [**interval** *seconds*] [**retry-count** *retry-count-value*] [**timeout** *timeout-value*]

Context

[Tree] configure mobile-gateway profile pfcp pfcp-profile heart-beat

Description

This command configures the heartbeat attributes for the PFCP profile. When configured, heartbeats are sent when the PFCP node association has been successfully set up. The gateway sends a heartbeat message at the time specified in the **interval** keyword. If a PFCP Heartbeat Response is not received within the time specified in the **timeout** keyword, the gateway retries the timeout wait period, for the number of times specified in the **retry-count** keyword.

Default

heart-beat interval 60 retry-count 4 timeout 5

Parameters

seconds

Specifies the heartbeat message interval.

Values: 60 to 180

retry-count-value

Specifies the number of retries.

Values: 1 to 15

timeout-value

Specifies the timeout interval, in seconds.

Values: 1 to 20

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4.2.17.13 ip-dscp

Syntax

ip-dscp *ip-dscp-value*

no ip-dscp

Context

[Tree] configure mobile-gateway profile pfcp pfcp-profile ip-dscp

Description

This command configures the DSCP value in the IP Header used for PFCP signaling messages.

The **no** form of this command reverts to the default.

Default

ip-dscp 56

Parameters

ip-dscp-value

Specifies the DSCP value.

Values: 0 to 63

4.2.17.14 ip-ttl

Syntax

ip-ttl *ip-ttl-value*

no ip-ttl

Context

[Tree] configure mobile-gateway profile pfcp pfcp-profile ip-ttl

Description

This command configures the IP TTL value used for PFCP signaling messages.

The **no** form of this command reverts to the default.

Default

ip-ttl 255

Parameters

ip-ttl-value

Specifies the IP TTL value.

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Values: 0 to 255

4.2.17.15 message-retransmit

Syntax

message-retransmit [**timeout** *timeout*] [**timeout-msec** *timeout-msec*] [**retry-count** *retry-count-value*]

Context

[Tree] configure mobile-gateway profile pfcp pfcp-profile message-retransmit

Description

This command configures the PFCP message retransmit timeout and retry count values. The retransmit timeout consists of T1 and N1 values. T1 is the time period that the PFCP waits before re-attempting the request message if there is no response to an initial request message. T1 can be configured either in seconds (**timeout**) or milliseconds (**timeout-msec**). N1 is the maximum number of times that the FPCP attempts to send a message. N1 can be configured by specifying the value of the **retry-count** keyword.

Default

message-retransmit timeout 1 retry-count 3

Parameters

timeout

Specifies the time that the PFCP waits before resending a message if there is no response to an initial message, in seconds.

Values: 1 to 30

timeout-msec

Specifies the time that the PFCP waits before resending a message if there is no response to an initial message, in milliseconds.

Values: 1000 to 3000 (increments of 100)

Note: You can specify either the **timeout** or the **timeout-msec** keywords.

retry-count-value

Specifies the number of times the PFCP attempts to send a message.

Values: 1 to 8

4.2.17.16 path-restoration-time

Syntax

path-restoration-time *minutes*

no path-restoration-time

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Context

[Tree] configure mobile-gateway profile pfcp pfcp-profile path-restoration-time

Description

This command configures the path restoration time for the PFCP profile. A PFCP path is kept for the configured number of minutes after a path failure is detected. After the time expires, the path is considered down and all related sessions are removed. If the path recovers before the time expires, the system triggers an audit of all sessions related to that path.

The **no** form of this command disables the restoration time.

Default

no path-restoration-time

Parameters

minutes

Specifies the number of minutes a path can wait for the restoration procedures.

Values: 1 to 1440

4.2.17.17 pfcp-translate-profile

Syntax

[**no**] **pfcp-translate-profile** *profile-name*

Context

[Tree] configure mobile-gateway profile pfcp pfcp-translate-profile

Description

This command creates a PFCP message translation function profile for sending selective subscriber information values in the PFCP IEs. Use the following command to associate the profile with an APN.

```
configure mobile-gateway pdn apn pfcp-translate-tx
```

The **no** form of this command removes the specified profile from the configuration.

Parameters

profile-name

Specifies the profile name, up to 32 characters.

4.2.17.18 description

Syntax

[**no**] **description** *description-string*

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Context

[Tree] configure mobile-gateway profile pfcp pfcp-translate-profile description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Default

no description

Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.17.19 field

Syntax

[**no**] **field** *name*

Context

[Tree] configure mobile-gateway profile pfcp pfcp-translate-profile field

Description

This command configures the fields to forward to the UP in the PFCP message.

The **no** form of this command excludes the specified field from being forwarded to the UP.

Parameters

name

Specifies the field name to include in the PFCP messages to the BNG-UP.

Values:

- pcc-rule-name – PCC rule name field
- rat-type – RAT type field
- user-location – user location field
- default-qos-id – QCI (4G) or 5QI (5G) field
- serving-node-id – MME or AMF IP address field
- content-filtering-policy-id – content filtering policy ID field

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4.2.17.20 up-peer-list

Syntax

[**no**] **up-peer-list** *list-name*

Context

[Tree] configure mobile-gateway profile pfcp up-peer-list

Description

This command creates a list of BNG-UPs.

The **no** form of this command removes the list from the configuration.

Parameters

list-name

Specifies the name for the list, up to 32 characters.

4.2.17.21 description

Syntax

description *long-description-string*

no description

Context

[Tree] configure mobile-gateway profile pfcp up-peer-list description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Parameters

long-description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.17.22 peer

Syntax

[**no**] **peer** *ipv4* | *ipv6*

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Context

[Tree] configure mobile-gateway profile pfcp up-peer-list peer

Description

This multi-entry command specifies the IPv4 or the IPv6 address of the user plane peer.

Parameters

ipv4 | *ipv6*

Specifies the user plane peer's IP address.

Values:

- ipv4 – a.b.c.d
- ipv6 – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D

4.2.17.23 apn

Syntax

[**no**] **apn** *apn-name*

Context

[Tree] configure mobile-gateway profile pfcp up-peer-list peer apn

Description

This multi-entry command specifies the APN names associated with the user plane peer. This is used when selecting an FWA-UP for FWA sessions.

Parameters

apn-name

Specifies an APN name, up to 80 characters.

4.2.17.24 group-label

Syntax

[**no**] **group-label** *profile-name*

Context

[Tree] configure mobile-gateway profile pfcp up-peer-list peer group-label

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Description

This command configures a group label for the UP peer. The group label creates a logical grouping of target nodes with selection criteria based on different parameters (APN, TAI, and so on). A maximum of five groups can be associated with a PFCP peer.

The **no** form of this command removes the specified group label from the PFCP peer.

Parameters

profile-name

Specifies an existing group label, up to 32 characters, that was previously configured using the following command.

```
configure mobile-gateway profile node-selection group-label
```

4.2.17.25 upf-id

Syntax

upf-id uuid *uuid*

no upf-id

Context

[Tree] configure mobile-gateway profile pfcp up-peer-list peer upf-id

Description

This command configures a universally unique identifier (UUID) that identifies the UPF. The MAG-c sends this UUID in interfaces where a network function instance ID (NFInstanceID) for the UP is expected; for example, in the uPFID element of the ConvergedCharging interface to the CHF.

Parameters

uuid

Specifies the UUID identifying the UPF.

Values: xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx
where

x – [0..F]H

4.2.17.26 upf-selection

Syntax

upf-selection {**true** | **false**}

no upf-selection

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Context

[Tree] configure mobile-gateway profile pfcp up-peer-list peer upf-selection

Description

This command configures a peer that is defined in the UP peer list to be selectable (upf-selection **true**) or not selectable (upf-selection **false**) for FWA sessions. This enables UPF selection to be suspended, to support on-the-fly configuration of the PFCP association list and UP peer list. When UPF selection is set to false, the CP function does not select the peer for any new FWA sessions, therefor enabling the peer to gracefully drain its existing sessions before it is taken out of service. While in this mode, the MAG-c continues to handle existing sessions and to run PFCP path management with the peer.

The **no** form of this command reverts to the default state; UPF selection is true (selectable).

Note:

- The default state for the UPF selection of a new peer depends on the method used to add the peer to the UP peer list:
  1. If using CLI configuration through a console, UPF selection of a new peer is automatically false. This ensures that the peer is not selected for new PDN/PDU sessions until it has been fully added and is ready to be selected.
  2. If executing the admin save config file without UPF selection configured in it, UPF selection is automatically allowed (true).
- Changing the UPF selection is only allowed for existing peers. You must not add a new peer and set the UP selection in the same command execution (in a single line). Changing the UPF selection state is permitted after the peer has been added.

Default

no upf-selection

4.2.18 configure mobile-gateway profile policy-options command descriptions

4.2.18.1 policy-options

Syntax

policy-options

Context

[Tree] configure mobile-gateway profile policy-options

Description

Commands in this context create and configure MAG-c traffic policies. Use the following commands when configuring traffic policy options:

- **begin** command to enter the transactional editing mode
- **commit** command to apply policy changes and exit the transactional editing mode

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- **abort** command to discard changes and exit the transactional editing mode
- **diff** command to view the difference between the candidate (configured) and currently active policies

4.2.18.2 abort

Syntax

abort

Context

[Tree] configure mobile-gateway profile policy-options abort

Description

This command ends the current policy editing session entered via the **begin** command and discards changes made to policies during the editing session.

4.2.18.3 action-rule-unit

Syntax

[**no**] **action-rule-unit** *aru-name*

Context

[Tree] configure mobile-gateway profile policy-options action-rule-unit

Description

This command configures an action rule unit (ARU) to associate with a predefined PCC rule.

The **no** form of this command removes the specified configuration.

Parameters

aru-name

Specifies the ARU name, up to 32 characters.

4.2.18.4 app-profile-name

Syntax

app-profile-name *profile-name*

no app-profile-name

Context

[Tree] configure mobile-gateway profile policy-options action-rule-unit app-profile-name

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Description

This command specifies an existing AA application profile name. If an application profile is not configured under the action-rule unit (ARU), or the ARU is not associated with a policy rule, the MAG-c selects the application profile from the next highest priority policy rule.

The **no** form of this command removes the configuration.

Parameters

profile-name

Specifies the name of an existing AA application profile, up to 32 characters.

Note: The name of the application profile configured on the SMF must match the application profile configured on the UPF in the following context.

```
configure application-assurance group policy app-profile
```

If it is not configured on the UPF, the session is rejected. See the *7450 ESS, 7750 SR, 7950 XRS, and VSR MD-CLI Command Reference Guide* and the *7450 ESS, 7750 SR, 7950 XRS, and VSR Classic CLI Command Reference Guide* for more information.

4.2.18.5 begin

Syntax

begin

Context

[Tree] configure mobile-gateway profile policy-options begin

Description

This command enables the policy editing mode. It is required for all configuration changes under the **policy-options** context. The editing session continues until an **abort** or **commit** command is issued, or a control complex reset takes place. Modifications done during the editing session take effect when the **commit** command is issued. Editing sessions are not interrupted by high-availability activity switches or CLI session terminations, such as closing a Telnet session.

4.2.18.6 commit

Syntax

commit

Context

[Tree] configure mobile-gateway profile policy-options commit

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Description

This command saves the changes that were made during the current policy editing session. Policy changes made during the editing session take effect only when they are committed. If the changes are successfully committed, with no errors detected during the commit or cross-reference verification against the existing policy configuration, the editing session is closed.

4.2.18.7 diff

Syntax

diff

Context

[Tree] configure mobile-gateway profile policy-options diff

Description

This command displays the uncommitted changes made during a policy editing session.

4.2.18.8 policy-rule

Syntax

policy-rule *policy-rule-name* **policy-rule-unit** *policy-rule-unit-name* [**qci** *qci*] [**arp** *arp-value*] **precedence** *precedence* [**action-rule-unit** *aru-name*]

no policy-rule *policy-rule-name*

Context

[Tree] configure mobile-gateway profile policy-options policy-rule

Description

This command configures a policy rule. Changes made during the editing session (**begin** command) take effect only when they are committed. If the changes are successfully committed, with no errors detected during the commit or cross-reference verification against the existing policy configuration, the editing session is also closed.

The **no** form of this command removes the specified policy rule.

Parameters

policy-rule-name

Specifies the name of the policy rule, up to 64 characters.

policy-rule-unit name

Specifies the policy rule unit name, up to 32 characters.

qci

Specifies the value of the QCI.

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Values: 1 to 255 | * (where * means wildcard)

arp-value

Specifies the ARP value.

Values: 1 to 15 | * (where * means wildcard)

precedence

Specifies the precedence value.

Values: 0 to 65535

aru-name

Specifies an existing ARU name, up to 32 characters, configured using the following command.

```
configure mobile-gateway profile policy-options action-rule-unit
```

4.2.18.9 policy-rule-base

Syntax

[**no**] **policy-rule-base** *base-policy-name*

Context

[Tree] configure mobile-gateway profile policy-options policy-rule-base

Description

This command configures the base policy. By default, the system supports modifications to policies installed on a UE (via PCF) without the need to remove them from the UE session. Changes to the base policy are applied dynamically to existing sessions.

The **no** form of this command removes the specified base policy.

Parameters

base-policy-name

Specifies the base policy name, up to 64 characters.

4.2.18.10 aa-adv-functions

Syntax

aa-adv-functions

Context

[Tree] configure mobile-gateway profile policy-options policy-rule-base aa-adv-functions

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Description

Commands in this context configure AA advanced functions for the base policy.

4.2.18.11 app-profile-name

Syntax

app-profile-name *profile-name*

no app-profile-name

Context

[Tree] configure mobile-gateway profile policy-options policy-rule-base aa-adv-functions app-profile-name

Description

This command specifies the application assurance (AA) profile name.

The **no** form of this command removes the profile name from the configuration.

Parameters

profile-name

Specifies the profile name, up to 16 characters.

Note: The name of the application profile configured on the SMF must match the application profile configured on the UPF in the context **configure application-assurance group policy app-profile**. If it is not configured on the UPF, the session is rejected. See the *7450 ESS, 7750 SR, 7950 XRS, and VSR MD-CLI Command Reference Guide* and the *7450 ESS, 7750 SR, 7950 XRS, and VSR Classic CLI Command Reference Guide* for more information.

4.2.18.12 policy-rule

Syntax

[**no**] **policy-rule** *policy-rule-name*

Context

[Tree] configure mobile-gateway profile policy-options policy-rule-base policy-rule

Description

This command configures the policy rule for the base policy.

The **no** form of this command removes the specified policy rule.

Parameters

policy-rule-name

Specifies the policy rule name, up to 64 characters.

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4.2.18.13 policy-rule-unit

Syntax

[**no**] **policy-rule-unit** *policy-name*

Context

[Tree] configure mobile-gateway profile policy-options policy-rule-unit

Description

This command configures the policy rule unit (PRU). By default, the system supports modifications to policies that are referenced under an APN or installed on a UE (via PCF or static PCC configuration), without having to remove them from the APN or the UE session. Changes are applied to existing sessions.

The **no** form of this command removes the specified PRU.

Parameters

policy-name

Specifies the PRU name, up to 32 characters.

4.2.18.14 description

Syntax

description *long-description-string*

no description

Context

[Tree] configure mobile-gateway profile policy-options policy-rule-unit description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Parameters

long-description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

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4.2.18.15 flow-description

Syntax

[**no**] **flow-description** *entry-id*

Context

[Tree] configure mobile-gateway profile policy-options policy-rule-unit flow-description

Description

This command configures the identifier for a specific policy rule unit (PRU) flow.

The **no** form of this command removes the specified identifier.

Parameters

entry-id

Specifies the entry identifier.

Values: 1 to 255

4.2.18.16 direction

Syntax

direction {**up-link** | **down-link** | **both**}

Context

[Tree] configure mobile-gateway profile policy-options policy-rule-unit flow-description direction

Description

This command configures the applicable direction for the flow.

Default

direction both

Parameters

{up-link | down-link | both}

Keywords to specify the flow direction.

Default: both

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4.2.18.17 match

Syntax

match

Context

[Tree] configure mobile-gateway profile policy-options policy-rule-unit flow-description match

Description

Commands in this context configure match conditions for the PRU flow description.

4.2.18.18 local-port

Syntax

local-port {**eq**} *lcl-port-number*

local-port range *start end*

no local-port

Context

[Tree] configure mobile-gateway profile policy-options policy-rule-unit flow-description match local-port

Description

This command configures the local port match condition. When configuring a port range, at least two port numbers need to match for a valid condition.

The **no** form of this command removes the configuration.

Default

no local-port

Parameters

eq

Keyword to specify the operator "is equal to".

lcl-port-number

Specifies the port number.

Values: for eq – 0 to 65535

start

Specifies the start of the port number range.

Values: 0 to 65534 with *start* < *end*

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end

Specifies the end of the port number range.

Values: 1 to 65535 with *start* < *end*

4.2.18.19 protocol

Syntax

protocol *protocol-id*

no protocol

Context

[Tree] configure mobile-gateway profile policy-options policy-rule-unit flow-description match protocol

Description

This command configures the protocol match condition.

The **no** form of this command removes the configuration.

Parameters

protocol-id

Specifies the protocol ID.

Values:

- decimal value – 0 to 255
- keyword – none | crtp | crudp | egp | eigrp | encap | ether-ip || gre| I cmp | idrp | igmp | igp | ip | ipv6 | ipv6-frag | ipv6-icmp | ipv6-no-nxt | ipv6-opts | ipv6-route | isis | iso-ip | l2tp | ospf-igp | pim | pnni | ptp | rdp | rsvp | stp | tcp | udp | vrrp | sctp

4.2.18.20 remote-ip

Syntax

remote-ip {*ip-prefix*/*ip-prefix-length*}

no remote-ip

Context

[Tree] configure mobile-gateway profile policy-options policy-rule-unit flow-description match remote-ip

Description

This command configures the remote IP match condition.

The **no** form of this command removes the configuration.

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Parameters

ip-prefix

Specifies the IP prefix.

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

ip-prefix-length

Specifies the IP prefix length.

Values:

- IPv4 prefix length – 1 to 32
- IPv6 prefix length – 1 to 128

4.2.18.21 remote-port

Syntax

remote-port {**eq**} *rmt-port-number*

remote-port range *start end*

no remote-port

Context

[Tree] configure mobile-gateway profile policy-options policy-rule-unit flow-description match remote-port

Description

This command configures the remote port match condition. When configuring a port range, at least two port numbers need to match for a valid condition.

The **no** form of this command removes the configuration.

Default

no remote-port

Parameters

eq

Keyword to specify the operator "is equal to".

rmt-port-number

Specifies the port number.

Values: for eq – 0 to 65535

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start

Specifies the start of the port number range.

Values: 0 to 65534 with *start* less than *end*

end

Specifies the end of the port number range.

Values: 1 to 65535 with *start* less than *end*

4.2.18.22 tos-tc

Syntax

tos-tc *dscp-value*

no tos-tc

Context

[Tree] configure mobile-gateway profile policy-options policy-rule-unit flow-description match tos-tc

Description

This command configures the PCC rule match criteria to include the Type of Service (ToS) traffic class (TC) Differentiated Services Code Point (DSCP).

The **no** form of this command reverts to the default.

Default

no tos-tc

Parameters

dscp-value

Specifies the DSCP value.

Note: Nokia uses only the DSCP part of the ToS/TC value and a fixed mask (0xFC).

Values: 0 to 63

4.2.18.23 flow-gate-status

Syntax

flow-gate-status *flow-gate-status*

Context

[Tree] configure mobile-gateway profile policy-options policy-rule-unit flow-gate-status

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Description

This command configures the applicable direction for the flow.

Default

flow-gate-status allow

Parameters

flow-gate-status

Specifies the direction of the flow.

Values: allowUL | allowDL | allow | drop

Default: allow

4.2.18.24 qos

Syntax

qos

Context

[Tree] configure mobile-gateway profile policy-options policy-rule-unit qos

Description

Commands in this context configure the QoS options for the PRU.

4.2.18.25 down-link

Syntax

down-link gbr *Guaranteed Bit Rate* **mbr** *Maximum Bit Rate*

no down-link

Context

[Tree] configure mobile-gateway profile policy-options policy-rule-unit qos down-link

Description

This command configures the downlink GBR and MBR rates for the associated SDF in the PCC rule.

The **no** form of this command reverts to the default.

Default

down-link gbr 0 mbr 0

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Parameters

Guaranteed Bit Rate

Specifies the GBR in kilobits per second.

Values: 0 to 25000000

Default: 0

Maximum Bit Rate

Specifies the MBR in kilobits per second.

Values: 0 to 25000000

Default: 0

4.2.18.26 up-link

Syntax

up-link gbr *Guaranteed Bit Rate* **mbr** *Maximum Bit Rate*

no up-link

Context

[Tree] configure mobile-gateway profile policy-options policy-rule-unit qos up-link

Description

This command configures the uplink GBR and MBR rates for the associated SDF in the PCC rule.

The **no** form of this command reverts to the default.

Default

up-link gbr 0 mbr 0

Parameters

Guaranteed Bit Rate

Specifies the GBR in kilobits per second.

Values: 0 to 25000000

Default: 0

Maximum Bit Rate

Specifies the MBR in kilobits per second.

Values: 0 to 25000000

Default: 0

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4.2.18.27 qci-policy

Syntax

[**no**] **qci-policy** *policy-name*

Context

[Tree] configure mobile-gateway profile policy-options qci-policy

Description

This command configures a QCI policy that is used to map QCI (5QI) and ARP values to different QoS values such as DSCP values.

The **no** form of this command removes the configured policy.

Default

qci-policy "default"

Parameters

policy-name

Specifies the name of the QCI policy, up to 32 characters.

4.2.18.28 description

Syntax

description *long-description-string*

no description

Context

[Tree] configure mobile-gateway profile policy-options qci-policy description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Default

no description

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Parameters

long-description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.18.29 qci

Syntax

qci *qci-value* **arp** *arp-value*

Context

[Tree] configure mobile-gateway profile policy-options qci-policy qci

Description

This command configures QoS values for a specific QCI (5QI) and ARP value.

Default

The default QoS values for each QCI differs and can be retrieved by executing the **info detail** command directly under the QCI policy.

Parameters

qci-value

Specifies the QCI/5QI value.

Values: 1 to 255

arp-value

Specifies a specific ARP value or all ARP values.

Values: 1 to 15, or * (wildcard) to specify all ARP values

4.2.18.30 dscp

Syntax

dscp {*dscp-name* | **in** *dscp-name* [**out** *dscp-name*] | **out** *dscp-name* [**in** *dscp-name*]}

no dscp

Context

[Tree] configure mobile-gateway profile policy-options qci-policy qci dscp

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Description

This command specifies the DSCP values. You can specify a combined value for the uplink (**in**) and downlink (**out**) value or a separate value for each direction. To apply these DSCP values on the FWA UP, the **dscp-preserve** command must be disabled.

The **no** form of this command reverts to the default.

Default

The default DSCP depends on the QCI value:

- 1 – nc2 (in) - nc2 (out)
- 2 – ef (in) – ef (out)
- 3 – af41 (in) – af42 (out)
- 4 – nc1 (in) – nc1 (out)
- 5 – af21 (in) – af22 (out)
- 6 – af11 (in) – af12 (out)
- 7 – af11 (in) – af12 (out)
- 8 – cs1 (in) – cs1 (out)
- 9 to 255 – be (in) – be (out)

Parameters

dscp-name

Specifies the DSCP name.

Values: be | ef | cp1 | cp2 | cp3 | cp4 | cp5 | cp6 | cp7 | cp9 | cs1 | cs2 | cs3 | cs4 | cs5 | nc1 | nc2 | af11 | af12 | af13 | af21 | af22 | af23 | af31 | af32 | af33 | af41 | af42 | af43 | cp11 | cp13 | cp15 | cp17 | cp19 | cp21 | cp23 | cp25 | cp27 | cp29 | cp31 | cp33 | cp35 | cp37 | cp39 | cp41 | cp42 | cp43 | cp44 | cp45 | cp47 | cp49 | cp50 | cp51 | cp52 | cp53 | cp54 | cp55 | cp57 | cp58 | cp59 | cp60 | cp61 | cp62 | cp63

4.2.18.31 dscp-preserve

Syntax

[**no**] **dscp-preserve**

Context

[Tree] configure mobile-gateway profile policy-options qci-policy qci dscp-preserve

Description

This command configures to use the incoming DSCP values, instead of the DSCP values configured using the following command. The MAG-c does not signal the configured values to the FWA-UP in PFCP messages.

```
configure mobile-gateway profile policy-options qci-policy qci dscp
```


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The **no** form of this command configures to use the DSCP values configured using the preceding command and override the incoming DSCP values. The MAG-c signals the configured DSCP values to the FWA-UP in PFCP messages.

Default

dscp-preserve

4.2.19 configure mobile-gateway profile priority-mapping command descriptions

4.2.19.1 priority-mapping

Syntax

[**no**] **priority-mapping** *name*

Context

[Tree] configure mobile-gateway profile priority-mapping

Description

This command configures a priority-mapping profile.

The **no** form of this command removes the specified priority-mapping profile.

Parameters

name

Specifies a profile name, up to 32 characters.

4.2.19.2 arp

Syntax

[**no**] **arp** *arp-value*

Context

[Tree] configure mobile-gateway profile priority-mapping arp

Description

This command configures an ARP value for priority-service handling for the priority mapping profile.

The **no** form of this command removes the ARP value.

Parameters

arp-value

Specifies the ARP value.

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Values: 1 to 15

4.2.19.3 priority

Syntax

priority *value*

Context

[Tree] configure mobile-gateway profile priority-mapping arp priority

Description

This command configures the priority identifier for the configured ARP for priority-service handling for the mapping profile.

Default

priority 1

Parameters

value

Specifies the priority identifier for the ARP priority mapping.

Values: 1 to 4

4.2.19.4 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile priority-mapping description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Default

no description

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Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.19.5 gtp-rx-message-priority

Syntax

[**no**] **gtp-rx-message-priority** *value*

Context

[Tree] configure mobile-gateway profile priority-mapping gtp-rx-message-priority

Description

This command configures a message priority value received in the GTP signaling message header for priority service handling for the priority-mapping profile.

The **no** form of this command removes the specified GTP signaling message priority value from the mapping profile.

Default

gtp-rx-message-priority *

Parameters

value

Specifies a GTP signaling message priority value or the wildcard (*) for all message priority values.

Values: [0 to 15] | *

4.2.19.6 priority

Syntax

priority *value*

Context

[Tree] configure mobile-gateway profile priority-mapping gtp-rx-message-priority priority

Description

This command configures the local priority identifier for the configured GTP signaling message priority, for priority-service handling.

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Default

priority 1

Parameters

value

Specifies the priority identifier for the GTP signaling message.

Values: 1 to 4

4.2.19.7 sbi-rx-message-priority

Syntax

[**no**] **sbi-rx-message-priority** *value*

Context

[Tree] configure mobile-gateway profile priority-mapping sbi-rx-message-priority

Description

This command configures the mapping of the message priority value received in the SBI signaling message header on the N11 interface, to the local priority level for priority service handling.

The **no** form of this command removes the specified SBI signaling message priority value from the mapping profile.

Default

sbi-rx-message-priority 0

Parameters

value

Specifies an SBI signaling message priority value, or the wildcard (*) for all message priority values.

Values: 0 to 31 | *

4.2.19.8 priority

Syntax

priority *value*

Context

[Tree] configure mobile-gateway profile priority-mapping sbi-rx-message-priority priority

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Description

This command configures the local priority identifier for the configured SBI signaling message priority, for priority-service handling.

Default

priority 1

Parameters

value

Specifies the priority identifier for the SBI signaling message.

Values: 1 to 4

4.2.20 configure mobile-gateway profile priority-profile command descriptions

4.2.20.1 priority-profile

Syntax

[**no**] **priority-profile** *name*

Context

[Tree] configure mobile-gateway profile priority-profile

Description

This command configures a local priority profile.

The **no** form of this command removes the specified priority profile.

Parameters

name

Specifies a profile name, up to 32 characters.

4.2.20.2 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway profile priority-profile description

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Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Default

no description

Parameters

description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.20.3 priority

Syntax

priority *value*

Context

[Tree] configure mobile-gateway profile priority-profile priority

Description

This command configures the priority level for the local priority profile.

Default

priority 1

Parameters

value

Specifies the priority level for the profile.

Values: 1 to 4

4.2.20.4 egress

Syntax

egress

Context

[Tree] configure mobile-gateway profile priority-profile priority egress

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Description

Commands in this context configure egress treatment of priority sessions for the local priority profile.

4.2.20.5 gtp-dscp

Syntax

gtp-dscp *dscp-value*

Context

[Tree] configure mobile-gateway profile priority-profile priority egress gtp-dscp

Description

This command configures the IP DSCP value used for GTP signaling messages.

Default

gtp-dscp 56

Parameters

dscp-value

Specifies the GTP DSCP value.

Values: 0 to 63

4.2.20.6 gtp-tx-message-priority

Syntax

gtp-tx-message-priority *value*

Context

[Tree] configure mobile-gateway profile priority-profile priority egress gtp-tx-message-priority

Description

This command configures the message priority value sent in the GTP signaling message header.

Default

gtp-tx-message-priority 0

Parameters

value

Specifies the priority level for the profile.

Values: 0 to 15

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4.2.20.7 pfcp-dscp

Syntax

pfcp-dscp *value*

Context

[Tree] configure mobile-gateway profile priority-profile priority egress pfcp-dscp

Description

This command configures the IP DSCP value used for PFCP signaling messages.

Default

pfcp-dscp 56

Parameters

value

Specifies the PFCP DSCP value.

Values: 0 to 63

4.2.20.8 pfcp-priority-level

Syntax

pfcp-priority-level *level*

Context

[Tree] configure mobile-gateway profile priority-profile priority egress pfcp-priority-level

Description

This command configures the priority level for the PFCP message.

WARNING: Use the **critical** level sparingly because it bypasses any overload protection mechanisms.

Default

pfcp-priority-level critical

Parameters

level

Specifies the PFCP priority level, in order of descending priority.

Values: critical | regular

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4.2.20.9 sbi-tx-message-priority

Syntax

sbi-tx-message-priority *value*

Context

[Tree] configure mobile-gateway profile priority-profile priority egress sbi-tx-message-priority

Description

This command configures the message priority value sent in the 3gpp-sbi-message-priority header.

Default

sbi-tx-message-priority 0

Parameters

value

Specifies the SBI egress message priority value.

Values: 0 to 31

4.2.21 configure mobile-gateway profile qfi-mapping-profile command descriptions

4.2.21.1 qfi-mapping-profile

Syntax

[**no**] **qfi-mapping-profile** *profile-name*

Context

[Tree] configure mobile-gateway profile qfi-mapping-profile

Description

This command configures an optional QoS flow binding profile. QoS parameters specified within the profile are used for QoS flow binding in 5G systems.

The **no** form of this command removes the specified QoS flow binding profile.

Parameters

profile-name

Specifies the name of the QAFI mapping profile, up to 32 characters.

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4.2.21.2 5qi-as-qfi

Syntax

[**no**] **5qi-as-qfi**

Context

[Tree] configure mobile-gateway profile qfi-mapping-profile 5qi-as-qfi

Description

This command enables 5QI to be used as the QFI value. This option supports only a single QoS flow for each 5QI and does not allow mid-session 5QI changes for an existing QoS flow, including the default QoS flow.

The **no** form of this command enables the MAG-c to generate a dynamic QFI value for each QoS flow.

Default

no 5qi-as-qfi

4.2.22 configure mobile-gateway profile qos-5g-profile command descriptions

4.2.22.1 qos-5g-profile

Syntax

[no] qos-5g-profile *profile-name*

Context

[Tree] configure mobile-gateway profile qos-5g-profile

Description

This command specifies a new 5G QoS profile for FWA sessions.

The **no** form of this command removes the specified profile.

Parameters

profile-name

Specifies the 5G QoS profile name, up to 32 characters.

4.2.22.2 5qi

Syntax

5qi *5qi-value*

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no 5qi

Context

[Tree] configure mobile-gateway profile qos-5g-profile 5qi

Description

This command configures the 5qi value for the default QoS Flow.

The **no** form of this command removes the 5QI value for the default QoS Flow.

Default

no 5qi

Parameters

5qi-value

Specifies the default QoS flow 5QI value.

Values: 1 to 255

4.2.22.3 arp

Syntax

arp *arp-value*

no arp

Context

[Tree] configure mobile-gateway profile qos-5g-profile arp

Description

This command configures the ARP value for the default QoS flow.

The **no** form of this command removes the ARP value.

Default

no arp

Parameters

arp-value

Specifies the default ARP value.

Values: 1 to 15

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4.2.22.4 dl-ambr

Syntax

dl-ambr *ambr-value*

no dl-ambr

Context

[Tree] configure mobile-gateway profile qos-5g-profile dl-ambr

Description

This command configures the DL session AMBR value applied to all non-GBR QoS flows.

The **no** form of this command removes the DL session AMBR value. If no other source provides a DL Session AMBR, no DL Session AMBR is applied.

Default

no dl-ambr

Parameters

ambr-value

Specifies the DL Session AMBR rate in kbps.

Values: 1 to 25000000

4.2.22.5 ul-ambr

Syntax

no ul-ambr

ul-ambr *ambr-value*

Context

[Tree] configure mobile-gateway profile qos-5g-profile ul-ambr

Description

This command configures the UL session AMBR value applied to all non-GBR QoS flows.

The **no** form of this command removes the UL session AMBR value. If no other source provides an UL session AMBR, no UL session AMBR is applied

Default

no ul-ambr

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Parameters

ambr-value

Specifies the UL Session AMBR rate in kb/s.

Values: 1 to 25000000

4.2.23 configure mobile-gateway profile qos-profile command descriptions

4.2.23.1 qos-profile

Syntax

[no] qos-profile *profile-name*

Context

[Tree] configure mobile-gateway profile qos-profile

Description

This command specifies a new 4G QoS profile for FWA sessions.

The **no** form of this command removes the specified profile.

Parameters

profile-name

Specifies the 4G QoS profile name, up to 32 characters.

4.2.23.2 arp

Syntax

arp *arp-value*

no arp

Context

[Tree] configure mobile-gateway profile qos-profile arp

Description

This command configures the ARP value for the default bearer.

The **no** form of this command removes the ARP value.

Default

no arp

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Parameters

arp-value

Specifies the default bearer ARP value.

Values: 1 to 15

4.2.23.3 dl-ambr

Syntax

dl-ambr *ambr-value*

no dl-ambr

Context

[Tree] configure mobile-gateway profile qos-profile dl-ambr

Description

This command configures the DL APN AMBR value.

The **no** form of this command removes the DL APN AMBR value. If no other source provides a DL APN AMBR, no DL APN AMBR is applied.

Default

no dl-ambr

Parameters

ambr-value

Specifies the DL APN AMBR rate in kb/s.

Values: 1 to 25000000

4.2.23.4 qci

Syntax

no qci

qci *qci-value*

Context

[Tree] configure mobile-gateway profile qos-profile qci

Description

This command configures the QCI value for the default bearer.

The **no** form of this command removes the QCI value.

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Default

no qci

Parameters

qci-value

Specifies the default bearer QCI value.

Values: 1 to 9 | 65 | 66 | 69 | 70 | 128 to 254

4.2.23.5 ul-ambr

Syntax

no ul-ambr

ul-ambr *ambr-value*

Context

[Tree] configure mobile-gateway profile qos-profile ul-ambr

Description

This command configures the UL APN AMBR value.

The **no** form of this command removes the UL APN AMBR value. If no other source provides an UL APN AMBR, no UL APN AMBR is applied.

Default

no ul-ambr

Parameters

ambr-value

Specifies the UL APN AMBR rate in kb/s.

Values: 1 to 25000000

4.2.24 configure mobile-gateway profile radius-group command descriptions

4.2.24.1 radius-group

Syntax

[**no**] **radius-group** *radius-group*

Context

[Tree] configure mobile-gateway profile radius-group

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Description

This command creates a named radius-group and enters a radius-group context. A radius-group may only apply to a single pdn gateway ID. A radius-group defines a list of RADIUS servers and associated parameters. The radius-profile is applied to the entire group or to an individual server. The radius-group is used at the PDN level or at the APN level.

Parameters

radius-group

Specifies the group name, up to 31 characters.

4.2.24.2 accounting-buffer

Syntax

[**no**] **accounting-buffer**

Context

[Tree] configure mobile-gateway profile radius-group accounting-buffer

Description

This command enables the buffering of one Accounting Stop message per session when no RADIUS server responds. The Accounting Start and Interim Update messages are buffered optionally. The system retries sending the buffered messages periodically using a non-configurable retransmit timer.

The **no** form of this command disables the buffering of all accounting messages.

Default

no accounting-buffer

4.2.24.3 interim-update

Syntax

[**no**] **interim-update**

Context

[Tree] configure mobile-gateway profile radius-group accounting-buffer interim-update

Description

This command enables buffering of the Accounting Interim Update messages. The system classifies the Interim Update messages internally as critical or non-critical:

- Non-critical messages do not reflect a significant state change. When buffering is enabled, only the last non-critical Interim Update message per session is buffered.
- Critical messages reflect a significant state change (for example, SPI stop). When buffering is enabled, up to four critical Interim Update messages per session are buffered to prevent loss of data.

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The **no** form of this command disables buffering of the Accounting Interim Update messages.

Note: Nokia recommends not to enable buffering of the Interim Update messages because the amount of messages that can be buffered is limited.

Default

no interim-update

4.2.24.4 lifetime

Syntax

lifetime *hours*

no lifetime

Context

[Tree] configure mobile-gateway profile radius-group accounting-buffer lifetime

Description

This command configures the lifetime for buffered accounting messages. Buffered messages exceeding the lifetime are discarded.

The **no** form of this command reverts to the default.

Default

lifetime 24

Parameters

hours

Specifies the lifetime in hours.

Values: 1 to 24

4.2.24.5 start

Syntax

[**no**] **start**

Context

[Tree] configure mobile-gateway profile radius-group accounting-buffer start

Description

This command enables buffering of one Accounting Start message per session.

The **no** form of this command disables the buffering of the Accounting Start messages.

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Note: Nokia recommends not to enable buffering of the Start messages because the amount of accounting messages that can be buffered is limited.

Default

no start

4.2.24.6 acct-server-port

Syntax

acct-server-port *port*

no acct-server-port

Context

[Tree] configure mobile-gateway profile radius-group acct-server-port

Description

This command sets the destination UDP port for the RADIUS accounting server. When configured at the radius-group level it is the default for the entire group.

The **no** form of this command reverts to the default.

Default

acct-server-port 1813

Parameters

port

Specifies the destination UDP port.

Values: 1 to 65535

4.2.24.7 auth-server-port

Syntax

auth-server-port *port*

no auth-server-port

Context

[Tree] configure mobile-gateway profile radius-group auth-server-port

Description

This command sets the destination UDP port for the RADIUS authentication server. When configured at the radius-group level it is the default for the entire group.

The **no** form of this command reverts to the default.

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Default

auth-server-port 1812

Parameters

port

Specifies the destination UDP port.

Values: 1 to 65535

4.2.24.8 description

Syntax

description *long-description-string*

no description

Context

[Tree] configure mobile-gateway profile radius-group description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Parameters

long-description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.24.9 interface

Syntax

interface [**router** *router-instance*] *interface-name*

no interface

Context

[Tree] configure mobile-gateway profile radius-group interface

Description

This command configures the interface name to send and receive RADIUS messages. The interface name indirectly determines the source IP address. If the interface belongs to a VPRN other than the Base instance, this command must configure the VPRN name (interface names have VPRN scope).

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The **no** form of this command removes the configuration.

Parameters

router-instance

Specifies the name of a VPRN.

Values: *router-name* | *service-id*

- router-name – Base
- service-id – 1 to 2147483647

Default: Base

interface-name

Specifies an interface name, up to 32 characters. The name must start with a letter.

4.2.24.10 interim-update-interval

Syntax

interim-update-interval *value*

no interim-update-interval

Context

[Tree] configure mobile-gateway profile radius-group interim-update-interval

Description

This command enables interim accounting and sets the interval for sending interim-update messages to the accounting server.

The **no** form of this command reverts to the default.

Default

no interim-update-interval

Parameters

value

Specifies the time interval, in minutes, for sending interim-update messages to the accounting server.

Values: 15 to 1440 (1 day)

4.2.24.11 peer

Syntax

[**no**] **peer** {*ipv4-address* | *ipv6-address*}

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Context

[Tree] configure mobile-gateway profile radius-group peer

Description

This command identifies a RADIUS server and enters the server context to configure parameters specific to the identified server. This command may configure a single RADIUS server by its IPv4 or IPv6 address. The servers belonging to a radius-group must use the same IP version and the IP version must match that of the RADIUS source interface.

The **no** form of this command removes the IP address from the configuration.

Parameters

ipv4-address | *ipv6-address*

Specifies the IP address of a RADIUS server.

Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D

4.2.24.12 acct-server-port

Syntax

acct-server-port *port*

no acct-server-port

Context

[Tree] configure mobile-gateway profile radius-group peer acct-server-port

Description

This command sets the destination UDP port for the RADIUS accounting server. When configured at the radius-group level it is the default for the entire group.

The **no** form of this command reverts to the default.

Default

acct-server-port 1813

Parameters

port

Specifies the destination UDP port.

Values: 1 to 65535

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4.2.24.13 auth-server-port

Syntax

auth-server-port *port*

no auth-server-port

Context

[Tree] configure mobile-gateway profile radius-group peer auth-server-port

Description

This command sets the destination UDP port for the RADIUS authentication server. When configured at the radius-group level it is the default for the entire group.

The **no** form of this command reverts to the default.

Default

auth-server-port 1812

Parameters

port

Specifies the destination UDP port.

Values: 1 to 65535

4.2.24.14 failover-threshold

Syntax

failover-threshold *count*

no failover-threshold

Context

[Tree] configure mobile-gateway profile radius-group peer failover-threshold

Description

This command configures the number of times an unresponsive peer is re-selected, before the RADIUS server is considered unresponsive.

The **no** form of this command reverts to the default value.

Default

failover-threshold 0

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Parameters

count

Specifies the number of re-selection attempts.

Values: 0 to 255

4.2.24.15 failure-detection-time

Syntax

failure-detection-time *value*

no failure-detection-time

Context

[Tree] configure mobile-gateway profile radius-group peer failure-detection-time

Description

This command configures the failure detection timer defining the maximum duration in seconds the MAG-c waits to receive any successful Auth/Acct response before the server is considered failed. A timer is maintained separately for each authentication and accounting server. This command is effective only with transaction-based load balancing.

The **no** form of this command reverts to the default.

Note: The system waits for a few more seconds (≤20) before finally marking the peer dead to smooth out fluctuations caused by temporary effect such as network congestion or server overload.

Default

failure-detection-time 10

Parameters

value

Specifies the failure detection timer, in seconds.

Values: 1 to 60

4.2.24.16 priority

Syntax

priority *value*

no priority

Context

[Tree] configure mobile-gateway profile radius-group peer priority

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Description

This command specifies the priority value. This is a number from 1 to 3 with 3 considered the highest priority. The system attempts to use the highest priority server available at the time. The system automatically uses round-robin load-balancing among servers configured with the same priority.

The **no** form of this command reverts to the default.

Default

priority 1

Parameters

value

Specifies the priority of the server.

Values: 1 to 3

4.2.24.17 radius-profile

Syntax

radius-profile *profile-name*

no radius-profile

Context

[Tree] configure mobile-gateway profile radius-group peer radius-profile

Description

This command applies a radius-profile to the radius-group or to an individual server. When configured at the radius-group level it is the default for the entire group.

The **no** form of this command removes the *name* parameter from the configuration.

Parameters

profile-name

Specifies the group name.

4.2.24.18 secret

Syntax

secret *secret* [**hash** | **hash2**]

no secret

Context

[Tree] configure mobile-gateway profile radius-group peer secret

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Description

This is the shared secret key to be used with the server. When configured at the radius-group level it is the default for the entire group. If the hash/hash2 parameter is not used for the password, the key is assumed to be in a non-encrypted, clear text form. For security, all keys are anyway stored automatically in encrypted hash form in the configuration. The info/save uses the configuration defined in following command.

```
system security password hashing
```

Parameters

secret

Specifies the shared secret key to be used with the server.

Values:

- secret – up to 64 characters
- hash-key – up to 33 characters
- hash2-key – up to 96 characters

hash

Specifies the key is entered in an encrypted form.

hash2

Specifies the key is entered in a more complex encrypted form.

4.2.24.19 shutdown

Syntax

shutdown

no shutdown

Context

[Tree] configure mobile-gateway profile radius-group peer shutdown

Description

This command administratively disables the entity. When disabled, an entity does not change, reset, or remove any configuration settings or statistics. Many entities must be explicitly enabled using the **no shutdown** command.

The operational state of the entity is disabled as well as the operational state of any entities contained within. Many objects must be shut down before they may be deleted.

4.2.24.20 python-policy

Syntax

python-policy *policy-name*

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no python-policy

Context

[Tree] configure mobile-gateway profile radius-group python-policy

Description

This command configures the Python policy to modify the RADIUS messages.

The **no** form of the command removes the configuration.

Default

no python-policy

Parameters

policy-name

References a Python policy that is configured in the following context, up to 32 characters.

```
configure python python-policy
```

4.2.24.21 radius-profile

Syntax

radius-profile *profile-name*

no radius-profile

Context

[Tree] configure mobile-gateway profile radius-group radius-profile

Description

This command applies a radius-profile to the radius-group or to an individual server. When configured at the radius-group level it is the default for the entire group.

The **no** form of this command removes the *profile-name* parameter from the configuration.

Parameters

profile-name

Specifies the RADIUS profile name.

4.2.24.22 secret

Syntax

secret *secret* [**hash** | **hash2**]

no secret

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Context

[Tree] configure mobile-gateway profile radius-group secret

Description

This is the shared secret key to be used with the server. When configured at the radius-group level it is the default for the entire group.

If the hash/hash2 parameter is not used for the password, the key is assumed to be in a non-encrypted, clear text form. For security, all keys are anyway stored automatically in encrypted hash form in the configuration. The info/save uses the configuration defined in following context.

```
system security password hashing
```

Parameters

secret

Specifies the shared secret key to be used with the server, up to 64 characters.

Values:

- hash-key – Up to 33 characters.
- hash2-key – Up to 96 characters.

hash | hash2

Keywords to specify the hashing scheme.

4.2.24.23 server-type

Syntax

server-type *server-type*

no server-type

Context

[Tree] configure mobile-gateway profile radius-group server-type

Description

This command configures the RADIUS group to be all authentication servers, accounting servers, or both.

The **no** form of this command reverts to the default.

Default

server-type none

Parameters

server-type

Specifies the type of the RADIUS server group.

Values:

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- none – the servers cannot be used for authentication or accounting
- auth – all servers can used for authentication
- acct – all servers can be used for accounting
- both – all servers can be used for both authentication and accounting

4.2.24.24 transaction-based-load-balancing

Syntax

[**no**] **transaction-based-load-balancing**

Context

[Tree] configure mobile-gateway profile radius-group transaction-based-load-balancing

Description

This command configures the MAG-c load balancing behavior for RADIUS authentication and accounting messages. Instead of the default behavior (session-based load balancing), where in the case of a response timeout the messages are retried to the same server until the retry-count is exhausted, in the transaction-based load balancing the server is selected separately for each authentication and accounting request using round-robin distribution. There is no guarantee that all accounting requests related to the same bearer are sent to the same RADIUS server. Authentication and accounting functions are handled separately from each other. Accounting ON/OFF messages (per APN) are not affected by this command. This setting also affects retries. The RADIUS profile containing the **retry-count** parameter must be linked to the RADIUS group level, in which case it is used for all peers in that group (differing values per server are not supported). The system maintains this counter on group level.

Default

no transaction-based-load-balancing

4.2.25 configure mobile-gateway profile radius command descriptions

4.2.25.1 radius

Syntax

[**no**] **radius** *profile-name*

Context

[Tree] configure mobile-gateway profile radius

Description

This command creates a named RADIUS profile.

The **no** form of this command removes the profile from the configuration.

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Parameters

profile-name

Specifies the profile name, up to 32 characters.

4.2.25.2 acct-retry-count

Syntax

acct-retry-count *value*

no acct-retry-count

Context

[Tree] configure mobile-gateway profile radius acct-retry-count

Description

This command sets a limit to the number of times the system attempts to retry sending a RADIUS accounting message to the server. When this limit is reached, the server is considered to be dead and another server is selected. This command requires a shutdown and a no shutdown action in the RADIUS group peer definition associated with the RADIUS profile before the change is effective for a RADIUS server peer.

The **no** form of this command reverts to the default.

Note:

- The system waits for a few more seconds (≤20) before finally marking the peer as dead to smooth out fluctuations caused by temporary effect such as network congestion or server overload.
- For a single message, the system only tries up to three peers, regardless of the number of peers in the RADIUS group. After the three peers have been exhausted (or less if the RADIUS group has less than three peers) the system declares a final timeout for that message and discard it.

Default

acct-retry-count 3

Parameters

value

The number of times the system attempts to send a RADIUS accounting message to the server.

Values: 0 to 10

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4.2.25.3 acct-retry-timeout

Syntax

acct-retry-timeout *seconds*

no acct-retry-timeout

Context

[Tree] configure mobile-gateway profile radius acct-retry-timeout

Description

This command sets the interval, in seconds, between retries for RADIUS accounting messages. This command requires a shutdown and a no shutdown action in the RADIUS group peer definition associated with the RADIUS profile before the change is effective for a RADIUS server peer.

The **no** form of this command reverts to the default.

Default

acct-retry-timeout 4

Parameters

seconds

Specifies the interval, in seconds, between retries.

Values: 1 to 255

4.2.25.4 auth-probe-interval

Syntax

auth-probe-interval *value*

no auth-probe-interval

Context

[Tree] configure mobile-gateway profile radius auth-probe-interval

Description

This command sets the interval at which the system send authentication probe messages to an authentication server. An authentication probe is a “fake” Access-Request message for a specific username and password. If the server is responds to the Access-Request (even with an Access-Reject) the server is considered operational. The authentication probe messages is not sent to servers that are used for accounting only. This command requires a shutdown and a no shutdown action in the RADIUS group peer definition associated with the RADIUS profile before the change is effective for a RADIUS server peer.

The **no** form of this command reverts to the default.

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Default

auth-probe-interval 0

Parameters

seconds

Specifies the time interval, in seconds, at which the system sends authentication probe messages to an authentication server.

Values: 20 to 600

4.2.25.5 auth-retry-count

Syntax

auth-retry-count *value*

no auth-retry-count

Context

[Tree] configure mobile-gateway profile radius auth-retry-count

Description

This command sets a limit to the number of times the system attempts to retry sending a RADIUS authentication message to the server. When this limit is reached, the server is considered to be dead and another server is selected. This command requires a shutdown and a no shutdown action in the RADIUS group peer definition associated with the RADIUS profile before the change is effective for a RADIUS server peer.

Note:

- The system waits for a few more seconds (≤20) before finally marking the peer as dead to smooth out fluctuations caused by temporary effect such as network congestion or server overload.
- For a single message, the system only tries up to three peers, regardless of the number of peers in the RADIUS group. After the three peers have been exhausted (or less if the RADIUS group has less than three peers) the system declares a final timeout for that message and discard it.

The **no** form of this command reverts to the default.

Default

auth-retry-count 3

Parameters

value

Specifies the number of times the system attempts to send a RADIUS authentication message to the server.

Values: 0 to 10

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4.2.25.6 auth-retry-timeout

Syntax

auth-retry-timeout *seconds*

no auth-retry-timeout

Context

[Tree] configure mobile-gateway profile radius auth-retry-timeout

Description

This command sets the interval, in seconds, between retries for RADIUS authentication. This command requires a shutdown and a no shutdown action in the RADIUS group peer definition associated with the RADIUS profile before the change is effective for a RADIUS server peer.

The **no** form of this command reverts to the default.

Default

auth-retry-timeout 4

Parameters

seconds

Specifies the interval, in seconds, between retries.

Values: 1 to 255

4.2.25.7 deadtime

Syntax

deadtime *deadtime* [**drop-acct-messages**] [**send-auth-messages**]

no deadtime

Context

[Tree] configure mobile-gateway profile radius deadtime

Description

When the system fails to reach a particular server after a configurable number of retries, the server is marked dead and another server is selected. This command sets the time that a server continues to be considered dead before the system attempts to use it for normal authentication or accounting requests.

Note: For authentication servers, the system continuously attempts to verify the operational state of the dead server if the auth-probe-interval is set to be non-zero. If the authentication server responds to an auth-probe the system considers the server to be operational even if the dead timer has not yet expired.

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When the dead-timer expires, the system may send the server authentication or accounting messages again. The server is subject to the retry-timeout and retry-count mechanism to determine if the server is still in the failed state. If all servers are unreachable (operating state down), for authentication purposes, the system immediately declares an authentication failure. For accounting purposes, the system attempts to send messages to the highest priority server even if it is during the dead time period. It is possible to separately configure the system to also drop accounting messages destined for a dead server.

The **no** form of this command reverts to the default.

Default

deadtime 300

Parameters

deadtime

Specifies the time interval that a server is considered dead, in seconds.

Values: 0 to 7200

drop-acct-messages

Keyword to drop accounting messages, if no servers are currently reachable.

send-auth-messages

Keyword to attempt sending messages to the highest priority server, even if it is during the dead time period, in case all servers are unreachable (operating state down).

4.2.25.8 description

Syntax

description *long-description-string*

no description

Context

[Tree] configure mobile-gateway profile radius description

Description

This command associates a text string with a configuration context to identify the content in the configuration file.

The **no** form of this command removes the description from the configuration.

Parameters

long-description-string

Specifies the description string, up to 80 characters, composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

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4.2.25.9 max-peer-reselections

Syntax

max-peer-reselections *count* [**wrap**]

no max-peer-reselections

Context

[Tree] configure mobile-gateway profile radius max-peer-reselections

Description

This command specifies the number of times in total a peer can be reselected after exhausting the retries toward the currently selected peer. The maximum number of re-selections is limited to the number of available peers in the RADIUS group. By default, for a single message, the system tries up to three peers, regardless of the number of peers in the RADIUS group. After all the three peers have been exhausted (or less if the RADIUS group has less than three peers), the system declares a final timeout for that message and discards it. When the **transaction-based-load-balancing** command is enabled for the RADIUS group, the server selection can wrap around as the retries are going to different servers. If the parameter **wrap** is specified, the system tries up to the configured count, possibly wrapping around back to the original selected server, when all other available servers have been tried already. If this parameter is not specified, the maximum amount of re-selections is limited to the number of available peers in the RADIUS group.

The **no** form of this command reverts to the default.

Default

max-peer-reselections 3

Parameters

count

Specifies the number of times a peer can be reselected.

Values: 0 to 250

wrap

Keyword to specify if the system tries the configured count, to wrap around back to the original selected server, when all other available servers are tried.

4.2.26 configure mobile-gateway profile sbi-error-mapping-profile command descriptions

4.2.26.1 sbi-error-mapping-profile

Syntax

[no] sbi-error-mapping-profile *profile-name*

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Context

[Tree] configure mobile-gateway profile sbi-error-mapping-profile

Description

This command configures the SBI error mapping profile that contains mappings between SBI errors and 5GSM/GTP error codes.

The **no** form of this command removes the specific profile from the configuration.

Parameters

profile-name

Specifies the SBI error mapping profile name, up to 32 characters

4.2.26.2 http-to-5gsm

Syntax

http-to-5gsm *http-status-code* **application-error** *app-error-code* **5gsm-cause** *5gsm-cause-code*

no http-to-5gsm *http-status-code* **application-error** *app-error-code*

Context

[Tree] configure mobile-gateway profile sbi-error-mapping-profile http-to-5gsm

Description

This command configures the mapping from a specific HTTP status code and application error code to the 5GSM Cause Code.

HTTP status codes are defined in RFC 9110 section 15. Common application error values are defined in 3GPP TS 29.500 table 5.2.7.2-1. Specific service application error values are defined in their corresponding specifications. For example, for Npcf_SMPolicyManagement the error codes are defined in 3GPP TS 29.512 table 5.7.3-1. 5GSM. Cause codes are defined in 3GPP TS 24.501 clause 9.11.4.2 and described in more detail in appendix B of the same specification.

The **no** form of this command removes the specific mapping. MAG-c falls back to standard values.

Parameters

http-status-code

Specifies the 3-digit HTTP status code value.

Values: 300 to 999

app-error-code

Specifies the application error, up to 36 characters.

This can be a user-specified application error or the following standard application errors:

- INVALID_API
- INVALID_MSG_FORMAT
- INVALID_QUERY_PARAM

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- MANDATORY_QUERY_PARAM_INCORRECT
- OPTIONAL_QUERY_PARAM_INCORRECT
- MANDATORY_QUERY_PARAM_MISSING
- MANDATORY_IE_INCORRECT
- OPTIONAL_IE_INCORRECT
- MANDATORY_IE_MISSING
- UNSPECIFIED_MSG_FAILURE
- MODIFICATION_NOT_ALLOWED
- SUBSCRIPTION_NOT_FOUND
- RESOURCE_URI_STRUCTURE_NOT_FOUND
- INCORRECT_LENGTH
- NF_CONGESTION_RISK
- INSUFFICIENT_RESOURCES
- UNSPECIFIED_NF_FAILURE
- SYSTEM_FAILURE
- USER_UNKNOWN
- ERROR_INITIAL_PARAMETERS
- ERROR_TRIGGER_EVENT
- ERROR_TRAFFIC_MAPPING_INFO_REJECTED
- ERROR_CONFLICTING_REQUEST
- POLICY_CONTEXT_DENIED

5gsm-cause-code

Specifies the 5GSM Cause value.

Values: 0 to 255

4.2.26.3 http-to-gtp

Syntax

http-to-gtp *http-status-code* **application-error** *app-error-code* **gtp-error** *gtp-error-cause-code*

no http-to-gtp *http-status-code* **application-error** *app-error-code*

Context

[Tree] configure mobile-gateway profile sbi-error-mapping-profile http-to-gtp

Description

This command configures the mapping from a specific HTTP status code and application error code to the GTP Cause Code.

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HTTP status codes are defined in RFC 9110 section 15. Common application error values are defined in 3GPP TS 29.500 table 5.2.7.2-1. Specific service application error values are defined in their corresponding specifications. For example, for Npcf_SMPolicyManagement the error codes are defined in 3GPP TS 29.512 table 5.7.3-1. GTP Cause codes are defined in 3GPP TS 29.274 clause 8.4. For more information about how a 4G MME maps these GTP cause codes to a 4GSM Cause code, see annex C of the same specification.

The **no** form of this command removes the specific mapping and the MAG-c falls back to the standard.

Parameters

http-status-code

Specifies the 3-digit HTTP status code value.

Values: 300 to 999

app-error-code

Specifies the application error, up to 36 characters.

This can be a user-specified application error or the following standard application errors:

- INVALID_API
- INVALID_MSG_FORMAT
- INVALID_QUERY_PARAM
- MANDATORY_QUERY_PARAM_INCORRECT
- OPTIONAL_QUERY_PARAM_INCORRECT
- MANDATORY_QUERY_PARAM_MISSING
- MANDATORY_IE_INCORRECT
- OPTIONAL_IE_INCORRECT
- MANDATORY_IE_MISSING
- UNSPECIFIED_MSG_FAILURE
- MODIFICATION_NOT_ALLOWED
- SUBSCRIPTION_NOT_FOUND
- RESOURCE_URI_STRUCTURE_NOT_FOUND
- INCORRECT_LENGTH
- NF_CONGESTION_RISK
- INSUFFICIENT_RESOURCES
- UNSPECIFIED_NF_FAILURE
- SYSTEM_FAILURE
- USER_UNKNOWN
- ERROR_INITIAL_PARAMETERS
- ERROR_TRIGGER_EVENT
- ERROR_TRAFFIC_MAPPING_INFO_REJECTED
- ERROR_CONFLICTING_REQUEST
- POLICY_CONTEXT_DENIED

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gtp-cause-code

Specifies the GTP Cause value.

Values: 0 to 15 or 64 to 253 or 255

4.2.27 configure mobile-gateway profile udm-sdm-profile command descriptions

4.2.27.1 udm-sdm-profile

Syntax

[**no**] **udm-sdm-profile** *profile-name*

Context

[Tree] configure mobile-gateway profile udm-sdm-profile

Description

This command configures a UDM SDM profile that defines the failure-handling policy for the Nudm_SubscriberDataManagement services.

The **no** form of this command removes the specified profile.

Parameters

profile-name

Specifies the profile name, up to 32 characters.

4.2.27.2 create-subscription

Syntax

create-subscription

Context

[Tree] configure mobile-gateway profile udm-sdm-profile create-subscription

Description

Commands in this context configure parameters for handling the create subscription service call toward the UDM.

4.2.27.3 fh-session-no-response

Syntax

fh-session-no-response *action*

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Context

[Tree] configure mobile-gateway profile udm-sdm-profile create-subscription fh-session-no-response

Description

This command configures the failure-handling behavior when no response is received from the UDM peer.

Default

fh-session-no-response terminate

Parameters

action

Specifies the failure handling action.

Values:

- ap-continue – keyword to continue the session without the SDM subscription
- retry-and-ap-continue – keyword to try alternative peers if any are available and then continue the session without the SDM subscription
- retry-and-terminate – keyword to terminate the session after trying alternative peers if any are available
- terminate – keyword to terminate the session

4.2.27.4 http-status-code

Syntax

http-status-code *status-code-value* [**application-error** *app-error-code*] **action** { **terminate** | **ap-continue** | **retry-and-ap-continue** | **retry-and-terminate**}

no **http-status-code** *status-code-value* [**application-error** *app-error-code*]

Context

[Tree] configure mobile-gateway profile udm-sdm-profile create-subscription http-status-code

Description

This command configures the failure-handling behavior for a specific HTTP status code. Optionally, a more granular per status code and per application error failure handling behavior can be specified. When an error is received, the following priority in the order listed determines the failure handling behavior:

1. If the error matches a specific HTTP status code and application error, use that behavior.
2. If the error matches a specific HTTP status code without an application error, use that behavior.
3. If the two previous priorities do not apply, use the **terminate** option.

The HTTP status codes are defined in RFC 9110 section 15. Application error codes for Nudm_SubscriberDataManagement are defined in 3GPP TS 29.503 table 6.1.7.3-1, and common application error values are defined in 3GPP TS 29.500 table 5.2.7.2-1.

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The **no** form of this command removes the code-specific failure handling for that HTTP status code and optional application error code.

Parameters

status-code-value

Specifies the three-digit HTTP status code value.

Values: 300 to 599

app-error-code

Specifies the application error, up to 36 characters.

ap-continue

Keyword to continue the session without the SDM subscription.

terminate

Keyword to terminate the session.

retry-and-terminate

Keyword to terminate the session after trying alternative peers if any are available.

retry-and-ap-continue

Keyword to try alternative peers if any are available and then continue the session without the SDM subscription.

4.2.27.5 retry-count

Syntax

retry-count *max*

no retry-count

Context

[Tree] configure mobile-gateway profile udm-sdm-profile create-subscription retry-count

Description

This command configures the maximum number of times a message is retransmitted if there is no reply when the message is sent. The message is resent after the time configured by the **transaction-timer** command elapses and until the maximum number of retries is reached. If the message times out after the last retry, failure handling is triggered.

The **no** form of this command configures that no retries are attempted.

Default

no retry-count

Parameters

max

Specifies the maximum number of retries to resend the message.

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Values: 1 to 10

4.2.27.6 transaction-timer

Syntax

transaction-timer *value*

Context

[Tree] configure mobile-gateway profile udm-sdm-profile create-subscription transaction-timer

Description

This command configures the transaction time used to send messages. If there is no reply during the transaction time, the message is sent again until the retry count is reached, as configured by the **retry-count** command. If the message times out again, the connection to the UDM SDM is considered down and failure handling is triggered.

Default

transaction-timer 5000

Parameters

value

Specifies the transaction timer value, in milliseconds in increments of 100.

Values: 1000 to 20000

4.2.27.7 get-sm-subscription-data

Syntax

get-sm-subscription-data

Context

[Tree] configure mobile-gateway profile udm-sdm-profile get-sm-subscription-data

Description

Commands in this context configure parameters for handling the get service call toward the UDM.

4.2.27.8 fh-session-no-response

Syntax

fh-session-no-response *action*

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Context

[Tree] configure mobile-gateway profile udm-sdm-profile get-sm-subscription-data fh-session-no-response

Description

This command configures the failure-handling behavior when no response is received from the UDM peer.

Default

fh-session-no-response terminate

Parameters

action

Specifies the failure handling action.

Values:

- ap-continue – keyword to continue the session without the SDM subscription
- retry-and-ap-continue – keyword to try alternative peers if any are available and then continue the session without the SDM subscription data
- retry-and-terminate – keyword to terminate the session after trying alternative peers if any are available
- terminate – keyword to terminate the session

4.2.27.9 http-status-code

Syntax

http-status-code *status-code-value* [**application-error** *app-error-code*] **action** { **terminate** | **ap-continue** | **retry-and-ap-continue** | **retry-and-terminate**}

no **http-status-code** *status-code-value* [**application-error** *app-error-code*]

Context

[Tree] configure mobile-gateway profile udm-sdm-profile get-sm-subscription-data http-status-code

Description

This command configures the failure-handling behavior for a specific HTTP status code. Optionally, a more granular per status code and per application error failure handling behavior can be specified. When an error is received, the following priority in the order listed determines the failure handling behavior:

1. If the error matches a specific HTTP status code and application error, use that behavior.
2. If the error matches a specific HTTP status code without an application error, use that behavior.
3. If the two previous priorities do not apply, use the **terminate** option.

The HTTP status codes are defined in RFC 9110 section 15. Application error codes for Nudm_SubscriberDataManagement are defined in 3GPP TS 29.503 table 6.1.7.3-1, and common application error values are defined in 3GPP TS 29.500 table 5.2.7.2-1.

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The **no** form of this command removes the code-specific failure handling for that HTTP status code and optional application error code.

Parameters

status-code-value

Specifies the three-digit HTTP status code value.

Values: 300 to 599

app-error-code

Specifies the application error, up to 36 characters.

ap-continue

Keyword to continue the session without the SDM subscription data.

terminate

Keyword to terminate the session.

retry-and-terminate

Keyword to terminate the session after trying alternative peers if any are available.

retry-and-ap-continue

Keyword to try alternative peers if any are available and then continue the session without the SDM subscription data.

4.2.27.10 retry-count

Syntax

retry-count *max*

no retry-count

Context

[Tree] configure mobile-gateway profile udm-sdm-profile get-sm-subscription-data retry-count

Description

This command configures the maximum number of times a message is retransmitted if there is no reply when the message is sent. The message is resent after the time configured by the **transaction-timer** command elapses and until the maximum number of retries is reached. If the message times out after the last retry, failure handling is triggered.

The **no** form of this command configures that no retries are attempted.

Default

no retry-count

Parameters

max

Specifies the maximum number of retries to resend the message.

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Values: 1 to 10

4.2.27.11 transaction-timer

Syntax

transaction-timer *value*

Context

[Tree] configure mobile-gateway profile udm-sdm-profile get-sm-subscription-data transaction-timer

Description

This command configures the transaction time used to send messages. If there is no reply during the transaction time, the message is sent again until the retry count is reached, as configured by the **retry-count** command. If the message times out again, the connection to the UDM SDM is considered down and failure handling is triggered.

Default

transaction-timer 5000

Parameters

value

Specifies the transaction timer value, in milliseconds.

Values: 1000 to 20000

Default: 5000

4.2.27.12 unsubscribe

Syntax

unsubscribe

Context

[Tree] configure mobile-gateway profile udm-sdm-profile unsubscribe

Description

Commands in this context configure parameters to handle the unsubscribe service call toward the UDM.

4.2.27.13 retry-count

Syntax

retry-count *max*

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no retry-count

Context

[Tree] configure mobile-gateway profile udm-sdm-profile unsubscribe retry-count

Description

This command configures the maximum number of times a message is retransmitted if there is no reply after the message is sent. The message is resent after the time configured by the **transaction-timer** command elapses and until the maximum number of retries is reached. If the message times out after the last retry, the ongoing session termination process continues.

The **no** form of this command configures that no retries are attempted.

Default

no retry-count

Parameters

max

Specifies the maximum number of retries to resend the message.

Values: 1 to 10

4.2.27.14 transaction-timer

Syntax

transaction-timer *value*

Context

[Tree] configure mobile-gateway profile udm-sdm-profile unsubscribe transaction-timer

Description

This command configures the transaction time to send messages. If there is no reply during the transaction time, the message is resent until the retry count configured by the **retry-count** command is reached. If the message times out after the last retry, the ongoing session termination process continues.

The **no** form of this command reverts to the default.

Default

transaction-timer 5000

Parameters

value

Specifies the transaction timer value, in milliseconds, in increments of 100.

Values: 1000 to 20000

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4.2.28 configure mobile-gateway profile udm-uecm-profile command descriptions

4.2.28.1 udm-uecm-profile

Syntax

[**no**] **udm-uecm-profile** *profile-name*

Context

[Tree] configure mobile-gateway profile udm-uecm-profile

Description

This command configures a UDM UECM profile that defines the failure-handling policy when the Nudm_UECM services are used.

The **no** form of this command removes the configuration.

Parameters

profile-name

Specifies the profile name, up to 32 characters.

4.2.28.2 deregister-smf

Syntax

deregister-smf

Context

[Tree] configure mobile-gateway profile udm-uecm-profile deregister-smf

Description

Commands in this context configure parameters to handle the deregistration of the SMF service call toward the UDM.

4.2.28.3 retry-count

Syntax

retry-count *max*

no retry-count

Context

[Tree] configure mobile-gateway profile udm-uecm-profile deregister-smf retry-count

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Description

This command configures the maximum number of times a message is retransmitted if there is no reply when the message is sent. The message is resent after the time configured by the **transaction-timer** command elapses and until the maximum number of retries is reached. If the message times out after the last retry, the ongoing session termination process continues.

The **no** form of this command configures that no retries are attempted.

Default

no retry-count

Parameters

max

Specifies the maximum number of retries to resend the message.

Values: 1 to 10

4.2.28.4 transaction-timer

Syntax

transaction-timer *value*

Context

[Tree] configure mobile-gateway profile udm-uecm-profile deregister-smf transaction-timer

Description

This command configures the transaction time to send messages. If there is no reply during the transaction time, the message is resent until the retry count configured by the **retry-count** command is reached. If the message times out after the last retry, the ongoing session termination process continues.

Default

transaction-timer 5000

Parameters

value

Specifies the transaction timer value, in milliseconds, in increments of 100.

Values: 1000 to 20000

4.2.28.5 register-smf

Syntax

register-smf

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Context

[Tree] configure mobile-gateway profile udm-uecm-profile register-smf

Description

Commands in this context configure parameters for handling the register SMF service call toward the UDM.

4.2.28.6 fh-session-no-response

Syntax

fh-session-no-response *action*

Context

[Tree] configure mobile-gateway profile udm-uecm-profile register-smf fh-session-no-response

Description

This command configures the failure-handling behavior when no response is received from the UDM peer.

Default

fh-session-no-response terminate

Parameters

action

Specifies the failure handling action.

Values:

- ap-continue – continue the session without registering the MAG-c with the UDM
- terminate – terminate the session
- retry-and-terminate – terminate the session after trying alternative peers if any are available
- retry-and-ap-continue – try alternative peers if any are available and then continue the session without registering the MAG-c with the UDM

4.2.28.7 http-status-code

Syntax

http-status-code *status-code-value* [**application-error** *app-error-code*] **action** *failure-action*

no http-status-code *status-code-value* [**application-error** *app-error-code*]

Context

[Tree] configure mobile-gateway profile udm-uecm-profile register-smf http-status-code

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Description

This command configures the failure-handling behavior for a specific HTTP status code. Optionally, a more granular per status code and per application error failure handling behavior can be specified. When an error is received, the following priority in the order listed determines the failure handling behavior:

1. If the error matches a specific HTTP status code and application error, use that behavior.
2. If the error matches a specific HTTP status code without an application error, use that behavior.
3. If the two previous priorities do not apply, use the **terminate** option.

HTTP status codes are defined in RFC 9110 section 15. Application error codes for Nudm_UEContextManagement are defined in 3GPP TS 29.503 table 6.2.7.3-1, and common application error values are defined in 3GPP TS 29.500 table 5.2.7.2-1.

The **no** form of this command removes the code-specific failure handling for that HTTP status code and optional application error code.

Parameters

status-code-value

Specifies the three-digit HTTP status code value.

Values: 300 to 599

app-error-code

Specifies the application error, up to 36 characters.

failure-action

Specifies the failure action.

Values:

- ap-continue – continue the session without registering the MAG-c with the UDM
- terminate – terminate the session
- retry-and-terminate – terminate the session after trying alternative peers if any are available
- retry-and-ap-continue – try alternative peers if any are available and then continue the session without registering the MAG-c with the UDM

4.2.28.8 retry-count

Syntax

retry-count *max*

no retry-count

Context

[Tree] configure mobile-gateway profile udm-uecm-profile register-smf retry-count

Description

This command configures the maximum number of times a message is retransmitted if there is no reply when the message is sent. The message is resent after the time configured by the **transaction-timer**

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command elapses and until the maximum number of retries is reached. If the message times out after the last retry, failure handling is triggered.

The **no** form of this command configures that no retries are attempted.

Default

no retry-count

Parameters

max

Specifies the maximum number of retries to resend the message.

Values: 1 to 10

4.2.28.9 transaction-timer

Syntax

transaction-timer *value*

Context

[Tree] configure mobile-gateway profile udm-uecm-profile register-smf transaction-timer

Description

This command configures the transaction time used to send messages. If there is no reply during the transaction time, the message is resent until the retry count is reached, as configured by the **retry-count** command. If the message times out again, failure handling is triggered.

Default

transaction-timer 5000

Parameters

value

Specifies the transaction timer value, in milliseconds, in increments of 100.

Values: 1000 to 20000

4.2.29 configure mobile-gateway system command descriptions

4.2.29.1 system

Syntax

system

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Context

[Tree] configure mobile-gateway system

Description

Commands in this context configure the mobile gateway system.

4.2.29.2 bng

Syntax

bng

Context

[Tree] configure mobile-gateway system bng

Description

Commands in this context configure BNG system parameters.

4.2.29.3 queries

Syntax

queries

Context

[Tree] configure mobile-gateway system bng queries

Description

Commands in this context configure queries to retrieve YANG state information of MAG-c sessions and subscribers.

4.2.29.4 session

Syntax

session *name*

no session *name*

Context

[Tree] configure mobile-gateway system bng queries session

Description

This command configures a query to retrieve YANG state information of MAG-c sessions.

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The **no** form of this command removes the specified session query.

Parameters

name

Specifies the name of the session query, up to 32 characters.

4.2.29.5 acct-multi-session-id

Syntax

acct-multi-session-id *identifier*

no acct-multi-session-id

Context

[Tree] configure mobile-gateway system bng queries session acct-multi-session-id

Description

This command configures the accounting multi-session ID.

The **no** form of this command removes the configuration.

Default

no acct-multi-session-id

Parameters

identifier

Specifies the accounting multi-session ID, up to 25 characters.

4.2.29.6 acct-session-id

Syntax

acct-session-id *identifier*

no acct-session-id

Context

[Tree] configure mobile-gateway system bng queries session acct-session-id

Description

This command configures the accounting session ID.

The **no** form of this command removes the configuration.

Default

no acct-session-id

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Parameters

identifier

Specifies the accounting session ID, up to 25 characters.

4.2.29.7 apn

Syntax

apn *name*

no apn

Context

[Tree] configure mobile-gateway system bng queries session apn

Description

This command configures the APN.

The **no** form of this command removes the configuration.

Default

no apn

Parameters

name

Specifies the APN name, up to 80 characters.

4.2.29.8 app-profile

Syntax

app-profile *name*

no app-profile

Context

[Tree] configure mobile-gateway system bng queries session app-profile

Description

This command configures the application profile.

The **no** form of this command removes the configuration.

Default

no app-profile

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Parameters

name

Specifies the application profile name, up to 32 characters.

4.2.29.9 c-vlan

Syntax

c-vlan *tag*

no c-vlan

Context

[Tree] configure mobile-gateway system bng queries session c-vlan

Description

This command configures the customer VLAN (inner VLAN).

The **no** form of this command removes the configuration.

Default

no c-vlan

Parameters

tag

Specifies the customer VLAN tag.

Values: 0 to 4094

4.2.29.10 circuit-id

Syntax

circuit-id string *cid-string*

circuit-id hex *binary cid*

no circuit-id

Context

[Tree] configure mobile-gateway system bng queries session circuit-id

Description

This command configures the circuit ID.

The **no** form of this command removes the configuration.

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Default

no circuit-id

Parameters

cid-string

Specifies the circuit ID string, up to 255 characters.

binary cid

Specifies the binary value of the circuit ID.

Values: 0x0 to 0xFFFFFFFF... (maximum 510 hex nibbles)

4.2.29.11 client-user-name

Syntax

client-user-name *string*

no client-user-name

Context

[Tree] configure mobile-gateway system bng queries session client-user-name

Description

This command configures the username of the client.

The **no** form of this command removes the configuration.

Default

no client-user-name

Parameters

string

Specifies the client username, up to 253 characters.

4.2.29.12 client-user-name-domain

Syntax

client-user-name-domain *string*

no client-user-name-domain

Context

[Tree] configure mobile-gateway system bng queries session client-user-name-domain

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Description

This command configures the username domain of the client.

The **no** form of this command removes the configuration.

Default

no client-user-name-domain

Parameters

string

Specifies the username domain, up to 128 characters.

4.2.29.13 data-triggered

Syntax

[**no**] **data-triggered**

Context

[Tree] configure mobile-gateway system bng queries session data-triggered

Description

This command configures filtering of sessions with a data-triggered address stack.

The **no** form of this command removes the configuration.

Default

no data-triggered

4.2.29.14 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway system bng queries session description

Description

This command configures a description for the session query.

The **no** form of this command removes the description.

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Default

no description

Parameters

description-string

Specifies the description of the session query, up to 80 characters.

4.2.29.15 eps-bearer-id

Syntax

eps-bearer-id *ebid*

no eps-bearer-id

Context

[Tree] configure mobile-gateway system bng queries session eps-bearer-id

Description

This command configures the EPS bearer ID.

The **no** form of this command removes the configuration.

Default

no eps-bearer-id

Parameters

ebid

Specifies the EPS bearer ID.

Values: 5 to 15

4.2.29.16 fate-sharing-group-id

Syntax

fate-sharing-group-id *fsg-id*

no fate-sharing-group-id

Context

[Tree] configure mobile-gateway system bng queries session fate-sharing-group-id

Description

This command configures the fate-sharing group ID.

The **no** form of this command removes the configuration.

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Default

no fate-sharing-group-id

Parameters

fsg-id

Specifies the ID.

Values: 1 to 65535

4.2.29.17 fh-active-chf

Syntax

[**no**] **fh-active-chf**

Context

[Tree] configure mobile-gateway system bng queries session fh-active-chf

Description

This command configures to match only sessions with CHF failure handling active.

The **no** form of this command disables the filter.

Default

no fh-active-chf

4.2.29.18 fh-active-pcf

Syntax

[**no**] **fh-active-pcf**

Context

[Tree] configure mobile-gateway system bng queries session fh-active-pcf

Description

This command configures to match only sessions with PCF failure handling active.

The **no** form of this command disables the filter.

Default

no fh-active-pcf

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4.2.29.19 fh-active-udm-sdm

Syntax

[**no**] **fh-active-udm-sdm**

Context

[Tree] configure mobile-gateway system bng queries session fh-active-udm-sdm

Description

This command configures to match only sessions with UDM SDM failure handling active.

The **no** form of this command disables the filter.

Default

no fh-active-udm-sdm

4.2.29.20 fh-active-udm-uecm

Syntax

[**no**] **fh-active-udm-uecm**

Context

[Tree] configure mobile-gateway system bng queries session fh-active-udm-uecm

Description

This command configures to match only sessions with UDM UECM failure handling active.

The **no** form of this command disables the filter.

Default

no fh-active-udm-uecm

4.2.29.21 imei

Syntax

imei *number*

no imei

Context

[Tree] configure mobile-gateway system bng queries session imei

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Description

This command configures the IMEI.

The **no** form of this command removes the configuration.

Default

no imei

Parameters

number

Specifies the IMEI in 15 or 16 digits.

4.2.29.22 imsi

Syntax

imsi *number*

no imsi

Context

[Tree] configure mobile-gateway system bng queries session imsi

Description

This command configures the IMSI.

The **no** form of this command removes the configuration.

Default

no imsi

Parameters

number

Specifies the IMSI in 10 to 15 digits.

4.2.29.23 ip

Syntax

ip

Context

[Tree] configure mobile-gateway system bng queries session ip

Description

Commands in this context configure the IP match criteria.

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4.2.29.24 address-stacks

Syntax

address-stacks

Context

[Tree] configure mobile-gateway system bng queries session ip address-stacks

Description

Commands in this context configure the address stack match criteria.

4.2.29.25 ipv4

Syntax

ipv4 {false | true}

no ipv4

Context

[Tree] configure mobile-gateway system bng queries session ip address-stacks ipv4

Description

This command configures the IPv4 address stack criterion.

When configured to **true**, IPv4 sessions are included in the query.

When configured to **false**, IPv4 sessions are excluded in the query.

The **no** form of this command removes the IPv4 address stack criterion.

Default

no ipv4

4.2.29.26 ipv6-na

Syntax

ipv6-na {**false** | **true**}

no ipv6-na

Context

[Tree] configure mobile-gateway system bng queries session ip address-stacks ipv6-na

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Description

This command configures the IPv6 NA address stack criterion.

When configured to **true**, IPv6 NA sessions are included in the query.

When configured to **false**, IPv6 NA sessions are excluded in the query.

The **no** form of this command removes the IPv6 NA address stack criterion.

Default

no ipv6-na

4.2.29.27 ipv6-pd

Syntax

ipv6-pd {**false** | **true**}

no ipv6-pd

Context

[Tree] configure mobile-gateway system bng queries session ip address-stacks ipv6-pd

Description

This command configures the IPv6 PD address stack criterion.

When configured to **true**, IPv6 PD sessions are included in the query.

When configured to **false**, IPv6 PD sessions are excluded in the query.

The **no** form of this command removes the IPv6 PD address stack criterion.

Default

no ipv6-pd

4.2.29.28 ipv6-slaac

Syntax

ipv6-slaac {false | true}

no ipv6-slaac

Context

[Tree] configure mobile-gateway system bng queries session ip address-stacks ipv6-slaac

Description

This command configures the IPv6 SLAAC address stack criterion.

When configured to **true**, IPv6 SLAAC sessions are included in the query.

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When configured to **false**, IPv6 SLAAC sessions are excluded in the query.

The **no** form of this command removes the IPv6 SLAAC address stack criterion.

Default

no ipv6-slaac

4.2.29.29 prefix

Syntax

prefix *ip-prefix/prefix-length*

no prefix

Context

[Tree] configure mobile-gateway system bng queries session ip prefix

Description

This command configures the IP prefix and IP prefix length.

The **no** form of this command removes the configuration.

Default

no prefix

Parameters

ip-prefix

Specifies the IP address prefix.

Values:

- ipv4 – a.b.c.d
- ipv6 – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

prefix-length

Specifies the IP prefix length.

Values:

- IPv4: 0 to 32
- IPv6: 0 to 128

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4.2.29.30 l2-access-id

Syntax

l2-access-id *string*

no l2-access-id

Context

[Tree] configure mobile-gateway system bng queries session l2-access-id

Description

This command configures the Layer 2 access ID.

The **no** form of this command removes the configuration.

Default

no l2-access-id

Parameters

string

Specifies the L2 access ID, up to 64 characters.

4.2.29.31 mac-address

Syntax

mac-address *ieee-address*

no mac-address

Context

[Tree] configure mobile-gateway system bng queries session mac-address

Description

This command configures the MAC address.

The **no** form of this command removes the configuration.

Default

no mac-address

Parameters

ieee-address

Specifies the MAC address.

Values: xx:xx:xx:xx:xx:xx or xx-xx-xx-xx-xx-xx

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4.2.29.32 msisdn

Syntax

msisdn *number*

no msisdn

Context

[Tree] configure mobile-gateway system bng queries session msisdn

Description

This command configures the MSISDN.

The **no** form of this command removes the configuration.

Default

no msisdn

Parameters

number

Specifies the MSISDN in 9 to 15 digits.

4.2.29.33 n1-pdu-session-id

Syntax

n1-pdu-session-id *pdu-seid*

no n1-pdu-session-id

Context

[Tree] configure mobile-gateway system bng queries session n1-pdu-session-id

Description

This command configures the N1 PDU session ID.

The **no** form of this command removes the configuration.

Default

no n1-pdu-session-id

Parameters

pdu-seid

Specifies the N1 PDU session ID.

Values: 1 to 255

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4.2.29.34 nat-profile

Syntax

nat-profile *name*

no nat-profile

Context

[Tree] configure mobile-gateway system bng queries session nat-profile

Description

This command configures the NAT profile name.

The **no** form of this command removes the configuration.

Default

no nat-profile

Parameters

name

Specifies the profile name, up to 32 characters.

4.2.29.35 network-realm

Syntax

network-realm *name*

no network-realm

Context

[Tree] configure mobile-gateway system bng queries session network-realm

Description

This command configures the name of the associated network realm.

The **no** form of this command removes the configuration.

Default

no network-realm

Parameters

name

Specifies the network realm name, up to 80 characters.

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4.2.29.36 output-options

Syntax

output-options

no output-options

Context

[Tree] configure mobile-gateway system bng queries session output-options

Description

Commands in this context configure the information to include in the output.

The **no** form of this command removes the configuration.

Default

no output-options

4.2.29.37 charging

Syntax

charging [detailed-stats] [fetch-upf]

no charging

Context

[Tree] configure mobile-gateway system bng queries session output-options charging

Description

This command configures the charging information to display in the output.

The **no** form of this command removes the configuration.

Default

no charging

Parameters

detailed-stats

Displays the detailed charging statistics.

fetch-upf

Fetches the latest statistics from the BNG-UP.

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4.2.29.38 count

Syntax

count

no count

Context

[Tree] configure mobile-gateway system bng queries session output-options count

Description

This command displays only the number of matching sessions without any additional data.

The **no** form of this command removes the configuration.

Default

no count

4.2.29.39 nat

Syntax

nat

no nat

Context

[Tree] configure mobile-gateway system bng queries session output-options nat

Description

This command displays information about the NAT pool of the CP NAT profile and the outside routing context for the sessions.

The **no** form of this command removes the configuration.

Default

no nat

4.2.29.40 pfcp

Syntax

pfcp

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Context

[Tree] configure mobile-gateway system bng queries session pfcp

Description

Commands in this context configure the PFCP match criteria.

4.2.29.41 local-seid

Syntax

local-seid *binary seid*

no local-seid

Context

[Tree] configure mobile-gateway system bng queries session pfcp local-seid

Description

This command configures the PFCP local session ID.

The **no** form of this command removes the configuration.

Default

no local-seid

Parameters

binary seid

Specifies the local session ID.

Values: 0xFFFF... (exact 16 hex nibbles)

4.2.29.42 remote-seid

Syntax

remote-seid *binary reid*

no remote-seid

Context

[Tree] configure mobile-gateway system bng queries session pfcp remote-seid

Description

This command configures the PFCP remote session ID.

The **no** form of this command removes the configuration.

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Default

no remote-seid

Parameters

binary reid

Specifies the remote session ID.

Values: 0xFFFF... (exact 16 hex nibbles)

4.2.29.43 rat-type

Syntax

rat-type *radio-access-type*

no rat-type

Context

[Tree] configure mobile-gateway system bng queries session rat-type

Description

This command configures the Radio Access Technology (RAT) type.

The **no** form of this command reverts to the default.

Default

rat-type any

Parameters

radio-access-type

Specifies the RAT type to match on.

Values:

- any: match any RAT type
- eutran: match sessions connected via eutran RAT (4G)
- nr: match sessions connected via NR RAT (5G)

4.2.29.44 remote-id

Syntax

remote-id string *rid-string*

remote-id hex *binary rid*

no remote-id

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Context

[Tree] configure mobile-gateway system bng queries session remote-id

Description

This command configures the remote ID.

The **no** form of this command removes the configuration.

Default

no remote-id

Parameters

rid-string

Specifies the remote ID string, up to 255 characters.

binary rid

Specifies the binary value for the remote ID.

Values: 0x0 to 0xFFFFFFFF... (maximum 510 hex nibbles)]

4.2.29.45 s-nssai

Syntax

s-nssai

Context

[Tree] configure mobile-gateway system bng queries session s-nssai

Description

Commands in this context configure the Single-Network Slice Selection Assistance Information (S-NSSAI).

4.2.29.46 sd

Syntax

sd *sd hex string*

no sd

Context

[Tree] configure mobile-gateway system bng queries session s-nssai sd

Description

This command configures the slice differentiator (SD) part of the S-NSSAI.

The **no** form of this command removes the configuration.

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Default

no sd

Parameters

sd hex string

Specifies the hexadecimal value for the SD.

Values: 000000 to FFFFFF

4.2.29.47 sst

Syntax

sst *sst value*

no **sst**

Context

[Tree] configure mobile-gateway system bng queries session s-nssai sst

Description

This command configures the slice service type (SST) part of the S-NSSAI.

The **no** form of this command removes the configuration.

Default

no sst

Parameters

sst value

Specifies the SST.

Values: 0 to 255

4.2.29.48 s-vlan

Syntax

s-vlan *tag*

no s-vlan

Context

[Tree] configure mobile-gateway system bng queries session s-vlan

Description

This command configures the service VLAN (outer VLAN).

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The **no** form of this command removes the configuration.

Default

no s-vlan

Parameters

tag

Specifies the service VLAN tag.

Values: 0 to 4094

4.2.29.49 standby-state

Syntax

standby-state *stdby-state*

no standby-state

Context

[Tree] configure mobile-gateway system bng queries session standby-state

Description

This command configures the resiliency mode for the session on the standby BNG-UP.

The **no** form of this command removes the configuration.

Default

no standby-state

Parameters

stdby-state

Specifies the resiliency mode for the session.

Values:

- any – the session is in any of the following resiliency modes
- hot – hot standby is enabled for the session
- hot-created – hot standby is enabled for the session and the session is created on the standby BNG-UP
- hot-to-create – hot standby is enabled for the session and the session is not yet created on the standby BNG-UP
- warm – warm standby is enabled for the session

Default: any

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4.2.29.50 subscriber-name

Syntax

subscriber-name *name*

no subscriber-name

Context

[Tree] configure mobile-gateway system bng queries session subscriber-name

Description

This command configures the subscriber name.

The **no** form of this command removes the configuration.

Default

no subscriber-name

Parameters

name

Specifies the subscriber name, up to 128 characters.

4.2.29.51 up-ip

Syntax

up-ip *ip-address* | *ipv6-address*

no up-ip

Context

[Tree] configure mobile-gateway system bng queries session up-ip

Description

This command configures the UP IP address.

The **no** form of this command removes the configuration.

Default

no up-ip

Parameters

ip-address

Specifies the UP IPv4 address.

Values: a.b.c.d

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ipv6-address

Specifies the UP IPv6 address.

Values: x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

x – [0..FFFF]H

d – [0..255]D

4.2.29.52 user-access-type

Syntax

user-access-type *access-type*

no user-access-type

Context

[Tree] configure mobile-gateway system bng queries session user-access-type

Description

This command configures the user access type.

The **no** form of this command removes the configuration.

Default

no user-access-type

Parameters

access-type

Specifies the user access type.

Values: any | ipoe | pppoe | fixed-wireless-access

4.2.29.53 wpp-portal-group

Syntax

wpp-portal-group *name*

no wpp-portal-group

Context

[Tree] configure mobile-gateway system bng queries session wpp-portal-group

Description

This command configures the WPP portal group name.

The **no** form of this command removes the configuration.

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Default

no wpp-portal-group

Parameters

name

Specifies the portal group name, up to 32 characters.

4.2.29.54 subscriber

Syntax

subscriber *name*

no subscriber *name*

Context

[Tree] configure mobile-gateway system bng queries subscriber

Description

This command configures a query to retrieve YANG state information of MAG-c subscribers.

The **no** form of this command removes the specified subscriber query.

Default

no subscriber

Parameters

name

Specifies the name of the subscriber query, up to 32 characters.

4.2.29.55 acct-session-id

Syntax

acct-session-id *identifier*

no acct-session-id

Context

[Tree] configure mobile-gateway system bng queries subscriber acct-session-id

Description

This command configures the accounting session ID.

The **no** form of this command removes the configuration.

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Default

no acct-session-id

Parameters

identifier

Specifies the accounting session ID, up to 25 characters.

4.2.29.56 apn

Syntax

apn *name*

no apn

Context

[Tree] configure mobile-gateway system bng queries subscriber apn

Description

This command configures the APN.

The **no** form of this command removes the configuration.

Default

no apn

Parameters

name

Specifies the APN name, up to 80 characters.

4.2.29.57 description

Syntax

description *description-string*

no description

Context

[Tree] configure mobile-gateway system bng queries subscriber description

Description

This command configures a description for the subscriber query.

The **no** form of this command removes the description.

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Default

no description

Parameters

description-string

Specifies the description, up to 80 characters.

4.2.29.58 fate-sharing-group-id

Syntax

fate-sharing-group-id *fsg-id*

no fate-sharing-group-id

Context

[Tree] configure mobile-gateway system bng queries subscriber fate-sharing-group-id

Description

This command configures the fate-sharing group ID.

The **no** form of this command removes the configuration.

Default

no fate-sharing-group-id

Parameters

fsg-id

Specifies the ID.

Values: 1 to 65535

4.2.29.59 l2-access-id

Syntax

l2-access-id *string*

no l2-access-id

Context

[Tree] configure mobile-gateway system bng queries subscriber l2-access-id

Description

This command configures the Layer 2 access ID.

The **no** form of this command removes the configuration.

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Default

no l2-access-id

Parameters

string

Specifies the Layer 2 access ID, up to 64 characters.

4.2.29.60 network-realm

Syntax

network-realm *name*

no network-realm

Context

[Tree] configure mobile-gateway system bng queries subscriber network-realm

Description

This command configures the name of the associated network realm.

The **no** form of this command removes the configuration.

Default

no network-realm

Parameters

name

Specifies the network realm name, up to 80 characters.

4.2.29.61 output-options

Syntax

output-options

no output-options

Context

[Tree] configure mobile-gateway system bng queries subscriber output-options

Description

Commands in this context configure the information to include in the output.

The **no** form of this command removes the configuration.

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Default

no output-options

4.2.29.62 charging

Syntax

charging {detailed-stats] [fetch-upf]

no charging

Context

[Tree] configure mobile-gateway system bng queries subscriber output-options charging

Description

This command configures the charging information to display in the output.

The **no** form of this command removes the configuration.

Default

no charging

Parameters

detailed-stats

Displays the detailed charging statistics.

fetch-upf

Fetches the latest statistics from the BNG-UP.

4.2.29.63 count

Syntax

count

no count

Context

[Tree] configure mobile-gateway system bng queries subscriber output-options count

Description

This command displays only the number of matching sessions without any further data.

The **no** form of this command removes the configuration.

Default

no count

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4.2.29.64 nat

Syntax

nat

no nat

Context

[Tree] configure mobile-gateway system bng queries subscriber output-options nat

Description

This command displays information about the NAT pool of the CP NAT profile and the outside routing context for the sessions.

The **no** form of this command removes the configuration.

Default

no nat

4.2.29.65 subscriber-id

Syntax

subscriber-id *identifier*

no subscriber-id

Context

[Tree] configure mobile-gateway system bng queries subscriber subscriber-id

Description

This command configures the subscriber ID.

The **no** form of this command removes the configuration.

Default

no subscriber-id

Parameters

identifier

Specifies the ID.

Values: 1 to 4294967295

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4.2.29.66 subscriber-name

Syntax

subscriber-name *name*

no subscriber-name

Context

[Tree] configure mobile-gateway system bng queries subscriber subscriber-name

Description

This command configures the subscriber name.

The **no** form of this command removes the configuration.

Default

no subscriber-name

Parameters

name

Specifies the name, up to 128 characters.

4.2.29.67 up-ip

Syntax

up-ip *ip-address* | *ipv6-address*

no up-ip

Context

[Tree] configure mobile-gateway system bng queries subscriber up-ip

Description

This command configures the UP IPv4 or IPv6 address.

The **no** form of this command removes the configuration.

Default

no up-ip

Parameters

ip-address

Specifies the UP IPv4 address.

Values: a.b.c.d

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ipv6-address

Specifies the UP IPv6 address.

Values: x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

x – [0..FFFF]H

d – [0..255]D

4.2.29.68 call-insight

Syntax

call-insight

Context

[Tree] configure mobile-gateway system call-insight

Description

Commands in this context configure global call trace settings.

4.2.29.69 location

Syntax

location *location*

Context

[Tree] configure mobile-gateway system call-insight location

Description

This command configures the location of the Compact Flash (CF) call trace storage.

Parameters

location

Specifies the location of the call trace storage.

Values: cf1 | cf2

Default: cf1

4.2.29.70 disable

Syntax

[**no**] **disable**

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Context

[Tree] configure mobile-gateway system call-insight location disable

Description

This command enables or disables the specified storage location for call trace files.

Default

no disable

4.2.29.71 limit

Syntax

limit *limit*

no limit

Context

[Tree] configure mobile-gateway system call-insight location limit

Description

This command limits the total captured call trace files size per CF.

Default

limit 1000

Parameters

limit

Specifies the total captured call trace files size in megabytes.

Values: 0 to 65536 (0 means unlimited)

4.2.29.72 primary

Syntax

[**no**] **primary**

Context

[Tree] configure mobile-gateway system call-insight location primary

Description

This command sets the primary CF. The other CF is automatically set to be secondary.

The **no** form of this command sets the secondary CF.

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Default

For CF1: primary

For CF2: no primary

4.2.29.73 max-files-number

Syntax

max-files-number *max-files-number*

no max-files-number

Context

[Tree] configure mobile-gateway system call-insight max-files-number

Description

This command configures the maximum number of files for call trace output.

The **no** form of this command reverts to the default.

Default

max-files-number 200

Parameters

max-files-number

Specifies the maximum call trace files.

Values: 0 to 1024

4.2.29.74 group

Syntax

group *group-number* [**resource-pool** *resource-pool-id*]

no group *group-number*

Context

[Tree] configure mobile-gateway system group

Description

This command configures the mobile-gateway system group with one or more SM-VMs for N:K redundant systems.

The **no** form of this command removes the specified group row entry, when the group is in shutdown.

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Note: The resource pool must be configured before configuring the system group; see the **resource-pool** command.

Parameters

group-number

Specifies a mobile-gateway system group.

Values: 1 to 15

resource-pool-id

Specifies the ID of the resource pool.

Values: 1 to 16

Note: Configure the resource pool before the mobile-gateway system group; see the **resource-pool** command.

4.2.29.75 protect-active-delay

Syntax

protect-active-delay *protect-active-delay*

no protect-active-delay

Context

[Tree] configure mobile-gateway system group protect-active-delay

Description

This command specifies the time to wait for the working card to come online before a standby card becomes active.

The **no** form of this command reverts to the default.

Default

protect-active-delay 10

Parameters

protect-active-delay

Specifies the wait time in seconds.

Values: 1 to 30

4.2.29.76 shutdown

Syntax

[**no**] **shutdown**

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Context

[Tree] configure mobile-gateway system group shutdown

Description

This command administratively disables the entity. When disabled, an entity does not change, reset, or remove any configuration settings or statistics. Many entities must be explicitly enabled using the **no shutdown** command.

The **shutdown** command administratively disables an entity. The operational state of the entity is disabled as well as the operational state of any entities contained within. Many objects must be shut down before they may be deleted.

Default

shutdown

4.2.29.77 resource-pool

Syntax

resource-pool *resource-pool-id* **redundancy** *type* **gateway** *gw-id*

no resource-pool *resource-pool-id*

Context

[Tree] configure mobile-gateway system resource-pool

Description

This command configures a resource pool consisting of SM-VMs on the MAG-c platform and the redundancy method to use when the resource pool is associated with a mobile-gateway system group. Currently this command supports configuration of N:K (many-to-many) redundant systems. The resource pool must also be associated with a mobile-gateway system group when configuring N:K redundancy. For more details, see the **group** command.

Note: For N:K redundant systems, this configuration includes all VMs (cards) used across multiple mobile-gateway system groups. The cards in this context must not be configured as active (**working**) or standby (**protect**); see the **card** command.

Parameters

resource-pool-id

Specifies the ID of the resource pool.

Values: 1 to 16

type

Specifies the redundancy method.

Values: many-to-many

gw-id

Specifies the ID of the mobile gateway to which the resource pool belongs.

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Values: 1 to 8

4.2.29.78 card

Syntax

card *slot-number*

no card *slot-number*

Context

[Tree] configure mobile-gateway system resource-pool card

Description

This command configures the VM for the mobile-gateway system group or resource pool contexts. Depending on the failure scenario, either VM can be in an active or standby state.

The **no** form of this command removes the VM from the resource pool.

Note: An N:K redundant system does not use an active (**working**) or a standby (**protect**) VM. These undocumented parameters are present because of legacy reasons and must not be configured.

Parameters

slot-number

Specifies the VM slot number.

Values: 1 to 20

4.2.29.79 protect-active-delay

Syntax

protect-active-delay *protect-active-delay*

no protect-active-delay

Context

[Tree] configure mobile-gateway system resource-pool protect-active-delay

Description

This command specifies the time to wait for the working card to come online before a standby card becomes active.

The **no** form of this command reverts to the default.

Default

protect-active-delay 10

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Parameters

protect-active-delay

Specifies the wait time in seconds.

Values: 1 to 30, in seconds.

4.2.29.80 thresholds

Syntax

thresholds

Context

[Tree] configure mobile-gateway system thresholds

Description

Commands in this context configure monitoring thresholds.

4.2.29.81 system-mg-ism

Syntax

[**no**] **system-mg-ism** *group-number*

Context

[Tree] configure mobile-gateway system thresholds system-mg-ism

Description

This command configures monitoring thresholds for ISM-MG (SM-VM).

The **no** form of this command removes the monitoring thresholds from the profile configuration.

Parameters

group-number

Specifies group number.

Values: 1 to 15

4.2.29.82 interval

Syntax

interval *minutes*

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Context

[Tree] configure mobile-gateway system thresholds system-mg-ism interval

Description

This command configures the interval values for ISM-MG.

Default

interval 5

Parameters

minutes

Specifies group number.

Values: 5 to 60

4.2.29.83 shutdown

Syntax

[**no**] **shutdown**

Context

[Tree] configure mobile-gateway system thresholds system-mg-ism shutdown

Description

This command administratively disables the entity. When disabled, an entity does not change, reset, or remove any configuration settings or statistics. Many entities must be explicitly enabled using the **no shutdown** command.

The **shutdown** command administratively disables an entity. When an entity is disabled, the operational state of the entity is disabled, as well as the operational state of any entities contained within. Many objects must be shut down before they may be deleted.

Default

shutdown

4.2.30 configure mobile-gateway command descriptions

4.2.30.1 mobile-gateway

Syntax

mobile-gateway

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Context

[Tree] configure mobile-gateway

Description

Commands in this context configure a gateway instance.

4.2.31 debug mobile-gateway command descriptions

4.2.31.1 mobile-gateway

Syntax

mobile-gateway

Context

[Tree] debug mobile-gateway

Description

Commands in this context enable and configure call trace debugging.

4.2.31.2 call-insight

Syntax

call-insight

Context

[Tree] debug mobile-gateway call-insight

Description

This command enables the context for debugging call trace.

4.2.31.3 all-ues

Syntax

all-ues profile *profile-name*

no all-ues

Context

[Tree] debug mobile-gateway call-insight all-ues

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Description

This command enables call-insight for all sessions.

Parameters

profile-name

Specifies the profile name, up to 32 characters. It references a profile configured using the following command.

```
configure mobile-gateway profile call-insight all-ues
```

4.2.31.4 bng

Syntax

bng [**mac-address** *mac*] [**remote-id** *rem*] [**circuit-id** *circ*] [**up** *up-node-id*] [**l2-access-id** *l2-acc*] [**l2-circuit** *l2-circ*] [**profile** *profile-name*] [**max-sessions** *max*]

no bng [**mac-address** *mac*] [**remote-id** *rem*] [**circuit-id** *circ*] [**up** *up-node-id*] [**l2-access-id** *l2-acc*] [**l2-circuit** *l2-circ*]

no bng all

Context

[Tree] debug mobile-gateway call-insight bng

Description

This command enables the call trace debugging of the BNG sessions matching the specified parameters using the specified profile.

The **no** form of this command removes either a specific trace matching the specified filters or all configured traces.

Parameters

all

Keyword to remove all traces.

mac

Specifies the MAC address of the BNG session.

Values: xx:xx:xx:xx:xx:xx or xx-xx-xx-xx-xx-xx (where x is an hexadecimal digit)

rem

Specifies the remote ID of the BNG session, up to 255 characters. The wildcard character (*) can be used only at the start or the end.

circ

Specifies the circuit ID of the BNG session, up to 255 characters. The wildcard character (*) can be used only at the start or the end.

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up-node-id

Specifies the UP node ID of the UPF where the session is active.

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D
- fqdn – Up to 255 characters (per label max 63); the wildcard character (*) can be used only at the start or the end

l2-acc

Specifies the layer 2 access ID where the session is active, up to 50 characters. The wildcard character (*) can be used only at the start or the end.

l2-circ

Specifies the layer 2 circuit ID where the session is active, up to 50 characters. The wildcard character (*) can be used only at the start or the end.

profile-name

Specifies an existing call-insight profile, as configured with the **ue** command in the following context.

```
configure mobile-gateway profile call-insight
```

It is a string of up to 32 characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

max

Specifies the maximum number of BNG sessions that can be traced for the specified criteria. Additional sessions matching the specified criteria are not traced.

Values: 1 to 50

4.2.31.5 ue

Syntax

ue {**imei** | **imsi** | **msisdn**} *value* [**profile** *profile-name*]

ue {**imei** | **imsi** | **msisdn**} *value* **reset-user-traffic-stats**

no ue {**imei** | **imsi** | **msisdn**} *value*

no ue all

no ue {**imei** | **imsi** | **msisdn**} **mask** *pattern*

no ue mask-name *mask-name*

Context

[Tree] debug mobile-gateway call-insight ue

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Description

This command enables adding and removing of specified call trace jobs.

Parameters

Note:
The parameters of the following commands are not supported with metadata for call trace:

- **no ue** {**imei** | **imsi** | **msisdn**} **mask** *pattern*
- **no ue mask-name** *mask-name*

all

Keyword to remove all call trace jobs.

imei

Keyword to add or remove an IMEI call trace job, up to 16 digits.

imsi

Keyword to add or remove an IMSI call trace job. up to 15 digits.

msisdn

Keyword to add or remove an MSISDN call trace job, up to 15 digits.

mask-name

Removes call trace jobs matching a specified mask name. The mask name is up to 16 characters.

Default: “default”

pattern

Removes call trace jobs matching a unique mask type and pattern. The pattern is up to 16 characters long composed of digits 0-9, '*' and '.'.

profile-name

Specifies an existing profile name. Allowed values are any string up to 32 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

value

Removes call trace jobs matching a specified IMEI, IMSI, or MSISDN value.

reset-user-traffic-stats

Keyword to reset call-insight UE user traffic statistics.

4.2.31.6 ue-mask

Syntax

ue-mask {**imei** | **imsi** | **msisdn**} *pattern* **[name** *mask-name*] **[profile** *profile-name*] **[max-ues** *num*]

no ue-mask {**imei** | **imsi** | **msisdn**} *pattern*

no ue-mask name *mask-name*

no ue-mask all

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Context

[Tree] debug mobile-gateway call-insight ue-mask

Description

This command adds or removes a mask template for call-trace jobs to be generated automatically. If the **name** is not specified, a default name is used. If the **profile** is not specified, a default profile is used. If the **max-ues** is not specified, a default value of 50 is used.

Parameters

all

Keyword to remove all mask templates.

imei

Keyword to add or remove an IMEI mask template.

imsi

Keyword to add or remove an IMSI mask template.

msisdn

Keyword to add or remove an MSISDN mask template.

mask-name

Specifies the mask name, up to 16 characters. The default mask name is “default”.

num

Specifies the maximum number of UEs. The default is 50.

Values: 1 to 50

pattern

The pattern is a maximum of 16 characters composed of digits 0-9, '*' and '.'.

profile-name

Specifies an existing profile name. Allowed values are any string up to 32 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, and so on), the entire string must be enclosed within double quotes.

4.2.32 show mobile-gateway command descriptions

4.2.32.1 mobile-gateway

Syntax

mobile-gateway

Context

[Tree] show mobile-gateway

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Description

Commands in this context display gateway information.

4.2.32.2 bng

Syntax

bng

Context

[Tree] show mobile-gateway bng

Description

Commands in this context display BNG information.

4.2.32.3 charging

Syntax

charging

Context

[Tree] show mobile-gateway bng charging

Description

Commands in this context display charging information.

4.2.32.4 radius

Syntax

radius

Context

[Tree] show mobile-gateway bng charging radius

Description

This command displays RADIUS charging information.

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4.2.32.5 buffering

Syntax

buffering

Context

[Tree] show mobile-gateway bng charging radius buffering

Description

This command displays buffering statistics of the RADIUS charging messages.

4.2.32.6 nat

Syntax

nat

Context

[Tree] show mobile-gateway bng nat

Description

Commands in this context display NAT information.

4.2.32.7 histogram

Syntax

histogram

Context

[Tree] show mobile-gateway bng nat histogram

Description

Commands in this context display NAT histogram information.

4.2.32.8 extended-port-blocks-per-ip

Syntax

extended-port-blocks-per-ip cp-nat-profile *cp-nat-profile* **nat-pool** *nat-pool* [**gateway** *gw-id*] **up** *ip-addr* | *fqdn* **bucket-size** *size* **num-buckets** *number*

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extended-port-blocks-per-ip cp-nat-profile *cp-nat-profile* **nat-pool** *nat-pool* [**gateway** *gw-id*] **fsg** *fsg-id* **bucket-size** *size* **num-buckets** *number*

Context

[Tree] show mobile-gateway bng nat histogram extended-port-blocks-per-ip

Description

This command displays the aggregated distribution of extended PBs across IP addresses. Unused IP addresses are not included.

Parameters

cp-nat-profile

Specifies the NAT profile name, up to 32 characters.

nat-pool

Specifies the NAT pool name, up to 32 characters.

gw-id

Specifies the gateway ID.

Values: 1 to 8

Default: 1

ip-addr

Specifies the UP IP address.

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D

fqdn

Specifies the fully qualified domain name (FQDN) for the UP, up to 255 characters.

size

Specifies the size of the PB buckets.

Values: 1 to 65536

number

Specifies the number of PB buckets to display in the output.

Values: 2 to 50

fsg-id

Specifies the fate sharing group.

Values: 0 to 4294967295

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Output

The following output is an example of the aggregated distribution of extended PBs across IP addresses for the specified NAT profile, NAT pool, and UP IP address.

Output example

```
A:MAG-c# show mobile-gateway bng nat histogram extended-port-blocks-per-ip cp-nat-profile
 "Dut-C_pol_pol1_for_601-pool-0" nat-pool "601-pool-0" up 10.0.1.3 bucket-size 100 num-
buckets 50

===============================================================================
Usage histogram UP 10.0.1.3 extended port blocks per IP address
===============================================================================
Num extended port blocks      Num IP addresses
-------------------------------------------------------------------------------
1-99                          0
100-199                       0
200-299                       0
300-399                       14
400-499                       2
500-599                       1
600-699                       6
700-799                       11
800-899                       50
900-999                       65
1000-1099                     104
1100-1199                     171
1200-1299                     201
1300-1399                     163
1400-1499                     60
1500-1599                     23
1600-1699                     1
1700-1799                     0
1800-1899                     0
1900-1999                     0
2000-2099                     0
2100-2199                     0
2200-2299                     0
2300-2399                     0
2400-2499                     0
2500-2599                     0
2600-2699                     0
2700-2799                     0
2800-2899                     0
2900-2999                     0
3000-3099                     0
3100-3199                     0
3200-3299                     0
3300-3399                     0
3400-3499                     0
3500-3599                     0
3600-3699                     0
3700-3799                     0
3800-3899                     0
3900-3999                     0
4000-4099                     0
4100-4199                     0
4200-4299                     0
4300-4399                     0
4400-4499                     0
4500-4599                     0
4600-4699                     0
4700-4799                     0
```


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```
4800-4899                     0
4900-                         0
-------------------------------------------------------------------------------
No. of entries: 50
```

4.2.32.9 port-blocks

Syntax

port-blocks cp-nat-profile *cp-nat-profile* **nat-pool** *nat-pool* [**gateway** *gw-id*] **up** *ip-addr* | *fqdn*

port-blocks cp-nat-profile *cp-nat-profile* **nat-pool** *nat-pool* [**gateway** *gw-id*] **fsg** *fsg-id*

Context

[Tree] show mobile-gateway bng nat histogram port-blocks

Description

This command displays the PB allocation in relation to the number of subscribers.

Parameters

cp-nat-profile

Specifies the NAT profile name, up to 32 characters.

nat-pool

Specifies the NAT pool name, up to 32 characters.

gw-id

Specifies the gateway ID.

Values: 1 to 8

Default: 1

ip-addr

Specifies the UP IP address.

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D

fqdn

Specifies the fully qualified domain name (FQDN) for the UP, up to 255 characters.

fsg-id

Specifies the fate sharing group.

Values: 0 to 4294967295

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Output

The following output is an example of PB allocation in relation to the number of subscribers for the specified NAT profile, NAT pool, and UP IP address. In the example, only one PB is allocated for 24,241 subscribers, two PBs are allocated for 229 subscribers, and so on.

Output example

```
A:MAG-c# show mobile-gateway bng nat histogram port-blocks cp-nat-profile "Dut-C_pol_pol1_
for_601-pool-0" nat-pool "601-pool-0" up 10.0.1.3

===============================================================================
Usage histogram UP 10.0.1.3 port blocks per subscriber
===============================================================================
Num port blocks               Num subscribers
-------------------------------------------------------------------------------
1                             24241
2                             229
3                             232
4                             230
5                             236
6                             222
7                             200
8                             245
9                             281
10                            112737
-------------------------------------------------------------------------------
No. of entries: 10
```

4.2.32.10 queries

Syntax

queries

Context

[Tree] show mobile-gateway bng queries

Description

Commands in this context display query information.

4.2.32.11 session

Syntax

session [*query-name*]

Context

[Tree] show mobile-gateway bng queries session

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Description

This command displays information of the sessions that match the specified configured query. If the query has been configured with the **output-option count** command, the displayed information is the number of matching sessions; otherwise, it is a summary with basic identifier information for each session. To retrieve more detailed information of matched sessions, use the following command.

```
show mobile-gateway bng session
```

Parameters

query-name

Specifies the name of a query previously configured using the following command.

```
configure mobile-gateway system bng queries session
```

4.2.32.12 session

Syntax

session [**c-vlan** *tag*] [**s-vlan** *tag*] [**subscriber-name** *string-255*] [**l2-access-id** *string-64*] [**up-ip** *ip-address* | *ipv6-address*] [**mac** *ieee-address*] [**cid-string** *string-255*] [**cid-hex** *binary-cid*] [**rid-string** *string-255*] [**rid-hex** *binary-rid*] [**ppp-username-domain** *domain*] [**ppp-username** *username*] [*output-option*] [**user-access-type** *type*] [**pfcp-local-session-id** *hex-num*] [**pfcp-remote-session-id** *hex-num*] [**apn** *apn*] [**network-realm** *realm-name*] [**cp-nat-profile** *profile-name*] [**ip-prefix** *ip-prefix* [*Iprefix-length*]] [**group** *group-number*] [**acct-session-id** *id*] [**acct-multi-session-id** *id*] [**fsg** *fsg-id*] [**address-stack** *stack* [*stack...(up to 4 max)*]] [**address-stack-exclude** {*stack*} [{*stack*}*...(up to 4 max)*]] [**imsi** *imsi*] [**imei** *imei*] [**msisdn** *msisdn*] [**rat-type** *radio-access-type*] [**data-triggered**] [**standby-state** *stdby-state*] [**n1-pdu-session-id** *pdu-seid*] [**eps-bearer-id** *ebid*] [**fh-active-chf**] [**fh-active-pcf**] [**fh-active-udm-sdm**] [**fh-active-udm-uecm**]

Context

[Tree] show mobile-gateway bng session

Description

This command displays basic information for BNG sessions. By default, this command displays all sessions up to a maximum number. The maximum number equals the number of MSCP VMs × 1024. Add any optional parameter to filter the output and only display the data of specific sets of sessions up to the same maximum number.

Parameters

c-vlan *tag*

Specifies the customer VLAN (inner VLAN) filter.

Values: 1 to 4096

s-vlan *tag*

Specifies the service VLAN (outer VLAN) filter.

Values: 1 to 4096

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subscriber-name *string-255*

Specifies the subscriber name filter, up to 255 characters.

string-64

Specifies the Layer 2 access ID filter, up to 64 characters.

ip-address **|** *ipv6-address*

Specifies the UP IP address filter.

Values:

- ip-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

ieee-address

Specifies the MAC address filter.

Values: xx:xx:xx:xx:xx:xx or xx-xx-xx-xx-xx-xx

cid-string *string-255*

Specifies the circuit ID string filter, up to 255 characters.

binary-cid

Specifies the circuit ID binary value filter

Values: 0x0 to 0xFFFFFFFF... (maximum of 510 hex nibbles).

rid-string *string-255*

Specifies the remote ID string filter, up to 255 characters.

binary-rid

Specifies the remote ID binary value filter

Values: 0x0 to 0xFFFFFFFF... (maximum of 510 hex nibbles).

domain

Specifies the PPP username domain filter, up to 253 characters.

username

Specifies the PPPoE username filter, up to 253 characters.

output-option

Specifies what information to include in the output; by default, only part of the session information is displayed.

Values: all | count | ibcp

- all – specifies to display all data
- count – specifies to display only the number of sessions, no other data
- ibcp – specifies to display only the IBCP data

type

Specifies the user access type filter.

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Values: ipoe | pppoe

hex-num

Specifies the PFCP local session ID filter.

Values: 0x0..0xFFFFFFFFFFFFFFFF (max 16 hex nibbles)

pfcp-remote-session-id *hex-num*

Specifies the PFCP remote session ID filter.

Values: 0x0..0xFFFFFFFFFFFFFFFF (max 16 hex nibbles)

apn

Specifies the APN filter, up to 80 characters.

realm-name

Specifies the name of the associated network realm for the network realm filter, up to 80 characters.

profile-name

Specifies the NAT profile name filter, up to 32 characters.

ip-prefix

Specifies the IP prefix filter, that is, only display the sessions with an IP address that matches the prefix.

Values:

- ipv4-prefix – a.b.c.d (host bits must be 0)
- ipv6-prefix – x:x:x:x:x:x:x:x (eight 16-bit pieces)
  x:x:x:x:x:x:d.d.d.d

  where

  x: [0..FFFF]H

  d: [0..255]D

prefix-length

Specifies the IP prefix length.

Values:

- ipv4-prefix-length – 0 to 32
- ipv6-prefix-length – 0 to 128

group-number

Specifies the mobile gateway group filter.

Values: 1 to 15

acct-session-id *id*

Specifies the acct-session-id filter, up to 25 characters.

acct-multi-session-id *id*

Specifies the acct-multi-session-id filter, up to 25 characters.

fsg-id

Specifies the fate sharing group filter.

Values: 1 to 65535

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stack

Specifies the address stacks filter, that is, only show sessions with the specified stacks.

Values: ipv4 | ipv6-na | ipv6-pd | ipv6-slaac

address-stack-exclude *stack*

Specifies the address stacks exclude filter, that is, exclude the sessions with the specified stacks.

Values: ipv4 | ipv6-na | ipv6-pd | ipv6-slaac

imsi

Specifies an IMSI identification string, up to 15 characters.

imei

Specifies an IMEI identification string, up to 16 characters.

msisdn

Specifies an MSISDN identification string, up to 15 characters.

radio-access-type

Specifies the radio access type (RAT).

Values: eutran | nr

data-triggered

Specifies to show sessions with a data-triggered address stack.

pdu-seid

Specifies the N1 PDU session ID.

Values: 1 to 255

ebid

Specifies the EPS bearer ID.

Values: 5 to 15

fh-active-chf

Keyword to show only sessions with CHF failure handling active.

fh-active-pcf

Keyword to show only sessions with PCF failure handling active.

fh-active-udm-sdm

Keyword to show only sessions with UDM SDM failure handling active.

fh-active-udm-uecm

Keyword to show only sessions with UDM UECM failure handling active.

Output

The following output is an example of all information for BNG sessions.

Output example: Information for BNG sessions

```
A:MAG-c# show mobile-gateway bng session

===============================================================================
BNG Sessions
```


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```
===============================================================================
[FWA] IMSI/SUPI                : 206010000000001
      APN/DNN                  : internet.apn1
      Default EBI              : 5
      N1 PDU Session Id        : 1
-------------------------------------------------------------------------------
IMEI/PEI                       : 358505010000010
MSISDN/GPSI                    : 8801812300001
PAP/CHAP User Name             : N/A
RAT                            : NR
Tracking Area Code             : 0x1
Cell Id                        : 0x15b4
RAN GTP-U IP                   : 32.0.0.7
RAN GTP-U TEID                 : 0x10000001
UP GTP-U IP                    : 9901:3:3::3
UP GTP-U IP                    : 100.3.3.3
UP GTP-U TEID                  : 0x00040000
S11 MME GTP-C IP               : N/A
S11 MME GTP-C TEID             : N/A
S11 CP GTP-C IP                : N/A
S11 CP GTP-C TEID              : N/A
N11 AMF GUAMI                  : 206 01 0x100000
N11 AMF NF Instance Id         : 5ab40a9d-ed34-11ef-88b2-00ff09000001
N10 UDM SDM NF Instance Id     : 5ab3f14e-ed34-11ef-8eac-00ff09000001
N10 UDM UECM NF Instance Id    : 5ab3f14e-ed34-11ef-8eac-00ff09000001
N7 PCF NF Instance Id          : 5aa77252-ed34-11ef-93cf-00ff09000001
N40 CHF NF Instance Id         : 5ab3e822-ed34-11ef-9faa-00ff09000001
N4 UPF NF Instance Id          : 5abb8132-ed34-11ef-a1cd-00ff09000001
N1 PDU Session Id              : 1
S-NSSAI                        : SST 11, SD 0xd143a5
QFI(s)                         : 9
EBI(s)                         : 5
Local Priority                 : N/A
UP Security Integrity          : N/A
UP Security Confidentiality    : N/A
UP Security UPIP Max UL Rate   : max-ue-rate
UP Security UPIP Max DL Rate   : max-ue-rate
UP Security UPIP 4G Supported  : No
IPv4 Signaling Method          : NAS
IPv4 Link MTU                  : N/A

Up Time                        : 0d 00:00:17
Provisioned Addresses          : IPv6_SLAAC
Signaled Addresses             : IPv6_SLAAC

UP Peer                        : 100.19.19.19
Selected APN/DNN               : internet.apn1
Network Realm                  : vprn_a

IPv6 SLAAC Prefix              : 2014::/64
IPv6 SLAAC Prefix Origin       : UDM
IPv6 SLAAC Subnet Length       : 52
IPv6 SLAAC Pool                : address_pool1
IPv6 Link-local                : fe80::1a:ffff:fe00:0
IPv6 Preferred Lifetime        : 7d 00:00:00
IPv6 Valid Lifetime            : 30d 00:00:00
IPv6 Primary DNS               : 3ffe:9abc:9abc:3333:90e:21f0:8520:e600
IPv6 Secondary DNS             : 3ffe:9abc:9abc:3333:90e:21f0:8520:e60a

Subscriber                     : 206010000000001 (536870913)
Acct-Session-Id                : F000111002131D2CC11000032
Acct-Multi-Session-Id          : Y200000012131D2CC00011100
State Id                       : N/A
Sub Profile                    : sub_profile1
```


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```
Sla Profile                     : sla_profile1
UP Alternate Sub Profile        : N/A
UP Alternate Sla Profile        : N/A
App Profile                     : N/A
Content Filtering Policy Id     : 0
SAP-Template                    : sap_template_fwa
Group-itf-template              : grpif_template_fwa
Number of Framed IPv4 Routes    : 0
Number of Framed IPv6 Routes    : 0
NAT Profile                     : N/A
HTTP Redirect URL               : N/A
Intermediate Destination Id     : N/A
Ingress IPv4 filter override    : N/A
Egress IPv4 filter override     : N/A
Ingress IPv6 filter override    : N/A
Egress IPv6 filter override     : N/A
Number of QoS Overrides         : 0

PFCP Node ID                    : upf-1.nokia.com
PFCP Local SEID                 : 0x0000000000011100
PFCP Remote SEID                : 0x0000000000000001

UE Id                           : 0x00011100
PDN Session Id                  : 0x00011100
Group/VM                        : 2/2
Call-Insight                    : enabled

Charging Profile 1              : bng_charging1
  Radius enabled                : No
  CHF enabled                   : Yes
  CHF rating group              : 999

-------------------------------------------------------------------------------
Number of sessions shown : 1
===============================================================================
```

Output example: BNG session information for specified IMSI and EBI

```
A:MAG-c# show mobile-gateway bng session imsi 206010000000003 eps-bearer-id 6

===============================================================================
BNG Sessions
===============================================================================
[FWA] IMSI/SUPI                 : 206010000000003
      APN/DNN                   : subscr3.home.mnc001.mcc206.gprs
      Default EBI               : 6
      N1 PDU Session Id         : 2
-------------------------------------------------------------------------------
IMEI/PEI                        : 358505010000030
MSISDN/GPSI                     : 8801812300003
PAP/CHAP User Name              : N/A
RAT                             : EUTRAN
Tracking Area Code              : 0x3
Cell Id                         : 0x15b6
RAN GTP-U IP                    : 32.0.0.5
RAN GTP-U TEID                  : 0x10000002
UP GTP-U IP                     : 9901:18:18::18
UP GTP-U IP                     : 100.24.24.24
UP GTP-U TEID                   : 0x000c0010
S11 MME GTP-C IP                : 31.0.1.121
S11 MME GTP-C TEID              : 0xb0000001
S11 CP GTP-C IP                 : 31.0.0.5
S11 CP GTP-C TEID               : 0x40015100
```


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```
N11 AMF GUAMI                   : N/A
N11 AMF NF Instance Id          : N/A
N10 UDM SDM NF Instance Id      : a87572f7-e4e2-11ef-8cc2-00ff09000001
N10 UDM UECM NF Instance Id     : N/A
N7 PCF NF Instance Id           : a87569ee-e4e2-11ef-a639-00ff09000001
N40 CHF NF Instance Id          : a8756d07-e4e2-11ef-97b7-00ff09000001
N4 UPF NF Instance Id           : a87c60e3-e4e2-11ef-942b-00ff09000001
N1 PDU Session Id               : 2
S-NSSAI                         : SST 11, SD 0xd143a5
QFI(s)                          : 9
EBI(s)                          : 6
Local Priority                  : N/A

Up Time                         : 0d 00:01:53
Provisioned Addresses           : IPv6_SLAAC
Signaled Addresses              : IPv6_SLAAC

UP Peer                         : 100.40.40.40
Selected APN/DNN                : subscr3.home.mnc001.mcc206.gprs
Network Realm                   : vprn_a
IPv4 Signaling Method           : NAS

IPv6 SLAAC Prefix               : 2013::/64
IPv6 SLAAC Prefix Origin        : Local pool
IPv6 SLAAC Subnet Length        : 52
IPv6 SLAAC Pool                 : address_pool4
IPv6 Link-local                 : fe80::a47e:ffff:fe00:0
IPv6 Preferred Lifetime         : 7d 00:00:00
IPv6 Valid Lifetime             : 30d 00:00:00
IPv6 Primary DNS                : 3ffe:9abc:9abc:3333:60dd:27b7:c87d:a941
IPv6 Secondary DNS              : 3ffe:9abc:9abc:3333:60dd:27b7:c87d:a94a

Subscriber                      : 206010000000003 (536870915)
Acct-Session-Id                 : F00025100B646924E51000033
Acct-Multi-Session-Id           : Y20000003B646924E00015100
State Id                        : N/A
Sub Profile                     : sub_profile2
Sla Profile                     : sla_profile3
UP Alternate Sub Profile        : N/A
UP Alternate Sla Profile        : N/A
App Profile                     : N/A
SAP-Template                    : sap_template_fwa
Group-itf-template              : grpif_template_fwa
Number of Framed IPv4 Routes    : 0
Number of Framed IPv6 Routes    : 0
NAT Profile                     : N/A
HTTP Redirect URL               : N/A
Intermediate Destination Id     : N/A
Ingress IPv4 filter override    : N/A
Egress IPv4 filter override     : N/A
Ingress IPv6 filter override    : N/A
Egress IPv6 filter override     : N/A
Number of QoS Overrides         : 0

PFCP Node ID                    : upf-2.nokia.com
PFCP Local SEID                 : 0x0000000000025100
PFCP Remote SEID                : 0x0000000000000005

UE Id                           : 0x00015100
PDN Session Id                  : 0x00025100
Group/VM                        : 2/4
Call-Insight                    : enabled

Charging Profile 1              : bng_charging2
```


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```
  Radius enabled              : No
  CHF enabled                 : Yes
  CHF rating group            : 999

-------------------------------------------------------------------------------
Number of sessions shown : 1
===============================================================================
```

Output example: BNG session information for IMSI and PDU SEID

```
A:MAG-c# show mobile-gateway bng session imsi 206010000000001 n1-pdu-session-id 1

===============================================================================
BNG Sessions
===============================================================================
[FWA] IMSI/SUPI               : 206010000000001
      APN/DNN                 : subscr1.home.mnc001.mcc206.gprs
      Default EBI             : 5
      N1 PDU Session Id       : 1
-------------------------------------------------------------------------------
IMEI/PEI                      : 358505010000010
MSISDN/GPSI                   : 8801812300001
PAP/CHAP User Name            : N/A
RAT                           : NR
Tracking Area Code            : 0x1
Cell Id                       : 0x15b4
RAN GTP-U IP                  : 32.0.0.7
RAN GTP-U TEID                : 0x10000001
UP GTP-U IP                   : 9901:3:3::3
UP GTP-U IP                   : 100.3.3.3
UP GTP-U TEID                 : 0x00080000
S11 MME GTP-C IP              : N/A
S11 MME GTP-C TEID            : N/A
S11 CP GTP-C IP               : N/A
S11 CP GTP-C TEID             : N/A
N11 AMF GUAMI                 : 206 01 0x100000
N11 AMF NF Instance Id        : d545b73a-e4e0-11ef-bf14-00ff09000001
N10 UDM SDM NF Instance Id    : d552236f-e4e0-11ef-b1c6-00ff09000001
N10 UDM UECM NF Instance Id   : d552236f-e4e0-11ef-b1c6-00ff09000001
N7 PCF NF Instance Id         : d5523149-e4e0-11ef-b460-00ff09000001
N40 CHF NF Instance Id        : d55227d2-e4e0-11ef-bb20-00ff09000001
N4 UPF NF Instance Id         : d559008d-e4e0-11ef-9baa-00ff09000001
N1 PDU Session Id             : 1
S-NSSAI                       : SST 11, SD 0xd143a5
QFI(s)                        : 9
EBI(s)                        : 5
Local Priority                : N/A

Up Time                       : 0d 00:02:31
Provisioned Addresses         : IPv4
Signaled Addresses            : IPv4

UP Peer                       : 9901:13:13::13
Selected APN/DNN              : subscr1.home.mnc001.mcc206.gprs
Network Realm                 : vprn_a
IPv4 Pool                     : address_pool1
IPv4 Signaling Method         : NAS

IPv4 Address                  : 11.0.0.1
IPv4 Address Origin           : Local pool
IPv4 Prefix Len               : 20
IPv4 Gateway                  : 11.0.15.254
IPv4 Primary DNS              : 188.178.173.67
```


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```
IPv4 Secondary DNS             : 188.178.173.77
IPv4 Primary NBNS              : 0.0.0.0
IPv4 Secondary NBNS            : 0.0.0.0
DHCPv4 Server IP               : 11.0.15.254
DHCPv4 Lease Time              : 7d 00:00:00
DHCPv4 Renew Time              : 3d 12:00:00
DHCPv4 Rebind Time             : 6d 03:00:00
DHCPv4 Lease End               : N/A
DHCPv4 Remaining Lease Time    : N/A

Subscriber                     : 206010000000001 (536870914)
Acct-Session-Id                : F00013100B646924E31000032
Acct-Multi-Session-Id          : Y20000002B646924E00013100
State Id                       : N/A
Sub Profile                    : sub_profile1
Sla Profile                    : sla_profile1
UP Alternate Sub Profile       : N/A
UP Alternate Sla Profile       : N/A
App Profile                    : N/A
SAP-Template                   : sap_template_fwa
Group-itf-template             : grpif_template_fwa
Number of Framed IPv4 Routes   : 0
Number of Framed IPv6 Routes   : 0
NAT Profile                    : N/A
HTTP Redirect URL              : N/A
Intermediate Destination Id    : N/A
Ingress IPv4 filter override   : N/A
Egress IPv4 filter override    : N/A
Ingress IPv6 filter override   : N/A
Egress IPv6 filter override    : N/A
Number of QoS Overrides        : 0

PFCP Node ID                   : upf-1.nokia.com
PFCP Local SEID                : 0x0000000000013100
PFCP Remote SEID               : 0x0000000000000002

UE Id                          : 0x00013100
PDN Session Id                 : 0x00013100
Group/VM                       : 2/3
Call-Insight                   : enabled

Charging Profile 1             : bng_charging1
  Radius enabled               : No
  CHF enabled                  : Yes
  CHF rating group             : 999

-------------------------------------------------------------------------------
Number of sessions shown : 1
===============================================================================
```

4.2.32.13 charging

Syntax

charging

Context

[Tree] show mobile-gateway bng session charging

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Description

This command shows the charging information for the BNG sessions.

4.2.32.14 aggregate-stats

Syntax

aggregate-stats [**fetch-upf**]

Context

[Tree] show mobile-gateway bng session charging aggregate-stats

Description

This command displays the aggregate charging statistics for BNG sessions.

Note: To prevent heavy load between the BNG CPF and the BNG UPF when the **fetch-upf** parameter is used, this command is only available in combination with the **acct-session-id** parameter for the **session** command.

Parameters

fetch-upf

Keyword to fetch the latest statistics from the BNG UPF.

4.2.32.15 detailed-stats

Syntax

detailed-stats [**fetch-upf**]

Context

[Tree] show mobile-gateway bng session charging detailed-stats

Description

This command displays detailed charging statistics for BNG sessions.

Note: To prevent heavy load between the BNG CPF and the BNG UPF when the **fetch-upf** parameter is used, this command is only available in combination with the **acct-session-id** parameter for the **session** command.

Parameters

fetch-upf

Keyword to fetch the latest statistics from the BNG UPF.

Output

The following output example shows detailed statistics for the filtered BNG session.

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Output example: Detailed statistics for BNG sessions

```
A:MAG-c# show mobile-gateway bng session acct-session-
id X00011140F00EE5FD0000000A charging detailed-stats
===============================================================================
BNG session detailed statistics
===============================================================================
                                    Packets             Octets
-------------------------------------------------------------------------------
PPP User Name: u10083
Ingress queue: 1
Time: 04/27/2021 19:48:48
-------------------------------------------------------------------------------
Offered high priority               0                   0
Offered low priority                39                  25350
Dropped high priority               0                   0
Dropped low priority                0                   0
Forwarded in profile                0                   0
Forwarded out of profile            39                  25350
===============================================================================
===============================================================================
BNG session detailed statistics
===============================================================================
                                    Packets             Octets
-------------------------------------------------------------------------------
PPP User Name: u10083
Ingress queue: 2
Time: 04/27/2021 19:48:48
-------------------------------------------------------------------------------
Offered high priority               0                   0
Offered low priority                39                  29250
Dropped high priority               0                   0
Dropped low priority                0                   0
Forwarded in profile                0                   0
Forwarded out of profile            39                  29250
===============================================================================
===============================================================================
BNG session detailed statistics
===============================================================================
                                    Packets             Octets
-------------------------------------------------------------------------------
PPP User Name: u10083
Ingress queue: 3
Time: 04/27/2021 19:48:48
-------------------------------------------------------------------------------
Offered high priority               0                   0
Offered low priority                39                  9750
Dropped high priority               0                   0
Dropped low priority                0                   0
Forwarded in profile                0                   0
Forwarded out of profile            39                  9750
===============================================================================
===============================================================================
BNG session detailed statistics
===============================================================================
                                    Packets             Octets
-------------------------------------------------------------------------------
PPP User Name: u10083
Ingress queue: 4
Time: 04/27/2021 19:48:48
-------------------------------------------------------------------------------
Offered high priority               0                   0
Offered low priority                39                  33150
Dropped high priority               0                   0
```


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```
Dropped low priority                0                   0
Forwarded in profile                0                   0
Forwarded out of profile            39                  33150
===============================================================================
===============================================================================
BNG session detailed statistics
===============================================================================
                                    Packets             Octets
-------------------------------------------------------------------------------
PPP User Name: u10083
Ingress queue: 5
Time: 04/27/2021 19:48:48
-------------------------------------------------------------------------------
Offered high priority               0                   0
Offered low priority                39                  17550
Dropped high priority               0                   0
Dropped low priority                0                   0
Forwarded in profile                0                   0
Forwarded out of profile            39                  17550
===============================================================================
===============================================================================
BNG session detailed statistics
===============================================================================
                                    Packets             Octets
-------------------------------------------------------------------------------
PPP User Name: u10083
Ingress queue: 6
Time: 04/27/2021 19:48:48
-------------------------------------------------------------------------------
Offered high priority               0                   0
Offered low priority                39                  21450
Dropped high priority               0                   0
Dropped low priority                0                   0
Forwarded in profile                0                   0
Forwarded out of profile            39                  21450
===============================================================================
===============================================================================
BNG session detailed statistics
===============================================================================
                                    Packets             Octets
-------------------------------------------------------------------------------
PPP User Name: u10083
Ingress queue: 7
Time: 04/27/2021 19:48:48
-------------------------------------------------------------------------------
Offered high priority               0                   0
Offered low priority                39                  5850
Dropped high priority               0                   0
Dropped low priority                0                   0
Forwarded in profile                0                   0
Forwarded out of profile            39                  5850
===============================================================================
===============================================================================
BNG session detailed statistics
===============================================================================
                                    Packets             Octets
-------------------------------------------------------------------------------
PPP User Name: u10083
Ingress queue: 8
Time: 04/27/2021 19:48:48
-------------------------------------------------------------------------------
Offered high priority               0                   0
Offered low priority                39                  13650
Dropped high priority               0                   0
```


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```
Dropped low priority                0                   0
Forwarded in profile                0                   0
Forwarded out of profile            39                  13650
===============================================================================
===============================================================================
BNG session detailed statistics
===============================================================================
                                    Packets             Octets
-------------------------------------------------------------------------------
PPP User Name: u10083
Egress queue: 1
Time: 04/27/2021 19:48:48
-------------------------------------------------------------------------------
Dropped in profile                  0                   0
Dropped out of profile              0                   0
Forwarded in profile                0                   0
Forwarded out of profile            42                  29736
===============================================================================
===============================================================================
BNG session detailed statistics
===============================================================================
                                    Packets             Octets
-------------------------------------------------------------------------------
PPP User Name: u10083
Egress queue: 2
Time: 04/27/2021 19:48:48
-------------------------------------------------------------------------------
Dropped in profile                  0                   0
Dropped out of profile              0                   0
Forwarded in profile                0                   0
Forwarded out of profile            42                  33936
===============================================================================
===============================================================================
BNG session detailed statistics
===============================================================================
                                    Packets             Octets
-------------------------------------------------------------------------------
PPP User Name: u10083
Egress queue: 3
Time: 04/27/2021 19:48:48
-------------------------------------------------------------------------------
Dropped in profile                  0                   0
Dropped out of profile              0                   0
Forwarded in profile                0                   0
Forwarded out of profile            42                  12936
===============================================================================
===============================================================================
BNG session detailed statistics
===============================================================================
                                    Packets             Octets
-------------------------------------------------------------------------------
PPP User Name: u10083
Egress queue: 4
Time: 04/27/2021 19:48:48
-------------------------------------------------------------------------------
Dropped in profile                  0                   0
Dropped out of profile              0                   0
Forwarded in profile                0                   0
Forwarded out of profile            42                  38136
===============================================================================
===============================================================================
BNG session detailed statistics
===============================================================================
                                    Packets             Octets
```


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```
-------------------------------------------------------------------------------
PPP User Name: u10083
Egress queue: 5
Time: 04/27/2021 19:48:48
-------------------------------------------------------------------------------
Dropped in profile                  0                   0
Dropped out of profile              0                   0
Forwarded in profile                0                   0
Forwarded out of profile            42                  21336
===============================================================================
===============================================================================
BNG session detailed statistics
===============================================================================
                                    Packets             Octets
-------------------------------------------------------------------------------
PPP User Name: u10083
Egress queue: 6
Time: 04/27/2021 19:48:48
-------------------------------------------------------------------------------
Dropped in profile                  0                   0
Dropped out of profile              0                   0
Forwarded in profile                0                   0
Forwarded out of profile            42                  25536
===============================================================================
===============================================================================
BNG session detailed statistics
===============================================================================
                                    Packets             Octets
-------------------------------------------------------------------------------
PPP User Name: u10083
Egress queue: 7
Time: 04/27/2021 19:48:48
-------------------------------------------------------------------------------
Dropped in profile                  0                   0
Dropped out of profile              0                   0
Forwarded in profile                0                   0
Forwarded out of profile            42                  8736
===============================================================================
===============================================================================
BNG session detailed statistics
===============================================================================
                                    Packets             Octets
-------------------------------------------------------------------------------
PPP User Name: u10083
Egress queue: 8
Time: 04/27/2021 19:48:48
-------------------------------------------------------------------------------
Dropped in profile                  0                   0
Dropped out of profile              0                   0
Forwarded in profile                0                   0
Forwarded out of profile            42                  17136
===============================================================================
```

4.2.32.16 nat

Syntax

nat

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Context

[Tree] show mobile-gateway bng session nat

Description

This command displays the information about the NAT address, port ranges, and the realm for the subscriber.

Output

The following output is an example of NAT information for the BNG sessions.

Output example

```
A:MAG-c# show mobile-gateway bng session nat

===============================================================================
BNG Sessions NAT
===============================================================================
[IPoE] MAC                      : 02:00:00:00:00:01
-------------------------------------------------------------------------------
CP NAT profile                  : Dut-C_pol_l2a-0-1_1

NAT pool                        : l2a-0-1
UP NAT policy                   : l2a-0-1_1
Outside network realm           : 123321
Outside IP address              : 130.0.0.25
Outside ports                   : 1024-1024
Extended ports                  : 1026-1035
                                : 1036-1045
                                : 1046-1055
                                : 1056-1065
                                : 1066-1075
                                : 1076-1085
                                : 1086-1095
                                : 1096-1105
                                : 1106-1115

Number of sessions shown : 1
```

4.2.32.17 port-forwarding-entries

Syntax

port-forwarding-entries

Context

[Tree] show mobile-gateway bng session nat port-forwarding-entries

Description

This command displays port forwarding entries.

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4.2.32.18 summary

Syntax

summary

Context

[Tree] show mobile-gateway bng session summary

Description

This command displays the BNG session summary.

Output

The following output example shows the BNG session summary.

Output example: BNG session summary

```
A:MAG-c# show mobile-gateway bng session summary
===============================================================================
BNG sessions overview
===============================================================================
Type  MAC/IMSI/SUPI            Acct-Session-Id
  Network-Realm                  IP-Address
-------------------------------------------------------------------------------
IPoE  00:00:00:00:01:01        X00010120E153ABFC00000002
  hsi                            192.0.2.1
FWA   00101000000001           F00010130E153ABFC01300032
  hsi                            192.0.2.17
-------------------------------------------------------------------------------
No. of sessions shown: 2
===============================================================================
```

4.2.32.19 session-lockout

Syntax

session-lockout [**c-vlan** *tag*] [**s-vlan** *tag*] [**l2-access-id** *string-64*] [**up-ip** *ip-address* | *ipv6-address*] [**mac** *ieee-address*] [**cid-string** *string-255*] [**cid-hex** *binary-cid*] [**rid-string** *string-255*] [**rid-hex** *binary-rid*] [**user-access-type** *type*] [**state** *lockout-state*] [**up-group** *name*]

session-lockout [**c-vlan** *tag*] [**s-vlan** *tag*] [**l2-access-id** *string-64*] [**up-ip** *ip-address* | *ipv6-address*] [**mac** *ieee-address*] [**cid-string** *string-255*] [**cid-hex** *binary-cid*] [**rid-string** *string-255*] [**rid-hex** *binary-rid*] [**user-access-type** *type*] [**state** *lockout-state*] **count [up-group** *name*]

Context

[Tree] show mobile-gateway bng session-lockout

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Description

This command displays information for sessions that are subject to session lockout monitoring. Add any optional parameter to filter the output and only display the data of specific sets of sessions.

Note: The maximum number of sessions that are displayed in the output is limited. The last line of the output shows the number of displayed sessions. Use the count keyword to get the number of all matching sessions.

Parameters

c-vlan *tag*

Specifies the customer VLAN (inner VLAN) filter.

Values: 1 to 4096

s-vlan *tag*

Specifies the service VLAN (outer VLAN) filter.

Values: 1 to 4096

string-64

Specifies the Layer 2 access ID filter, up to 64 characters.

ip-address **|** *ipv6-address*

Specifies the UP IP address filter.

Values:

- ip-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

ieee-address

Specifies the MAC address filter.

Values: xx:xx:xx:xx:xx:xx | xx-xx-xx-xx-xx-xx

string-255

Specifies the circuit ID string filter, up to 255 characters.

binary-cid

Specifies the circuit ID binary value filter.

Values: 0x0 to 0xFFFFFFFF... (maximum of 510 hex nibbles)

rid-string *string-255*

Specifies the remote ID string filter, up to 255 characters.

rid-hex *binary-rid*

Specifies the remote ID binary value filter.

Values: 0x0 to 0xFFFFFFFF... (maximum of 510 hex nibbles)

type

Specifies the user access type filter.

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Values: ipoe | pppoe

lockout-state

Specifies the session lockout state filter.

Values: locked-out | monitored

name

Specifies the UP group name, up to 32 characters.

count

Keyword to display only the number of sessions per lockout state, no other data.

Output

The following output example shows BNG session lockout information.

Output example: BNG session lockout information

```
A:MAG-c# show mobile-gateway bng session-lockout
===============================================================================
BNG session lockout information
===============================================================================
[PPPoE] Session Id             : 0
-------------------------------------------------------------------------------
UP Peer                        : 172.16.10.51 (Base)
L2 Access Id                   : 1/1/2
S-Vlan                         : 300
C-Vlan                         : N/A
MAC                            : 02:de:14:00:01:11
Circuit Id                     : N/A
Remote Id                      : N/A
State                          : locked-out
block time left (s)            : 594 of 600
Attempts failed                : 3 (allowed 3)
===============================================================================

A:MAG-c# show mobile-gateway bng session-lockout count
===============================================================================
BNG session lockout information
===============================================================================
Sessions locked-out            : 1
Sessions monitored             : 0
===============================================================================
```

4.2.32.20 subscriber

Syntax

subscriber [**name** *subscriber-name*] [**id** *subscriber-id*] [**count**] [**acct-session-id** *id*] [**fsg** *fsg-id*] [**l2-access-id** *string-64*] [**up-ip** *ip-address* | *ipv6-address*] [**apn** *apn*] [**group** *group-number*] [**network-realm** *realm-name*] [**summary**] [**user-access-type** *type*]

Context

[Tree] show mobile-gateway bng subscriber

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Description

This command displays BNG subscriber information. By default, this command displays all subscribers up to a maximum number. The maximum number equals the number of MSCP VMs × 1024. Add any optional parameter to filter the output and only display the data of specific sets of subscribers up to the same maximum number.

Parameters

subscriber-name

Specifies the subscriber name filter, up to 255 characters.

subscriber-id

Specifies the subscriber ID filter.

Values: 0 to 4294967295

count

Keyword to display only the number of subscribers, no other data.

id

Specifies the acct-session-id filter, up to 25 characters.

fsg-id

Specifies the fate sharing group filter.

Values: 1 to 65535

string-64

Specifies the Layer 2 access ID filter, up to 64 characters.

ip-address **|** *ipv6-address*

Specifies the UP IP address filter.

Values:

- ip-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D

apn

Specifies the APN filter, up to 80 characters.

group-number

Specifies the mobile gateway group filter, up to 255 characters.

Values: 1 to 15

realm-name

Specifies the name of the associated network realm for the network realm filter, up to 80 characters.

summary

Specifies to display a summary of the subscriber information.

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type

Specifies the user access type.

Values: ipoe | pppoe | fwa | lac

Output

The following output example shows the subscriber information for the BNG sessions.

Output example: Subscriber information for BNG sessions

```
A:MAG-c# show mobile-gateway bng subscriber id 2557
===============================================================================
Subscribers
===============================================================================
Name           : auto_sub_2557
-------------------------------------------------------------------------------
Id             : 2557
Num Sessions   : 1
Group/VM       : 1/1
UP Peer        : 172.16.10.51
Acct-Session-Id: Y000009FDC8C74843000009FC
L2 Access Id   : 1/1/2
FSG            : 0
Sub Profile    : base
Inter-Dest-Id  : N/A
-------------------------------------------------------------------------------
Number of subscribers shown : 1
===============================================================================
```

4.2.32.21 wpp

Syntax

wpp

Context

[Tree] show mobile-gateway bng wpp

Description

Commands under this context display WPP related information.

4.2.32.22 statistics

Syntax

statistics portal *name*

statistics portal-group *name*

Context

[Tree] show mobile-gateway bng wpp statistics

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Description

This command displays the statistics of the specified WPP portal or portal group.

Parameters

portal *name*

Specifies the WPP portal name, up to 32 characters.

portal-group *name*

Specifies the WPP portal group name, up to 32 characters.

Output

The following output example shows the statistics information for the specified WPP portal.

Output example: Statistics information for a WPP portal

```
A:MAG-c# show mobile-gateway bng wpp statistics portal "p1"
===============================================================================
WPP Portal "p1"
===============================================================================
-------------------------------------------------------------------------------
Rx-Type                         rx          accept      drop
-------------------------------------------------------------------------------
Req-challenge                   0           0           0
Ack-challenge                   0           -           0
Req-auth                        0           0           0
Ack-auth                        0           -           0
Req-logout                      0           0           0
    Disconnect                  0           0           0
    Timeout                     0           0           0
Ack-logout                      0           0           0
Aff-ack-auth                    0           0           0
Ntf-logout                      0           -           0
Req-info                        0           0           0
Ack-info                        0           -           0
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
Tx-Type                         tx          re-tx
-------------------------------------------------------------------------------
Ack-challenge                   0           -
    Success                     0           -
    Reject                      0           -
    Already-Established         0           -
    Authentication-Pending      0           -
    Fail                        0           -
Ack-auth                        0           0
    Success                     0           0
    Reject                      0           -
    Already-Established         0           -
    Authentication-Pending      0           -
    Fail                        0           -
Ack-logout                      0           -
    Success                     0           -
    Reject                      0           -
    Fail                        0           -
Ntf-logout                      0           0
Ack-info                        0           -
    Success                     0           -
    Unsupported                 0           -
    Fail                        0           -
```


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```
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
Error events                    count
-------------------------------------------------------------------------------
Unknown msg type                0
Unexpected msg type             0
Unexpected error code           0
Unknown protocol version        0
Unexpected protocol version     0
Duplicated attribute            0
Unknown attribute               0
Unsupported attribute           0
Conflicting attribute           0
Unknown authentication type     0
Missing username                0
Missing password                0
Invalid Req-Id                  0
Invalid Serial-No               0
Invalid authenticator           0
Unassigned portal group         0
Unavailable challenge           0
Incompatible SBM state          0
Unknown host                    0
-------------------------------------------------------------------------------
===============================================================================
```

4.2.32.23 call-insight

Syntax

call-insight

Context

[Tree] show mobile-gateway call-insight

Description

Commands in this context display call trace information.

4.2.32.24 all-ues

Syntax

all-ues

Context

[Tree] show mobile-gateway call-insight all-ues

Description

This command displays call trace jobs that are configured to trace all UEs.

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4.2.32.25 bng

Syntax

bng [**mac-address** *mac*] [**remote-id** *rem*] [**circuit-id** *circ*] [**up** *up-node-id*] [**l2-access-id** *l2-acc*] [**l2-circuit-id** *l2-circ*] [**detail**]

Context

[Tree] show mobile-gateway call-insight bng

Description

This command displays Call Trace information for specific BNG sessions.

Parameters

mac

Specifies the MAC address of the BNG session.
Values: xx:xx:xx:xx:xx:xx or xx-xx-xx-xx-xx-xx

rem

Specifies the remote ID of the BNG session, up to 255 characters; the wildcard (*) character can be used only at the start or the end.

circ

Specifies the circuit ID of the BNG session, up to 255 characters; the wildcard (*) character can be used only at the start or the end.

up-node-id

Specifies the UP node ID of the UPF where the session is active.

Values:

- ipv4-address – a.b.c.d (host bits must be 0)
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D
- fqdn – up to 255 characters (per label max 63); the wildcard (*) character can be used only at the start or the end

l2-acc

Specifies the layer 2 access ID where the session is active, up to 50 characters; the wildcard (*) character can be used only at the start or the end.

l2-circ

Specifies the layer 2 circuit ID where the session is active, up to 50 characters; the wildcard (*) character can be used only at the start or the end.

detail

Keyword to display detailed Call Trace information.

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Note: When using the wildcard (*) character in parameter values of the **show** command, the following apply:

- The parameter values of the **show** command that use the wildcard (*) character must match the corresponding values when the **debug** command was issued. For example, if a **debug** command is issued with a value of 1/1/2* for the **l2-circuit-id** parameter, the same value must be set in the **show** command. Setting, for example, 1/1/* as the parameter value, returns no results in the output.
- If no wildcard (*) character is used in a parameter value of the **debug** command, none can be used in the corresponding value of the **show** command. For example, if a **debug** command is issued with a value of remote_id_83 for the **remote-id** parameter, the same value must be set in the **show** command. Setting, for example, remote_id_* as the parameter value, returns no results in the output.

Output

The following output examples show call insight information for specific BNG sessions, without and with the **detail** keyword:

- Example output call trace BNG
- Example output call trace BNG detailed information

Output example: Call trace BNG

```
A:MAG-c# show mobile-gateway call-insight bng mac-address 00:11:22:33:44:55

===============================================================================
Call-insight BNG
===============================================================================
Match           Value                                           Status    Msgs
-------------------------------------------------------------------------------
mac-address     00:11:22:33:44:55                               running   0
-------------------------------------------------------------------------------
Number of call-insight debug jobs: 1
===============================================================================
```

Output example: Detailed call trace information

```
A:MAG-c# show mobile-gateway call-insight bng mac-address 00:11:22:33:44:55 detail

===============================================================================
Call-insight BNG detail
===============================================================================
MAC address          : 00:11:22:33:44:55          Status        : running
Circuit Id           : --                         Profile       : default
Remote Id            : --                         Capture format: simulated-p*
UP Node Id           : --                         Time limit    : 86400s
L2 Access Id         : --                         Data limit    : 10MB
L2 Circuit           : --                         Session limit : --
Nr. of captured msgs : 0
|--control-plane msgs: 0
|--user-plane msgs   : 0
|--events            : 0
Size of captured msgs: 0B
Started              : JUN 29 2021, 12:36:07 UTC
Ref-points           : dhcp,dns,ga,gn,gp,gx,gxc,pi,radius,rf,ro,s1,s11,s12,s2a
```


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```
                      ,s2b,s4,s5,s6b,s8,sd,swm,swu,swu-cleartext,sww,sta,sx-
                      n4
SBA-services        : all
User-traffic        : none
Events              : none
Mask-name           : N/A
Live output         : N/A
Output file base    : N/A
-------------------------------------------------------------------------------
Number of call-insight debug jobs: 1
Nr. of dropped user-plane packets: 0
-------------------------------------------------------------------------------
Note:Reference points field above is applicable only to control-plane messages.
===============================================================================
* indicates that the corresponding row element may have been truncated.
```

4.2.32.26 files

Syntax

files [**long**]

files finished [**long**]

files running [**long**]

Context

[Tree] show mobile-gateway call-insight files

Description

This command displays Call Trace information for UEs, all UEs and masked UEs.

Parameters

long

Keyword to display long list format.

finished

Keyword to display completed Call Trace files.

running

Keyword to display active Call Trace files.

Output

The following output examples show Call Trace file information.

Output example: Call trace files statistics

```
A:MAG-c# show mobile-gateway call-insight files
===============================================================================
Call trace files of running jobs
===============================================================================
File path                                                              Size
-------------------------------------------------------------------------------
cf1-A:/calltrace/running/imsi_123456789012300_m_150327_1313.pcap       4194
```


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```
cf1-A:/calltrace/running/imsi_223456789012300_m_150327_1313.pcap           4194
cf1-A:/calltrace/running/imsi_323456789012300_m_150327_1313.pcap           4194
===============================================================================
===============================================================================
Call trace files of finished jobs
===============================================================================
File path                                                                  Size
-------------------------------------------------------------------------------
===============================================================================
===============================================================================
Call trace files storage limits for active CPM
===============================================================================
cf1-A available space :   304 MB        cf1-A volume limit :  1000 MB
Available file count  :   197           Maximal file count :   200
===============================================================================
```

4.2.32.27 ue

Syntax

ue [**detail**]

ue imei *imei* [**detail**]

ue imsi *imsi* [**detail**]

ue mask-name *mask-name* [**detail**]

ue msisdn *msisdn* [**detail**]

Context

[Tree] show mobile-gateway call-insight ue

Description

This command displays call trace information for the specified UE type.

Parameters

detail

Keyword to display detailed call trace information.

imei

Specifies an IMEI identification string, up to 16 characters.

imsi

Specifies an IMSI identification string, up to 15 characters.

mask-name

Specifies a mask name, up to 16 characters.

msisdn

Specifies an MSISDN identification string, up to 15 characters.

Output

The following output examples show Call Trace UE information.

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- Example output call trace UE statistics
- Example output call trace UE detail statistics
- Example output call trace UE IMSI detail statistics

Output example: Call trace UE statistics

```
A:MAG-c# show mobile-gateway call-insight ue
===============================================================
Call-insight UEs
===============================================================
Match    Value              Mask-name         Status    Msgs
---------------------------------------------------------------
imsi     222222222222223    N/A               running   0
msisdn   17962480143        N/A               running   0
imei     505024101215080    N/A               running   0
imsi     222222222222221    N/A               running   0
---------------------------------------------------------------
Number of call-insight debug jobs: 4
===============================================================
```

Output example: Call trace UE detail statistics

```
A:MAG-c# show mobile-gateway call-insight ue detail
===============================================================================
Call-insight UE detail
===============================================================================
IMSI                 : 13456789012345              Status        : running
IMEI                 : --                          Match type    : imsi
MSISDN               : --                          Capture format: simulated-p*
MAC address          : --                          Time limit    : 86400s
Nr. of captured msgs : 128                         Data limit    : 10MB
|--control-plane msgs: 48
|--user-plane msgs   : 80
|--events            : 0
Size of captured msgs: 31770B
Started              : FEB 15 2018, 18:53:41 UTC
Ref-points           : all
User-traffic         : all
Events               : none
Mask-name            : N/A
Live output          : N/A
Output file base     : imsi_13456789012345_180215_1853
Detailed user-plane debug statistics
|--VMId:1 LB-VM ingress Uplink      pakets: 40             size: 9440       B
|--VMId:1 LB-VM ingress Downlink    pakets: 40             size: 9440       B
|--VMId:1 LB-VM egress  Uplink      pakets: 40             size: 9440       B
|--VMId:1 LB-VM egress  Downlink    pakets: 40             size: 9440       B
|--VMId:3 MG-VM   -     Uplink      pakets: 30             size: 6000       B
|--VMId:3 MG-VM   -     Downlink    pakets: 30             size: 6000       B
|--VMId:4 MG-VM   -     Uplink      pakets: 10             size: 2000       B
|--VMId:4 MG-VM   -     Downlink    pakets: 10             size: 2000       B
-------------------------------------------------------------------------------
Number of call-insight debug jobs: 1
Nr. of dropped user-plane packets: 0
-------------------------------------------------------------------------------
Note:Reference points field above is applicable only to control-plane messages.
===============================================================================
```


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Output example: Call trace UE IMSI detail statistics

```
A:MAG-c# show mobile-gateway call-insight ue imsi 310012001000001 detail
================================================================================
Call-insight UE detail
================================================================================
IMSI                : 310012001000001            Status        : running
IMEI                : --                         Match type    : imsi
MSISDN              : --                         Capture format: simulated-p*
MAC address         : --                         Time limit    : 86400s
Nr. of captured msgs : 21                        Data limit    : 10MB
|--control-plane msgs: 21
|--user-plane msgs   : 0
|--events            : 0
Size of captured msgs: 10407B
Started             : SEP 08 2017, 11:05:37 UTC
Ref-points          : all
User-traffic        : enabled
Events              : none
Mask-name           : N/A
Live output addr/port: 10.10.7.10/50001
Live output router  : Base
Output file base    : N/A
--------------------------------------------------------------------------------
Number of call-insight debug jobs: 1
Nr. of dropped user-plane packets: 0
--------------------------------------------------------------------------------
Note:Reference points field above is applicable only to control-plane messages.
================================================================================
* indicates that the corresponding row element may have been truncated.
```

4.2.32.28 ue-mask

Syntax

ue-mask [**name** *name*]

Context

[Tree] show mobile-gateway call-insight ue-mask

Description

This command displays Call Trace information for masked UEs.

Parameters

name

Specifies a string, up to 16 characters.

Output

The following output example shows UE mask Call Trace information.

Output example: Call trace UE mask statistics

```
A:MAG-c# show mobile-gateway call-insight ue-mask
```


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```
===============================================================================
Call-insight UE-mask
===============================================================================
Mask-name        Mask (Type/Value)        UEs-active  Max-UEs     UEs-finished
-------------------------------------------------------------------------------
default          imsi/123*                0           50          0
default          imsi/223.5.7*            0           50          0
myMask           imei/323.5.7*            0           5           0
-------------------------------------------------------------------------------
Number of call-insight masks: 3
===============================================================================
```

4.2.32.29 connections

Syntax

connections gateway *gw-id* [**protocol** *protocol-type*] [**address** *ip-address*] [**port** *port-number*] [**detail**]

connections [**card** *slot-number*] [**protocol** *protocol-type*] [**address** *ip-address*] [**port** *port-number*] [**detail**]

connections [**protocol** *protocol-type*] [**address** *ip-address*] [**port** *port-number*] [**detail**] [**vm** *vm-id*]

Context

[Tree] show mobile-gateway connections

Description

This command displays SCTP, TCP, or UDP connection statistics.

Parameters

gw-id

Specifies the gateway ID.

Values: 1 to 8

protocol-type

Specifies the protocol type.

Values: sctp | tcp | udp

ip-address

Specifies the IP address.

Values: ipv4-address | ipv6-address

Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

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slot-number

Specifies the card slot number.

Values: 1 to 20 | A | B

port-number

Specifies the port number.

Values: 0 to 65535

detail

Keyword to display detail statistics.

vm-id

Specifies the VM ID.

Values: 1 to 20 | A | B

4.2.32.30 mg-vm

Syntax

mg-vm

Context

[Tree] show mobile-gateway mg-vm

Description

This command displays information about the SM-VM.

4.2.32.31 cpu

Syntax

cpu [**vm** *vm-id*] [**vm-function** *vm-function-number*] [**repeat** *repeat-number*]

Context

[Tree] show mobile-gateway mg-vm cpu

Description

This command displays the CPU utilization of SM-VMs.

Parameters

vm-id

Specifies the VM number.

Values: 1 to 10

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vm-function-number

Specifies the SM-VM function number.

Values: 1 | 2

repeat-number

Specifies the sample period, the number of times to repeat the sampling.

Values: 1 to 5

Output

The following output examples show CPU utilization information for SM-VMs and Table 3: Show SM-VM CPU utilization fields describes the output fields.

Table 3: Show SM-VM CPU utilization fields

Label	Description
VM	SM-VM number
VMF	SM-VM function number
Group	Group number
GW-ID	Gateway ID (1 to 8)
CPU utilization	Percentage of CPU utilization per SM-VM number
Name	Protocol or interface name
CPU usage	Percentage of CPU usage per interface

Output example: SM-VM CPU utilization summary statistics

```
A:MAG-c# show mobile-gateway mg-vm cpu
================================================
CPU utilization starting at 09/14/2018 21:53:33
================================================
ISM-MG Summary
================================================
VM    VMF   Group gw-id    cpu utilization
------------------------------------------------
3     1     1     1        5.72%
4     1     1     1        1.85%
================================================
```

Output example: SM-VM CPU utilization statistics for a specified SM-VM

```
A:MAG-c# show mobile-gateway mg-vm cpu vm 3
================================================
CPU utilization starting at 09/14/2018 21:54:08
================================================
ISM-MG VM 3 VMF 1
================================================
Name           VM Usage
------------------------------------------------
AMS               0.01%
DHCP           ~  0.00%
GA             ~  0.00%
```


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```
GX                  0.01%
GY                  0.02%
HA                  0.07%
PFCP                0.02%
RADIUS              0.02%
RF                  0.02%
S6B                 0.03%
SESSMGR             0.03%
SIG                 0.05%
SYSTEM              3.88%
TRACE               0.02%
RPY                 0.01%
SWM              ~  0.00%
LDNSC            ~  0.00%
SD                  0.01%
SDLB             ~  0.00%
STA              ~  0.00%
CDBMGR              0.09%
<NULL>           ~  0.00%
HTTP             ~  0.00%
-------------------------------------------------
Total In Use:       4.27%
Idle:              95.73%
=================================================
```

4.2.32.32 memory-pools

Syntax

memory-pools [**vm** *vm-id*] [**vm-function** *vm-function-number*] [**repeat** *repeat-number*]

Context

[Tree] show mobile-gateway mg-vm memory-pools

Description

This command displays the memory utilization of SM-VMs.

Parameters

vm-id

Specifies the VM number.

Values: 1 to 10

vm-function-number

Specifies the SM-VM function number.

Values: 1 | 2

repeat-number

Specifies the sample period, the number of times to repeat the sampling.

Values: 1 to 5

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Output

The following output examples show memory utilization information for SM-VMs and Table 4: Show SM-VM memory utilization fields describes the output fields.

Table 4: Show SM-VM memory utilization fields

Label	Description
VM	SM-VM number
VMF	SM-VM function number
Group	Group number
GW-ID	Gateway ID (1 to 8)
Current size	Total available memory size (per VM/VM function or interface)
In use	Total memory that is allocated (per VM/VM function or interface)
Avail Virt Mem	Total available virtual memory (per VM/VM function)
Avail Phys Mem	Total available physical memory (per VM/VM function)
Name	Protocol or interface name

Output example: SM-VM memory statistics

```
A:MAG-c# show mobile-gateway mg-vm memory-pools
===============================================================================
MEM utilization starting at 09/20/2018 20:45:32
===============================================================================
ISM-MG Summary
===============================================================================
VM   |VMF  |Group|gw-id|  Current Size|        In Use|Avail Virt Mem|Avail Phys Mem
-----+-----+-----+-----+--------------+--------------+--------------+--------------
3    |1    |1    |1    | 9,289,334,784| 8,900,651,816| 6,677,331,968| 6,677,331,968
4    |1    |1    |1    | 9,242,148,864| 8,862,652,080| 6,811,549,696| 6,811,549,696
===============================================================================
```

Output example: SM-VM memory statistics for a specified SM-VM

```
A:MAG-c# show mobile-gateway mg-vm memory-pools vm 3
=======================================================
MEM utilization starting at 09/20/2018 00:03:30
=======================================================
ISM-MG VM 3 VMF 1
=======================================================
Name                        |  Current Size|        In Use
----------------------------+--------------+--------------
AMS                         |     1,048,576|       158,264
DHCP                        |     9,437,184|     5,566,256
GA                          |     2,097,152|       755,928
GX                          |     8,388,608|     6,203,808
GY                          |     6,291,456|     2,972,640
HA                          |     9,437,184|     1,816,176
PFCP                        |     9,437,184|     2,748,104
RADIUS                      |    13,631,488|     3,336,288
RF                          |    77,594,624|    68,117,896
S6B                         |    39,845,888|    34,266,368
```


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```
SESSMGR                     |   136,314,880|    82,402,904
SIG                         |    68,157,440|    46,028,992
SYSTEM                      | 2,164,260,864| 2,017,004,704
TRACE                       |    28,311,552|    21,164,912
RPY                         |     7,340,032|     3,420,904
SWM                         |     7,340,032|     3,415,472
LDNSC                       |     2,097,152|        47,560
SD                          |     7,340,032|     4,600,416
SDLB                        |             0|             0
STA                         |     5,242,880|     2,354,608
CDBMGR                      |             0|             0
<NULL>                      |             0|             0
HTTP                        |             0|             0
----------------------------+--------------+--------------
Total:                        2,603,614,208  2,306,382,200
============================================================
available virtual memory:    5,133,828,096
available physical memory:   5,133,828,096
============================================================
```

4.2.32.33 pdn

Syntax

pdn

Context

[Tree] show mobile-gateway pdn

Description

Commands in this context display configured PDN gateway profiles.

4.2.32.34 apn

Syntax

apn *apn-name* **statistics** [**group** *group-number*]

apn *apn-name* **delete-session-statistics** [**gateway** *gw-id* | **group** *group-number*] [**summary**]

apn *apn-name* **attach-failure-statistics** [**gateway** *gw-id* | **group** *group-number*] [**summary**]

apn *apn-name* **dhcp-relay-statistics** [**group** *group-number*]

apn *apn-name* [**detail**]

apn *apn-name* **pcf-ap-statistics**

apn *apn-name* **call-flow-stats** [**gateway** *gw-id* | **group** *group-number*] [**summary**]

Context

[Tree] show mobile-gateway pdn apn

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Description

This command displays APN information, including statistics on the types of PDN sessions by access protocol and PDN type. APN statistics are tracked for real and virtual PDN connections. The virtual APN capability allows the PGW to change the APN received via GTP-C (the "real" APN) to the APN used locally (the "virtual" APN). However a PDN session only counts statistics for the virtual APN to which it has been mapped. Furthermore an APN may be real for some PDN sessions and virtual for other PDNs. To track the usage of real APNs even though they are being mapped to a smaller set of virtual APNs, the PGW keeps statistics for the number of PDN connections that use the APN as a real APN. All other counters in the output are incremented only for those PDNs that use the APN as a virtual APN.

Parameters

apn-name

Specifies the APN name, up to 80 characters

statistics

Keyword to display aggregated statistics.

group-number

Specifies the group number.

Values: 1 to 8

delete-session-statistics

Keyword to delete session statistics.

gw-id

Specifies the gateway identifier number.

Values: 1 to 8

summary

Keyword to display summarized aggregated statistics.

attach-failure-statistics

Keyword to attach failure statistics.

dhcp-relay-statistics

Keyword to display DHCP relay statistics.

detail

Keyword to display detailed APN configuration.

pcf-ap-statistics

Keyword to display statistics related to sessions in PCF assume positive (AP) mode.

call-flow-stats

Keyword to display the call flow statistics per APN.

4.2.32.35 fh-stats

Syntax

fh-stats [**nf-type** *nf-type*]

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Context

[Tree] show mobile-gateway pdn apn fh-stats

Description

This command displays failure handling statistics.

Parameters

nf-type

Specifies the NF type

Values: udm | pcf | chf

Output

The following example shows the APN failure handling statistics.

Output example

```
A:MAG-c# show mobile-gateway pdn apn "apn-id" fh-stats

===============================================================================
Failure Handling Statistics
===============================================================================

VM Number                                   : 2
Group Id                                    : 1

UDM SDM
    Total number of sessions                : 0
    Number of sessions in failure handling  : 0
    Failure handling alarm set              : No

UDM UECM
    Total number of sessions                : 0
    Number of sessions in failure handling  : 0
    Failure handling alarm set              : No

PCF
    Total number of sessions                : 0
    Number of sessions in failure handling  : 0
    Failure handling alarm set              : No

CHF
    Total number of sessions                : 0
    Number of sessions in failure handling  : 0
    Failure handling alarm set              : No
-------------------------------------------------------------------------------
Number of VMs : 1
===============================================================================
```

4.2.32.36 pfcp

Syntax

pfcp

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Context

[Tree] show mobile-gateway pdn apn pfcp

Description

This command displays APN PFCP configuration.

Output

The following example shows the APN PFCP configuration.

Output example

```
A:MAG-c>config>mobile>profile>pcf-profile$ show mobile-gateway pdn apn "hsi" pfcp

===============================================================================
APN Configuration
===============================================================================
APN Name : "hsi"
APN Admin State : up
Gateway : 1

PFCP
===============================================================================
PFCP Translate Tx Prof : none

-------------------------------------------------------------------------------
Number of entries : 1
===============================================================================
```

4.2.32.37 bng

Syntax

bng

Context

[Tree] show mobile-gateway pdn bng

Description

Commands in this context display information for BNG sessions.

4.2.32.38 fsg

Syntax

fsg

fsg *fsg-id* [**detail**]

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Context

[Tree] show mobile-gateway pdn bng fsg

Description

This command, when run without parameters, displays a high-level overview of the provisioned FSGs.

With parameters, this command displays the UP group and the current active/standby BNG-UPs for the specified FSG. The following are examples to get a specific FSG ID:

- from a command in the following context

```
show mobile-gateway bng session
```

- from a BNG-UP-specific operational command

Parameters

fsg-id

Specifies the FSG.

Values: 1 to 4294967295

detail

Keyword to display the detailed output, such as advanced UP group configuration parameters.

Output

The following example shows detailed output for a specific FSG.

Output example: Detailed output for a specific FSG

```
A:MAG-c>show>mobile-gateway>pdn>bng# fsg 4 detail

===============================================================================
FSG 4
===============================================================================
UP Group
    PDN gateway                     : 1
    Description                     : (Not Specified)
    FSG Profile                     : basic
    UP FSG Template                 : N/A
    Default Standby Type            : hot

Active UP                           : b.upf
    Changing                        : no
    Preferred                       : yes
    Drain                           : no
    Health                          : 255
    S-Vlan Range                    : N/A
    C-Vlan Range                    : N/A
    L2-Access-Id Health             :
        to-access                   : 255
    Network Realm Health            :
Standby UP                          : c.upf
    Ready                           : yes
    Preferred                       : no
    Drain                           : no
    Health                          : 255
```


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```
    S-Vlan Range                        : N/A
    C-Vlan Range                        : N/A
    L2-Access-Id Health                 :
        to-access                       : 255
    Network Realm Health                :
No. Of Sessions                         : 2
Current Hold-Off Delay                  : 0 msec
===============================================================================
```

4.2.32.39 static-session

Syntax

static-session [**up-ip** *ip-address*|*ipv6-address*] [**up-id** *identifier*] [**up-group** *group-name*] [**counters**]

static-session name *name*

Context

[Tree] show mobile-gateway pdn bng static-session

Description

This command displays static session information.

Parameters

ip-address|*ipv6-address*

Specifies the IP address.

Values:

- ip-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

identifier

Specifies the IP address or the FQDN.

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D
- FQDN - fully qualified domain name, up to 255 characters.

group-name

Specifies the UP group name, up to 32 characters.

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name

Specifies the name, up to 64 characters.

counters

Keyword to show counters.

4.2.32.40 up

Syntax

up [*ip-addr* | *fqdn*] [**up-group** *group-name*]

Context

[Tree] show mobile-gateway pdn bng up

Description

This command, when run without parameters, displays an overview of all BNG-UPs and their UP group participation. The applicable Layer 2 access ID, the applicable VLAN range, and the active/standby state for the BNG-UP in the UP group are displayed. The optional parameters filter the output to display only the UP group participation for the specific BNG-UP or only the participation of the BNG-UPs in the specified UP group.

Parameters

ip-addr

Specifies the IP address of the PFCP node ID for the BNG-UP filter.

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D

fqdn

Specifies the fully qualified domain name (FQDN) of the PFCP node ID for the BNG-UP filter, up to 255 characters.

group-name

Specifies the UP group name for the UP group filter, up to 32 characters.

Output

The following output is an example of the overview of all BNG-UPs and their UP group participation.

Output example: Participation of the BNG-UPs in the UP groups

```
A:MAG-c>show>mobile-gateway>pdn>bng# up

===============================================================================
Up Table
```


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```
===============================================================================
Gw UpId
        L2-Access-Id           S-Vlan    C-Vlan    Up-Group       Fsg     Role
-------------------------------------------------------------------------------
1  b.upf (192.0.2.11)
        to-access                                 alpha          4       Act
-------------------------------------------------------------------------------
1  c.upf (192.0.2.12)
        to-access                                 alpha          4       Std
-------------------------------------------------------------------------------
1  east (192.0.2.13)
        to-access                                 beta           5       Std
-------------------------------------------------------------------------------
1  west (192.0.2.14)
        to-access                                 beta           5       Act
-------------------------------------------------------------------------------
No. of UPs : 4
===============================================================================
```

4.2.32.41 up-group

Syntax

up-group

up-group *group-name* [**up** *ip-addr* | *fqdn*] [**detail**]

Context

[Tree] show mobile-gateway pdn bng up-group

Description

This command, when run without parameters, displays a high-level overview of the provisioned UP groups.

With parameters, this command displays an overview of the specified UP group, the associated list of FSGs, and the associated BNG-UPs.

Parameters

group-name

Specifies the UP group name, up to 32 characters.

up

Keyword to filter the output to only contain information relevant to the specified UP, identified by the provisioned PFCP node ID.

ip-addr

Specifies the UP IP address filter.

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

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d – [0..255]D

fqdn

Specifies the UP fully qualified domain name (FQDN) filter, up to 255 characters.

detail

Keyword to display detailed output.

Output

The following output examples show UP group information.

- High-level UP groups information
- Detailed output for a specific UP group

Output example: High-level UP groups information

```
A:MAG-c>show>mobile-gateway>pdn>bng# up-group
===============================================================================
Up-Group Table
===============================================================================
Gw Up-Group                         Admin         No. Of     No. Of
                                    State       Sessions        UPs
-------------------------------------------------------------------------------
1  alpha                            up                2          2
1  beta                             up                5          2
-------------------------------------------------------------------------------
No. of Sessions  : 7
-------------------------------------------------------------------------------
No. of Up-Groups : 2
```

Output example: Detailed output for a specific UP group

```
A:MAG-c>show>mobile-gateway>pdn>bng# up-group "alphas" detail

===============================================================================
Up-Group 'alpha'
===============================================================================
PDN gateway                         : 1
Description                         : (Not Specified)
Admin State                         : up

FSG Profile                         : basic
UP FSG Template                     : N/A
Gateway MAC Prefix                  : 02:00:5e:00
Default Standby Type                : hot

Active Change Without Failure       : always
Recovery Event Hold Off Delay       : 5000 msec
Degradation Event Hold Off Delay    : 0 msec

Health Aggregation Mode             : lowest
Minimum Active Health               : 1
Health Calculate Include            : L2-Access-Id

-------------------------------------------------------------------------------
     FSG Active UP               Standby UP                Sessions  Hold-Off
-------------------------------------------------------------------------------
       4 b.upf                   c.upf (ready)                    2         0
-------------------------------------------------------------------------------
No. of FSGs: 1
```


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```
-------------------------------------------------------------------------------

-------------------------------------------------------------------------------
UP b.upf (192.0.2.11)
-------------------------------------------------------------------------------
FSG Role                              : Active
Preferred                             : yes
Drain                                 : no
S-Vlan Range                          : N/A
C-Vlan Range                          : N/A
Health                                : 255
L2-Access-Id Health                   :
    to-access                         : 255
Network Realm Health                  :
-------------------------------------------------------------------------------

-------------------------------------------------------------------------------
UP c.upf (192.0.2.12)
-------------------------------------------------------------------------------
FSG Role                              : Standby
Preferred                             : no
Drain                                 : no
S-Vlan Range                          : N/A
C-Vlan Range                          : N/A
Health                                : 255
L2-Access-Id Health                   :
    to-access                         : 255
Network Realm Health                  :
-------------------------------------------------------------------------------

No of UPs : 2
===============================================================================
```

4.2.32.42 call-flow-stats

Syntax

call-flow-stats [**gateway** *gw-id* | **group** *group-number* | **vm** *vm-id*] [**gw-type** *gw-type*] [**summary**] [**suppress-zero**]

Context

[Tree] show mobile-gateway pdn call-flow-stats

Description

This command displays call flow statistics for each card.

When displaying Operator Identifier (OI) mapping statistics, it shows the number of sessions established (initial and handover) as a summary per gateway ID, OI override mapping list, or per subscriber PLMN entry that the ePDG used OI or serving network PLMN replacement from the OI override mapping table.

Parameters

gw-id

Specifies the gateway ID.

Values: 1 to 8

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group-number

Specifies the group number.

Values: 1 to 15

vm-id

Specifies the VM ID.

Values: 1 to 20 | A | B

gw-type

Specifies the gateway type.

Values: sgw | pgw | upf | smf

summary

Keyword to display summarized information.

suppress-zero

Keyword to hide counters with value zero.

4.2.32.43 clear-status

Syntax

clear-status [**gateway** *gw-id*]

Context

[Tree] show mobile-gateway pdn clear-status

Description

This command shows the status of the last administrative clear command. The user can monitor an ongoing clear command using this output.

Parameters

gw-id

Specifies the gateway ID.

Values: 1 to 8

4.2.32.44 load-overload-control

Syntax

load-overload-control

Context

[Tree] show mobile-gateway pdn load-overload-control

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Description

Commands in this context display the local load and overload information of the node.

4.2.32.45 gtp-local-load

Syntax

gtp-local-load

Context

[Tree] show mobile-gateway pdn load-overload-control gtp-local-load

Description

This command displays the local-load information for the node.

Output

The following output is an example of GTP local load statistics.

Output example

```
===============================================================================
PDN gateway gtp local load statistics
===============================================================================

Last twenty 100% load report events:

-------------------------------------------------------------------------------
Time                            LCI reported                    Slot
-------------------------------------------------------------------------------
07/02/2024 23:15:15              100                            1
-------------------------------------------------------------------------------

Current GTP-C load (LCI) reported : 100
-------------------------------------------------------------------------------
Number of nodes : 1
===============================================================================
```

4.2.32.46 gtp-local-overload

Syntax

gtp-local-overload

Context

[Tree] show mobile-gateway pdn load-overload-control gtp-local-overload

Description

This command displays the local overload control information of the node.

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Output

The following output is an example of GTP local overload statistics.

Output example

```
===============================================================================
PDN gateway gtp local overload statistics
===============================================================================
Last overload report time   : 07/02/2024 23:15:15

Last twenty overload report events:

-------------------------------------------------------------------------------
Time                    Overload level          OCI reported            Slot
-------------------------------------------------------------------------------
07/02/2024 23:15:15     critical                90                      1
-------------------------------------------------------------------------------
Current GTP-C overload      : Yes       Traffic reduction value     : 90 %
Local throttling value      : 100 %
Remaining validity time     : 2 sec
Cumulative CS Req dropped   : 150       Cumulative MB Com dropped   : 0
Cumulative UB Req dropped   : 0
-------------------------------------------------------------------------------
Number of nodes : 1
===============================================================================
```

4.2.32.47 gtp-peer-overload

Syntax

gtp-peer-overload

Context

[Tree] show mobile-gateway pdn load-overload-control gtp-peer-overload

Description

This command displays the GTP-C overload information received from the peering node.

Output

The following output is an example of GTP overload statistics per node.

Output example

```
===============================================================================
PDN gateway gtp overload statistics per node
===============================================================================
Node address                : 75.0.1.76
Node Id                     : MME
Router                      : N/A
Last overload report time   : 07/03/2024 00:00:32
Current overload            : Yes       Traffic reduction value     : 75 %
Remaining validity time     : 44 sec
Cumulative UB Req dropped   : 31
Cumulative DB Req dropped   : 0         Last overload UB Req dropped: 31
Last overload DB Req dropped: 0
```


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```
-------------------------------------------------------------------------------
Number of nodes : 1
===============================================================================
```

4.2.32.48 sbi-local-overload

Syntax

sbi-local-overload

Context

[Tree] show mobile-gateway pdn load-overload-control sbi-local-overload

Description

This command displays information about SBI local overload statistics.

Output

The following output is an example of SBI local overload statistics.

Output example

```
===============================================================================
Nsmf overload control statistics
===============================================================================
Last overload report time      : 10/07/2024 23:58:42

Last twenty overload report events:

-------------------------------------------------------------------------------
Time                                                    Overload level
-------------------------------------------------------------------------------
10/07/2024 23:58:42                                     critical
-------------------------------------------------------------------------------
Current Nsmf overload          : Yes
Cum PDU Sess Est Req dropped   : 0
-------------------------------------------------------------------------------
Number of nodes : 1
===============================================================================
```

4.2.32.49 sbi-local-reporting

Syntax

sbi-local-reporting

Context

[Tree] show mobile-gateway pdn load-overload-control sbi-local-reporting

Description

This command displays information about SBI local reporting.

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Output

The following output is an example of SBI local reporting statistics.

Output example

```
===============================================================================
Nsmf load reporting statistics
===============================================================================

Last twenty load report events:

-------------------------------------------------------
Time UTC                Load reported           Slot
-------------------------------------------------------
10/07/2024 23:57:57     10                      3
10/07/2024 23:58:00     15                      3
10/07/2024 23:58:10     9                       3
10/07/2024 23:58:27     100                     21
-------------------------------------------------------
Current SBI Load reported to NRF : 100
-------------------------------------------------------------------------------
Number of nodes : 1
===============================================================================
```

4.2.32.50 sbi-peer-congestion

Syntax

sbi-peer-congestion

Context

[Tree] show mobile-gateway pdn load-overload-control sbi-peer-congestion

Description

This command displays information about SBI peer congestion statistics.

Output

The following output is an example of SBI peer congestion statistics.

Output example

```
===============================================================================
PDN gateway Sbi congestion statistics per peer
===============================================================================
NFId                : 894c:c176:820a:11ef:9ab6:ff:900:1
Node Id                     : AMF
Last overload report time   : 10/04/2024 04:39:41
Remaining validity time     : 248 sec
Cum NW init mod dropped     : 0
-------------------------------------------------------------------------------
Number of nodes : 1
===============================================================================
```


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4.2.32.51 summary

Syntax

summary

Context

[Tree] show mobile-gateway pdn load-overload-control summary

Description

This command displays the configuration information for the overload and load control and the current status.

Output

The following output is an example of load and overload control summary information.

Output example

```
A:MAG-c# show mobile-gateway pdn load-overload-control summary
===============================================================================
Load and over load control information
===============================================================================
Gateway                      : 1

Load control                 : Enabled
Load change trigger value    : 5 %      Nth msg load report update   : 1

Overload control             : Disabled
Minor threshold value        : 89 %     Major threshold value        : 92 %
Critical threshold value     : 97 %
Minor reduction value        : 30 %     Major reduction value        : 60 %
Critical reduction value     : 90 %

local overload throttling    : Enabled  throttling alarms            : Disabled
Minor local overload throttling
value                        : 0 %
Major local overload throttling
value                        : 60 %
Critical local overload throttling
value                        : 90 %

Overload Validity time       : 100 sec

Current load                 : 51 %     Current overload state       : no-over*
-------------------------------------------------------------------------------
===============================================================================
```

4.2.32.52 local-address-assignment

Syntax

local-address-assignment

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Context

[Tree] show mobile-gateway pdn local-address-assignment

Description

Commands in this context display ODSA pool information.

4.2.32.53 pool

Syntax

pool gateway *gw-id* **network-realm** *realm* **name** *pool* [*type*]

Context

[Tree] show mobile-gateway pdn local-address-assignment pool

Description

This command displays a high-level overview of the ODSA pool.

Parameters

gw-id

Specifies the gateway ID.

Values: 1 to 8

realm

Specifies the realm name of the network instance, up to 80 characters.

pool

Specifies the pool name, up to 32 characters.

type

Specifies the address type.

Values: ipv4 | ipv6-na | ipv6-pd | ipv6-slaac

Output

The following output is an example of the ODSA pool overview information.

Output example

```
A:MAG-c>show>mobile-gateway>pdn>laa# pool gateway 1 network-realm "601" name "601-pool-0"

===============================================================================
Local Address Assignment Pool
===============================================================================
PDN gateway                     : 1
Network realm                   : 601
Pool                            : 601-pool-0
-------------------------------------------------------------------------------
Description                     : (Not Specified)
Tracking                        : none
Dedicated                       : no
```


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```
Hold time                          : 00h00m00s
Minimum number of free micro-nets : 1
    Rising threshold               : 2
IPv4
    Default gateway                : first-address
    Subnet allocation              : (Not Specified)
    Primary DNS                    : (Not Specified)
    Secondary DNS                  : (Not Specified)
    Micro-net length               : 24
    Number of prefixes             : 1
    Number of excludes             : 0
    Number of micro-nets           : 8
    IP address usage               : 11%
    Micro-net usage                : 13%
IPv6
    Primary DNS                    : (Not Specified)
    Secondary DNS                  : (Not Specified)
    NA
        Micro-net length           : (Not Specified)
        Number of prefixes         : 0
        Number of excludes         : 0
        Number of micro-nets       : 0
        IP address usage           : 0%
        Micro-net usage            : 0%
    PD
        Delegated prefix           : length 56
        Micro-net length           : (Not Specified)
        Number of prefixes         : 0
        Number of excludes         : 0
        Number of micro-nets       : 0
        IP address usage           : 0%
        Micro-net usage            : 0%
    SLAAC
        Micro-net length           : (Not Specified)
        Number of prefixes         : 0
        Number of excludes         : 0
        Number of micro-nets       : 0
        IP address usage           : 0%
        Micro-net usage            : 0%
```

4.2.32.54 prefix

Syntax

prefix *prefix/len*

Context

[Tree] show mobile-gateway pdn local-address-assignment pool prefix

Description

This command displays high-level information about a specific prefix with differentiation between the subscriber session address assignment and the NAT pool addressing applications.

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Parameters

prefix/len

Specifies the IP address prefix and length, up to 64 characters.

Output

The following output is an example of high-level information about prefix `130.0.0.0/21` with differentiation between the subscriber session address assignment and the NAT pool addressing applications.

Output example

```
A:MAG-c>show>mobile-gateway>pdn>laa# pool gateway 1 network-realm "601" name "601-pool-0"
 prefix 130.0.0.0/21

===============================================================================
Local Address Assignment Prefix
===============================================================================
PDN gateway                       : 1
Network realm                     : 601
Pool                              : 601-pool-0
Prefix                            : 130.0.0.0/21
-------------------------------------------------------------------------------
Address family                    : ipv4
Micro-net length                  : 24
Operational state                 : up
Drain                             : no
Micro-nets                        : 8
Micro-nets in use (%)             : 1 (13%)
NAT
    Micro-nets in use (%)         : 1 (13%)
    IP addresses                  : 256
    IP addresses in use (%)       : 218 (85%)
Address assignment
    Micro-nets in use (%)         : 0 (0%)
    IP addresses                  : 1792
    IP addresses reserved         : 21
    IP addresses in use (%)       : 0 (0%)
    IP addresses active (%)       : 0 (0%)
    IP addresses holdoff (%)      : 0 (0%)
    IP addresses excluded (%)     : 0 (0%)
```

4.2.32.55 micro-net

Syntax

micro-net *micro-net/len*

Context

[Tree] show mobile-gateway pdn local-address-assignment pool prefix micro-net

Description

This command displays the overall subscriber usage per micro-net and the association between the CP NAT profile and the micro-net.

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Parameters

micro-net/len

Specifies the IP address prefix and length, up to 64 characters.

Output

The following output is an example of the overall subscriber usage for micro-net `130.0.0.0/24`.

Output example

```
A:MAG-c>show>mobile-gateway>pdn>laa# pool gateway 1 network-realm "601" name "601-pool-0"
 prefix 130.0.0.0/21 micro-net 130.0.0.0/24

===============================================================================
Local Address Assignment Micro-net
===============================================================================
PDN gateway                       : 1
Network realm                     : 601
Pool                              : 601-pool-0
Prefix                            : 130.0.0.0/21
Address family                    : ipv4
Micro-net                         : 130.0.0.0/24
-------------------------------------------------------------------------------
UPF/FSG                           : NAT 10.0.1.3
NAT
    CP NAT profile                : Dut-C_pol_pol1_for_601-pool-0
    NAT pool                      : 601-pool-0
    IP addresses                  : 256
    IP addresses in use (%)       : 218 (85%)
    Maximum subscribers           : 165120
    Active subscribers (%)        : 138853 (84%)
    Maximum ext port blocks       : 1486336
    Active ext port blocks (%)    : 377434 (25%)
```

4.2.32.56 nat-members

Syntax

nat-members

Context

[Tree] show mobile-gateway pdn local-address-assignment pool prefix micro-net nat-members

Description

This command displays overall subscriber usage and extended PB usage per NAT member micro-net on the BNG-UP.

Output

The following output is an example of the overall subscriber usage and extended PB usage per NAT member micro-net.

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Output example

```
A:MAG-c>show>mobile-gateway>pdn>laa# pool gateway 1 network-realm "601" name "601-pool-0"
 prefix 130.0.0.0/21 micro-net 130.0.0.0/24 nat-members

===============================================================================
Local Address Assignment Micro-net nat-members
===============================================================================
PDN gateway                     : 1
Network realm                   : 601
Pool                            : 601-pool-0
Prefix                          : 130.0.0.0/21
Address family                  : ipv4
Micro-net                       : 130.0.0.0/24
UPF/FSG                         : NAT 10.0.1.3

-------------------------------------------------------------------------------
Member Address Range                IP Addresses  Subscribers  Ext Port Blocks
-------------------------------------------------------------------------------
     1 130.0.0.171 - 130.0.0.255              85        46284            86504
     2 130.0.0.0 - 130.0.0.85                 86        46284            86808
     3 130.0.0.86 - 130.0.0.170               85        46285            80243
-------------------------------------------------------------------------------
```

4.2.32.57 micro-nets

Syntax

micro-nets [*mn-filter/len*] [**count**]

micro-nets [*mn-filter/len*] **sort** {**subnet | usage | active | hold**} [**ascend | descend**]

Context

[Tree] show mobile-gateway pdn local-address-assignment pool prefix micro-nets

Description

This command displays an overview of all micro-nets for a specific prefix, their corresponding associations with the BNG-UPs, and the IP address usage within each micro-net.

Parameters

mn-filter/len

Specifies the micro-net prefix and length, up to 64 characters.

count

Keyword to display only the number of micro-nets.

sort

Keyword to sort the output.

subnet | usage | active | hold

Keyword to specify the column to sort on.

ascend | descend

Keyword to specify the order of sorting.

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Output

The following output is an example of the overview of all micro-nets for prefix `130.0.0.0/21`.

Output example

```
A:MAG-c>show>mobile-gateway>pdn>laa# pool gateway 1 network-realm "601" name "601-pool-0"
 prefix 130.0.0.0/21 micro-nets

===============================================================================
Local Address Assignment Micro-nets for Prefix 130.0.0.0/21
===============================================================================
Micro-net                   UPF/FSG                       IP Addresses In Use
                                                          Active   Hold Usage
-------------------------------------------------------------------------------
130.0.0.0/24                NAT 10.0.1.3                     218          85%
130.0.1.0/24                N/A                                0       0   0%
130.0.2.0/24                N/A                                0       0   0%
130.0.3.0/24                N/A                                0       0   0%
130.0.4.0/24                N/A                                0       0   0%
130.0.5.0/24                N/A                                0       0   0%
130.0.6.0/24                N/A                                0       0   0%
130.0.7.0/24                N/A                                0       0   0%
-------------------------------------------------------------------------------
No. of micro-nets: 8
```

4.2.32.58 nat

Syntax

nat

Context

[Tree] show mobile-gateway pdn local-address-assignment pool prefix micro-nets nat

Description

This command displays the number of allocated micro-nets, the number of users within each micro-net, and the extended PB usage for each micro-net under a specific prefix.

Output

The following output is an example of the number of allocated micro-nets, the number of users within each micro-net, and the extended PB usage for each micro-net for prefix `130.0.0.0/21`.

Output example

```
A:MAG-c>show>mobile-gateway>pdn>laa# pool gateway 1 network-realm "601" name "601-pool-0"
 prefix 130.0.0.0/21 micro-nets nat

===============================================================================
Local Address Assignment NAT Micro-nets for Prefix 130.0.0.0/21
===============================================================================
Micro-net          UPF/FSG                Subscribers (%) Ext Port Blocks (%)
-------------------------------------------------------------------------------
130.0.0.0/24       NAT 10.0.1.3             138853 (84%)    483479 (33%)
-------------------------------------------------------------------------------
```


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```
No. of subscribers  :      138853
No. of NAT micronets:           1
```

4.2.32.59 extended-port-blocks

Syntax

extended-port-blocks

Context

[Tree] show mobile-gateway pdn local-address-assignment pool prefix micro-nets nat extended-port-blocks

Description

This command displays the extended PB usage per IP address under a specific prefix.

Output

The following output is an example of the extended PB usage per IP address for prefix `130.0.0.0/21`.

Output example

```
A:MAG-c>show>mobile-gateway>pdn>laa# pool gateway 1 network-realm "601" name "601-pool-0"
 prefix 130.0.0.0/21 micro-nets nat extended-port-blocks

===============================================================================
Local Address Assignment NAT Micro-nets for Prefix 130.0.0.0/21
===============================================================================
Micro-net           UPF/FSG
    IP Address                              Subscribers (%) Ext Port Blocks (%)
-------------------------------------------------------------------------------
130.0.0.0/24        NAT 10.0.1.3
    130.0.0.0                                   645 (100%)      207 (4%)
    130.0.0.1                                   645 (100%)      220 (4%)
    130.0.0.2                                   645 (100%)       93 (2%)
    130.0.0.3                                   645 (100%)       63 (1%)
    130.0.0.4                                   645 (100%)        0 (0%)
    130.0.0.5                                   645 (100%)        0 (0%)
    130.0.0.6                                   645 (100%)        0 (0%)
    130.0.0.7                                   645 (100%)        0 (0%)
    130.0.0.8                                   645 (100%)        0 (0%)
    130.0.0.9                                   645 (100%)        0 (0%)
    130.0.0.10                                  645 (100%)        0 (0%)
    130.0.0.11                                  645 (100%)        0 (0%)
    130.0.0.12                                  645 (100%)        0 (0%)
    130.0.0.13                                  645 (100%)        0 (0%)
    130.0.0.14                                  645 (100%)        0 (0%)
    130.0.0.15                                  645 (100%)        0 (0%)
    130.0.0.16                                  645 (100%)        0 (0%)
    130.0.0.17                                  645 (100%)        0 (0%)
    130.0.0.18                                  645 (100%)        0 (0%)
    130.0.0.19                                  645 (100%)        0 (0%)
    130.0.0.20                                  645 (100%)        0 (0%)
    130.0.0.21                                  645 (100%)        0 (0%)
    130.0.0.22                                  645 (100%)        0 (0%)
    130.0.0.23                                  645 (100%)        0 (0%)
    130.0.0.24                                  645 (100%)        0 (0%)
```


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```
    130.0.0.25                                645 (100%)        0 (0%)
    130.0.0.26                                645 (100%)        0 (0%)
    130.0.0.27                                645 (100%)        0 (0%)
    130.0.0.28                                645 (100%)        0 (0%)
    130.0.0.29                                645 (100%)        0 (0%)
    130.0.0.30                                645 (100%)        0 (0%)
    130.0.0.31                                645 (100%)        0 (0%)
    130.0.0.32                                645 (100%)       18 (<1%)
    130.0.0.33                                645 (100%)       18 (<1%)
    130.0.0.34                                645 (100%)      251 (4%)
    130.0.0.35                                645 (100%)      252 (4%)
    130.0.0.36                                645 (100%)       12 (<1%)
    130.0.0.37                                645 (100%)        4 (<1%)
    130.0.0.38                                645 (100%)        0 (0%)
    130.0.0.39                                645 (100%)        0 (0%)
    130.0.0.40                                645 (100%)        0 (0%)
    130.0.0.41                                645 (100%)        0 (0%)
    130.0.0.42                                645 (100%)        0 (0%)
```

4.2.32.60 prefixes

Syntax

prefixes [*prefix-filter/len*] [*type*] [**count**]

prefixes [*prefix-filter/len*] [*type*] **sort** {**prefix** | **usage**} [**ascend** | **descend**]

Context

[Tree] show mobile-gateway pdn local-address-assignment pool prefixes

Description

This command displays summary information of the pool prefixes that match the specified filters.

Parameters

prefix-filter/len

Specifies the IP prefix filter, up to 64 characters.

type

Specifies the address type filter.

Values: ipv4 | ipv6-na | ipv6-pd | ipv6-slaac

count

Keyword to display only the number of pool prefixes that match the specified filters.

sort

Specifies to sort the output.

{prefix | usage}

Keyword to sort the output on prefix or usage.

[ascend | descend]

Keyword to sort the output in ascending or descending order.

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Output

The following output example shows a sorted pool prefixes summary.

Output example: Sorted Pool Prefixes Summary

```
A:MAG-c>show>mobile-gateway>pdn>laa# pool gateway 1 network-
realm "mybngvrf" name "p1" prefixes sort usage descend
===============================================================================
Local Address Assignment Pool Prefixes
===============================================================================
Prefix                                          Address    Oper  Usage Drain
                                                Family     State
-------------------------------------------------------------------------------
20.20.0.0/16                                    ipv4       up      6%  no
2002::/40                                       ipv6-pd    up      6%  no
2001:dead:1::/105                               ipv6-na    up      0%  no
2003::/45                                       ipv6-slaac up      0%  no
-------------------------------------------------------------------------------
No. of prefixes: 4
===============================================================================
```

4.2.32.61 pools

Syntax

pools [**gateway** *gw-id*] [**network-realm** *realm*] [**name** *pool*] [*type*] [**count**]

pools [**gateway** *gw-id*] [**network-realm** *realm*] [**name** *pool*] [*type*] **sort**{**name** | **usage**} [**ascend** | **descend**]

Context

[Tree] show mobile-gateway pdn local-address-assignment pools

Description

This command displays summary information for the pools matching the specified filters.

Parameters

gw-id

Specifies the mobile gateway filter.

Values: 1 to 8

realm

Specifies the network realm filter, up to 80 characters.

pool

Specifies the pool name filter, up to 32 characters.

type

Specifies the address type filter.

Values: ipv4 | ipv6-na | ipv6-pd | ipv6-slaac

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count

Keyword to display only the number of pools that match the specified filters.

sort

Specifies to sort the output.

{name | usage}

Keyword to sort the output on poolname or pool usage.

[ascend | descend]

Keyword to sort the output in ascending or descending order.

Output

The following output example shows a sorted pools summary.

Output example: Sorted Pools Summary

```
A:MAG-c>show>mobile-gateway>pdn>laa# pools sort usage descend
===============================================================================
Local Address Assignment Pools
===============================================================================
Gw Network Realm                                Prov.    Oper-up
   Pool                        Type         Prefixes   Prefixes IP-address Usage
-------------------------------------------------------------------------------
1  mybngvrf
   p1                          overall             4          4     12000 (0%)
                               ipv4                1          1      4000 (6%)
                               ipv6-slaac          1          1         0 (0%)
                               ipv6-pd             1          1      4000 (6%)
                               ipv6-na             1          1      4000 (0%)
1  mybngvrf
   radius                      ipv4                1          1         0 (0%)
-------------------------------------------------------------------------------
No. of pools: 2
===============================================================================
```

4.2.32.62 path-mgmt-stats

Syntax

path-mgmt-stats *ref-point-type* **peer** *ip-address* [**port** *port-number*]] [**gateway** *gw-id* | **group** *group-number* | **vm** *vm-id*] [**instance** | **aggregate**]

path-mgmt-stats {**gn** | **gp**} [**ref-point** *ref-point-name*] [**peer** *ip-address* [**port** *port-number*]] [**gateway** *gw-id* | **group** *group-number* | **vm** *vm-id*]] [**instance** | **aggregate**] [**active**]

path-mgmt-stats {**s5** | **s8**} [**ref-point** *ref-point-name*] [**peer** *ip-address* [**port** *port-number*]] [**gateway** *gw-id* | **group** *group-number* | **vm** *vm-id*]] [**instance** | **aggregate**]

Context

[Tree] show mobile-gateway pdn path-mgmt-stats

Description

This command displays path management statistics.

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Parameters

ref-point-type

Specifies the interface type.

Values: s11 | s1u | s12 | s4 | s5 | s8 | gx | rf | gn | ga | gp | gy | s2a | s2b | s6b | swm | sta | sx-n4

ip-address

Specifies an existing IP address.

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

port-number

Specifies a port ID.

Values: 1 to 65535

gw-id

Specifies the gateway ID.

Values: 1 to 8

group-number

Specifies the group number.

Values: 1 to 15

vm-id

Specifies the VM ID.

Values: 1 to 20 | A | B

ref-point-name

Specifies the reference point name, up to 32 characters.

instance

Keyword to display routing instance statistics per peer and per card.

aggregate

Keyword to display aggregated global statistics.

active

Keyword to display active peer statistics.

4.2.32.63 pcmd-stats

Syntax

pcmd-stats [**gateway** *gw-id* | **group** *group-number* | vm *vm-id* **[gw-type** {**sgw** | **pgw**}] [**summary**]

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Context

[Tree] show mobile-gateway pdn pcmd-stats

Description

This command displays PCMD statistics information for all gateways or for a specified gateway or gateway type.

Parameters

gw-id

Specifies the gateway ID.

Values: 1 to 8

group-number

Specifies the group number.

Values: 1 to 15

vm-id

Specifies the VM ID.

Values: 1 to 20

gw-type {sgw | pgw}

Keyword to specify the gateway type.

summary

Keyword to display summary information.

Output

The following output example displays PCMD statistics information.

Output example: PCMD statistics

```
A:MAG-c# show mobile-gateway pdn pcmd-stats
===============================================================================
PDN gateway PCMD statistics
===============================================================================
VNF/VM           : 1/3                  Gateway          : 1

PDN PCMD Profile name     : PCMD-records
PDN PCMD Profile duration : 0d 00:04:37
PDN PCMD oper. state      : up

Session records
---------------
Success records  : 0
Failure records  : 0
Success extended : 3
Success limited  : 0
Total records    : 3
Total bytes      : 588

--------------------------
Gateway lifetime statistics
--------------------------
Success records  : 3                    Failure records  : 0
```


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```
-------------------------------------------------------------------------------
Number of cards  : 1
-------------------------------------------------------------------------------
NOTE: Gateway lifetime statistics represent all generated session records count
      since gateway creation regardless profile is assigned to gateway or not.
```

4.2.32.64 pdn-context

Syntax

pdn-context [**imsi** *imsi* | **imei** *imei* | **msisdn** *msisdn* | **subscriber-id** *subscriber-id* | **mac** *ieee-address*] [**apn** *name*] [**gateway** *gw-id* | **group** *group-number* | **vm** *vm-id*] [**access-type** *access-type*]

pdn-context [**imsi** *imsi* | **imei** *imei* | **msisdn** *msisdn* | **subscriber-id** *subscriber-id* | **mac** *ieee-address*] **detail** [**apn** *name*] [**gateway** *gw-id* | **group** *group-number* | **vm** *vm-id*] [**access-type** *access-type*]

pdn-context detail imsi *imsi* **apn** *name* **eps-bearer-id** *ebid* [**gateway** *gw-id* | **group** *group-number* | **vm** *vm-id*] [**access-type** *access-type*]

pdn-context {**imsi** *imsi* | **imei** *imei* | **msisdn** *msisdn* | **subscriber-id** *subscriber-id*} **acct** {**rf** | **gy** | **radius** | **nchf**} [**gateway** *gw-id*] [**apn** *name*] [**detail**]

pdn-context {imsi *imsi* | **imei** *imei* | **msisdn** *msisdn*} **acct stats** [**gateway** *gw-id*] [**apn** *name*] [**urr-id** *urr-id*] [**detail**]

pdn-context subscriber-id [**gateway** *gw-id*] [**apn** *name*] [**detail**]

pdn-context imsi *imsi* **detail** {**epdg-decrypt**}

pdn-context {imsi *imsi* | **imei** *imei* | **msisdn** *msisdn*} {**gx-time-of-day-info** | **gx-usage-monitoring** [**monitoring-key** *monitoring-key*]} [**gateway** *gw-id*] [**apn** *name*]

pdn-context ipsec-lockout [**summary**]

Context

[Tree] show mobile-gateway pdn pdn-context

Description

This command displays information related to the current PDN contexts.

Parameters

imsi

Specifies an IMSI identification string, up to 15 characters.

imei

Specifies an IMEI identification string, up to 16 characters.

msisdn

Specifies an MSISDN identification string, up to 15 characters.

subscriber-id

String value, up to 32 characters, stored in the Subscriber Profile Repository (SPR) that identifies each subscriber in the network; the value is assigned and maintained by individual operators and varies in format.

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ieee-address

Specifies the UE MAC.

gw-id

Specifies the gateway ID.

Values: 1 to 8

name

Specifies the APN name for the context, up to 80 characters.

vm-id

Specifies the VM ID.

Values: 1 to 20 | A | B

group-number

Specifies the group number.

Values: 1 to 15

access-type

Specifies the access type.

Values: eps | gprs | non-3gpp

detail

Keyword to display the detailed summary information for the PDN context.

ebid

Specifies the EPS bearer ID.

Values: 5 to 15

acct {rf | gy | radius | stats | nchf}

Keyword to display accounting context information and statistics for the specified context.

detail

Keyword to display the detailed summary information for the PDN context.

acct stats

Keyword to display the accounting statistics.

urr-id

Specifies a unique identity for the usage rule report (URR)

Values: 1 to 2147483647

pgw-ip-address

Specifies the PGW IP address

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D

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session-type

Specifies the session type.

epdg-decrypt

Keyword to display the decryption keys for both IKE and ESP SAs.

gx-time-of-day-info

Keyword to display the Gx Time of Day procedures related information for the specified IMSI for each IP-CAN session including the current Revalidation-Time applicable for the session, Rule-Activation-Time, Rule-Deactivation-Time and the corresponding applicable rules.

gx-usage-monitoring

Keyword to display the Gx usage monitoring information for the specified IMSI, IMEI, or MSISDN. Displayed information for each IP-CAN session includes the usage monitoring instances and the list of associated usage monitoring-keys.

monitoring-key

Specifies the monitoring key, up to 80 characters. When specified, the MAG-c displays more information for the specified monitoring key instance (scope, GSU, GSU-scope, usage-reported, number of threshold reports and on-demand reports). When the usage monitoring key scope is at the PCC rule level, the associated PCC rule names are also displayed.

Default: none

ipsec-lockout

Keyword to display IPsec lockout statistics for the PDN context.

Output

The following output examples show PDN context information.

- PDN context detail summary for specified MSISDN
- PDN context detail summary for specified IMSI and EBI

Output example: PDN context detail summary for specified MSISDN

```
A:MAG-c# show mobile-gateway pdn pdn-context msisdn 10000098761 detail

================================================================================
PDN context detail
================================================================================
SUPI             : 001010000000001
DNN              : hsi
Public DNN       : N/A
Virtual DNN      : N/A
Virtual DNN sel  : -
Virtual DNN sel user-range type              : -
Virtual DNN sel scope                        : N/A
Auth Status      : IMSI authenticated
PEI              : 987654321012345
GPSI             : 10000098761
RAT              : NR
Interworking     : Subscribed/N26
SMF type         : SMF
Ref-point/Sig-pr*: N11/http2           DNN restriction  : 0
5G Capability
  RQI            : Disabled              Multihoming    : Disabled
```


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```
PDU Session ID   : 1
UL DNN AMBR      : 20.00 Mbps           DL DNN AMBR      : 50.00 Mbps
Bearer contexts  : 2                    SDFs             : 1

Primary DNS IPv4 address   : -
Secondary DNS IPv4 address : -
Primary DNS IPv6 address   : -
Secondary DNS IPv6 address : -

Pri NBNS IPv4 ad*: -                    Sec NBNS IPv4 ad*: -
Pri NBNS IPv6 ad*: -
Sec NBNS IPv6 ad*: -

Charging bearer *: Home

UE IPv4 address  : 192.0.2.1
UE IPv4 address source     : unknown

UE IPv6 address  : ::a17:ffff:fe00:1
UE IPv6 address source     : unknown

Charging profile : 0                    Interim records *: 0
RF triggers      : 0

Framed Routes    : 0

P-CSCF Reselection         : Y

Override Rating Group      : N/A
Override Online Billing Method  : Disabled
Override Offline Billing Method : Disabled
MO Exception Cou*: 0                    MO Exception Tim*: 0

ULI Timestmp(sec): 0                    SSC Mode         : 1
N3 State         : Active
LADN state       : Inactive

NSSAI
SST              : 1                    SD               : 0xcafe01
-------------------------------------------------------------------------------
Service Based Interface (SBI) Information
-------------------------------------------------------------------------------
Service Realm    : fwa_realm

NF Service       : nsmf-pdusession
NF Role          : producer
NF ID            : 4f4738e7-41a8-4485-963e-db1124007808
URI              : http://192.168.2.1:65534/nsmf-pdusession/v1/sm-contexts/
                   00010110
Service Instance : fwa_smf

NF Service       : namf-comm
NF Role          : consumer
NF ID            : 4f4738e7-41a8-4485-963e-db1124007808
Service Instance : amf_comm_client

NF Service       : namf-evts
NF Role          : consumer
NF ID            : 4f4738e7-41a8-4485-963e-db1124007808
URI              : http://192.168.2.1:65534/smfPduSession/00010110

NF Service       : npcf-smpolicycontrol
NF Role          : consumer
NF ID            : 1df98a9d-2d71-46b0-839e-461956fa5ab2
```


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```
URI              : http://192.168.40.4:80/npcf-smpolicycontrol/v1/sm-policies/
                   1010000000001_1
Service Instance : pcf_client

NF Service       : nudm-sdm
NF Role          : consumer
NF ID            : 58e12c9c-e736-4d01-9c3f-9e37763a51c3
URI              : http://192.168.40.3:80/nudm-sdm/v1/imsi-001010000000001/sdm-
                   subscriptions/001010000000001_0
Service Instance : sdm_client

NF Service       : nudm-uecm
NF Role          : consumer
NF ID            : 58e12c9c-e736-4d01-9c3f-9e37763a51c3
Service Instance : uecm_client
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
QoS Information
-------------------------------------------------------------------------------
QFI : 1   QFI Type : Dynamic  QoS Flow Type : Default
-------------------------------------------------------------------------------
QoS Profile
5QI/ARP              : 5/9              Priority Level       : 0
Avg Window (ms)      : 0                Max Bst Vol (bytes)  : 0
QNC                  : Disabled         RQI                  : Disabled
UL MBR (kbps)        : 0                DL MBR (kbps)        : 0
UL GBR (kbps)        : 0                DL GBR (kbps)        : 0
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
QFI : 2   QFI Type : Dynamic  QoS Flow Type : GBR
-------------------------------------------------------------------------------
QoS Profile
5QI/ARP              : 4/9              Priority Level       : 20
Avg Window (ms)      : 0                Max Bst Vol (bytes)  : 0
QNC                  : Disabled         RQI                  : Disabled
UL MBR (kbps)        : 100              DL MBR (kbps)        : 100
UL GBR (kbps)        : 100              DL GBR (kbps)        : 100
-------------------------------------------------------------------------------
User Plane (UP) Information
-------------------------------------------------------------------------------
UP Type              : Original PSA
UP Sx-N4 Ctl V4      : 192.0.2.11
CP Sx-N4 Ctl V4      : 17.17.17.10
CP Sx-N4 Seid        : 0x10110
UP Sx-N4 Seid        : 0x2
gNb N3 Data TEID     : 0x10000001
gNb N3 IPv4 Address  : 172.10.1.101
UP N3 Data TEID      : 0x40000
UP N3 IPv4 Address   : 172.20.1.1
UP N3 IPv6 Address   : 2001:db8:2020::1

QFI(s)               : 1, 2

-------------------------------------------------------------------------------

Def PFCP-u Sess  : False
Network/Itf Realm: N/A
-------------------------------------------------------------------------------
Number of PDN contexts : 1
===============================================================================
* indicates that the corresponding row element may have been truncated.
```


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Example: PDN context detail summary for specified IMSI and EBI

```
A:MAG-c# show mobile-gateway pdn pdn-context imsi 206010000000003 eps-bearer-id 5 detail

===============================================================================
PDN context detail
===============================================================================
IMSI             : 206010000000003
APN              : subscr3.home.mnc001.mcc206.gprs
Public APN       : N/A
Virtual APN      : N/A
Virtual APN sel  : -
Virtual APN sel user-range type              : -
Virtual APN sel scope                        : N/A
Auth Status      : IMSI authenticated
IMEI             : 358505010000030
MSISDN           : 8801812300003
RAT              : EUTRAN
Interworking     : Subscribed
Data Session Id  : 0x00015100
PDN type         : IPv4                 LBI              : 5
Ref-point/Sig-pr*: N/A                  APN restriction  : 0
PDU Session ID   : 1
PCRF Subscribed PRAs
OCS Subscribed PRAs
UL APN AMBR      : 100.00 Mbps          DL APN AMBR      : 500.00 Mbps
QFIs             : 0
Bearer contexts  : 1                    SDFs             : 1
Piggyback bearers requested           : 0
Piggyback bearers creation successful : 0

Primary DNS IPv4 address   : 188.178.173.25
Secondary DNS IPv4 address : -
Primary DNS IPv6 address   : -
Secondary DNS IPv6 address : -

Pri NBNS IPv4 ad*: -                    Sec NBNS IPv4 ad*: -
Pri NBNS IPv6 ad*: -
Sec NBNS IPv6 ad*: -

Charging bearer *: Home

UE IPv4 address  : 11.0.0.1
UE IPv4 address source     : unknown


PCRF triggers    : RAT
Gx primary peer profile    :
Gx secondary peer profile  :
Gx peer profile in use     :
Gx failover count          : 0
Gx peer origin             : N/A
PCRF hostname              : N/A
PCRF address               : 31.0.1.164
PCRF port                  : 80
PCRF destination host      : pcf2.diam.nokia.com
Gx local address           : -
PCRF enabled Gy Event Reporting :


S6b primary peer profile   :
S6b secondary peer profile :
S6b peer profile in use    :
S6b failover count         : 0
```


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```
S6b peer hostname          : N/A
S6b peer address           : -
S6b peer port              : 0
S6b peer dest host         : N/A
S6b peer origin            : N/A
S6b local address          : -

Framed Routes    : 0
Redir Mob Ipv4 Addr        : -
Redir Mob Ipv6 Addr        : -
P-CSCF Ipv4 Addr : 199.198.181.226
L2TP Connection *: 0

Restoration Priority Level : 0

P-CSCF Reselection         : Y
Registered P-CSCF Addr     : -

eMPS IMS priority session  : No

Alloc ePDG svr Ipv4 Addr   : -
Alloc ePDG svr Ipv6 Addr   : -

Override Rating Group      : N/A
Override Online Billing Method  : Disabled
Override Offline Billing Method : Disabled
Serving PLMN rat*: disabled
CPOPCI           : disabled             EPCOSI           : disabled
PGW UL Rate Control        : disabled
MO Exception Cou*: 0                    MO Exception Tim*: 0

CP Sx-N4 Seid    : 0x15100              UP Sx-N4 Seid    : 0x4
CP Sx-N4 Ctl V4 *: 30.0.0.5             UP Sx-N4 Ctl V4 *: 100.40.40.40
CP Sx-N4 Ctl V6 Addr       : 2028::5
UP Sx-N4 Ctl V6 Addr       : -
PDRs             : 3                    FARs             : 2
QERs             : 1                    BAR ID           : 5
-------------------------------------------------------------------------------
Service Based Interface (SBI) Information
-------------------------------------------------------------------------------
NF Service       : nchf-convergedcharging
NF Role          : consumer
NF ID            : a8756d07-e4e2-11ef-97b7-00ff09000001
URI              : http://31.0.1.111:80/nchf-convergedcharging/v3/chargingdata/
                   0
Service Instance : nchf_convergedcharging2

NF Service       : npcf-smpolicycontrol
NF Role          : consumer
NF ID            : a87569ee-e4e2-11ef-a639-00ff09000001
URI              : http://31.0.1.164:80/npcf-smpolicycontrol/v1/sm-policies/
                   206010000000003_1
Service Instance : npcf_smpolicycontrol2

NF Service       : nudm-sdm
NF Role          : consumer
NF ID            : a87572f7-e4e2-11ef-8cc2-00ff09000001
URI              : http://31.0.1.195:80/nudm-sdm/v1/imsi-206010000000003/sdm-
                   subscriptions/206010000000003_0
Service Instance : nudm_sdm2

NF Service       : nudm-uecm
NF Role          : consumer
NF ID            : 00000000-0000-0000-0000-000000000000
```


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```
Service Instance : nudm_uecm2
-------------------------------------------------------------------------------
Def PFCP-u Sess  : False
Network/Itf Realm: N/A
-------------------------------------------------------------------------------
Number of PDN contexts : 1
===============================================================================
```

4.2.32.65 cp-seid

Syntax

cp-seid *seid* [**cp-ipv4** *ip-address*] [**cp-ipv6** *ipv6-address]*

cp-seid *seid* [**cp-ipv4** *ip-address*] [**cp-ipv6** *ipv6-address]* **detail**

Context

[Tree] show mobile-gateway pdn pdn-context cp-seid

Description

This command displays CP session context information related to a specific SEID.

Parameters

seid

Specifies the SEID for the CP or UP session context, up to 40 characters.

ip-address

Specifies the CP function's Sx/N4 reference point IPv4 address.

Values: a.b.c.d

ipv6-address

Specifies the CP function's Sx/N4 reference point IPv6 address, up to 64 characters.

detail

Keyword to display additional details.

4.2.32.66 def-pfcp-u-sessions

Syntax

def-pfcp-u-sessions [**network-realm** *realm-name*] [**pfcp-u-peer-ip** *ip-address*] [**gateway** *gw-id*] [**apn** *apn-name*] [**card** *slot-number*] [**vm** *vm-id*] [**group** *group-number*]

Context

[Tree] show mobile-gateway pdn pdn-context def-pfcp-u-sessions

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Description

This command displays the default PFCP-u shared tunnel session information, when PFCP-u (GTP-U) tunnels are configured to handle ICMPv6 RS/RA and NS/NA message exchange between the CP function and the UP function. When only **def-pfcp-u** is specified, results for all default PFCP-u sessions are displayed. The **network-realm** option may also be specified to identify the realm name of the network instance that has the PFCP GTP-U interface on the UP function, and is communicated in the Network-Instance IE part of the PFCP Session Establishment/Modification process. The **pfcp-u-peer-ip** option can also be used to display information for a specific PFCP-u Peer IP address.

Parameters

realm-name

Specifies the realm name of the network instance that has the PFCP GTP-U interface on the UP function, up to 80 characters.

ip-address

Specifies the PFCP-u peer IP address, up to 64 characters.

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

gw-id

Specifies the gateway ID.

Values: 1 to 8

apn-name

Specifies the APN name, up to 80 characters.

slot-number

Specifies the card slot number (applicable only to 7750 SR MG).

Values: 1 to 20 | A | B

vm-id

Specifies the VM ID.

Values: 1 to 20 | A | B

group-number

Specifies the group number.

Values: 1 to 15

4.2.32.67 gpsi

Syntax

gpsi *imsi-msisdn* [**detail**]

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Context

[Tree] show mobile-gateway pdn pdn-context gpsi

Description

This command displays CP session context information related to a specific GPSI (MSISDN).

Parameters

imsi-msisdn

Specifies the MSISDN, up to 15 digits.

detail

Keyword to display additional details.

4.2.32.68 pei

Syntax

pei *imei* [**detail**]

Context

[Tree] show mobile-gateway pdn pdn-context pei

Description

This command displays CP session context information related to a specific PEI (IMEI).

Parameters

imei

Specifies the IMEI, up to 16 digits.

detail

Keyword to display additional details.

4.2.32.69 supi

Syntax

supi *imsi-msisdn* [**detail**]

Context

[Tree] show mobile-gateway pdn pdn-context supi

Description

This command displays PDN context information for the specified SUPI (IMSI).

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Parameters

imsi-msisdn

Specifies the SUPI identifier, up to 15 characters.

detail

Specifies detail information.

Output

The following example shows detail information for a specified SUPI.

Output example: PDN context detail summary for specified SUPI

```
A:MAG-c# show mobile-gateway pdn pdn-context supi 206010000000003 detail

===============================================================================
PDN context detail
===============================================================================
IMSI             : 206010000000003
APN              : subscr3.home.mnc001.mcc206.gprs
Public APN       : N/A
Virtual APN      : N/A
Virtual APN sel  : -
Virtual APN sel user-range type              : -
Virtual APN sel scope                        : N/A
Auth Status      : IMSI authenticated
IMEI             : 358505010000030
MSISDN           : 8801812300003
RAT              : EUTRAN
Interworking     : Subscribed
Data Session Id  : 0x00015100
PDN type         : IPv4                 LBI              : 5
Ref-point/Sig-pr*: N/A                  APN restriction  : 0
PDU Session ID   : 1
PCRF Subscribed PRAs
OCS Subscribed PRAs
UL APN AMBR      : 100.00 Mbps          DL APN AMBR      : 500.00 Mbps
QFIs             : 0
Bearer contexts  : 1                    SDFs             : 1
Piggyback bearers requested           : 0
Piggyback bearers creation successful : 0

Primary DNS IPv4 address   : 188.178.173.25
Secondary DNS IPv4 address : -
Primary DNS IPv6 address   : -
Secondary DNS IPv6 address : -

Pri NBNS IPv4 ad*: -                    Sec NBNS IPv4 ad*: -
Pri NBNS IPv6 ad*: -
Sec NBNS IPv6 ad*: -

Charging bearer *: Home

UE IPv4 address  : 11.0.0.1
UE IPv4 address source     : unknown


PCRF triggers    : RAT
Gx primary peer profile    :
Gx secondary peer profile  :
Gx peer profile in use     :
Gx failover count          : 0
```


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```
Gx peer origin             : N/A
PCRF hostname              : N/A
PCRF address               : 31.0.1.164
PCRF port                  : 80
PCRF destination host      : pcf2.diam.nokia.com
Gx local address           : -
PCRF enabled Gy Event Reporting :


S6b primary peer profile   :
S6b secondary peer profile :
S6b peer profile in use    :
S6b failover count         : 0
S6b peer hostname          : N/A
S6b peer address           : -
S6b peer port              : 0
S6b peer dest host         : N/A
S6b peer origin            : N/A
S6b local address          : -

Framed Routes    : 0
Redir Mob Ipv4 Addr        : -
Redir Mob Ipv6 Addr        : -
P-CSCF Ipv4 Addr : 199.198.181.226
L2TP Connection *: 0

Restoration Priority Level : 0

P-CSCF Reselection         : Y
Registered P-CSCF Addr     : -

eMPS IMS priority session  : No

Alloc ePDG svr Ipv4 Addr   : -
Alloc ePDG svr Ipv6 Addr   : -

Override Rating Group      : N/A
Override Online Billing Method  : Disabled
Override Offline Billing Method : Disabled
Serving PLMN rat*: disabled
CPOPCI           : disabled             EPCOSI           : disabled
PGW UL Rate Control        : disabled
MO Exception Cou*: 0                    MO Exception Tim*: 0

CP Sx-N4 Seid    : 0x15100              UP Sx-N4 Seid    : 0x4
CP Sx-N4 Ctl V4 *: 30.0.0.5             UP Sx-N4 Ctl V4 *: 100.40.40.40
CP Sx-N4 Ctl V6 Addr       : 2028::5
UP Sx-N4 Ctl V6 Addr       : -
PDRs             : 3                    FARs             : 2
QERs             : 1                    BAR ID           : 5
-------------------------------------------------------------------------------
Service Based Interface (SBI) Information
-------------------------------------------------------------------------------
NF Service       : nchf-convergedcharging
NF Role          : consumer
NF ID            : a8756d07-e4e2-11ef-97b7-00ff09000001
URI              : http://31.0.1.111:80/nchf-convergedcharging/v3/chargingdata/
                   0
Service Instance : nchf_convergedcharging2

NF Service       : npcf-smpolicycontrol
NF Role          : consumer
NF ID            : a87569ee-e4e2-11ef-a639-00ff09000001
URI              : http://31.0.1.164:80/npcf-smpolicycontrol/v1/sm-policies/
```


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```
                  206010000000003_1
Service Instance : npcf_smpolicycontrol2

NF Service       : nudm-sdm
NF Role          : consumer
NF ID            : a87572f7-e4e2-11ef-8cc2-00ff09000001
URI              : http://31.0.1.195:80/nudm-sdm/v1/imsi-206010000000003/sdm-
                   subscriptions/206010000000003_0
Service Instance : nudm_sdm2

NF Service       : nudm-uecm
NF Role          : consumer
NF ID            : 00000000-0000-0000-0000-000000000000
Service Instance : nudm_uecm2
-------------------------------------------------------------------------------
Def PFCP-u Sess  : False
Network/Itf Realm: N/A
-------------------------------------------------------------------------------
IMSI             : 206010000000003
APN              : subscr3.home.mnc001.mcc206.gprs
Public APN       : N/A
Virtual APN      : N/A
Virtual APN sel  : -
Virtual APN sel user-range type             : -
Virtual APN sel scope                       : N/A
Auth Status      : IMSI authenticated
IMEI             : 358505010000030
MSISDN           : 8801812300003
RAT              : EUTRAN
Interworking     : Subscribed
Data Session Id  : 0x00025100
PDN type         : IPv6                 LBI              : 6
Ref-point/Sig-pr*: N/A                  APN restriction  : 0
PDU Session ID   : 2
PCRF Subscribed PRAs
OCS Subscribed PRAs
UL APN AMBR      : 110.00 Mbps          DL APN AMBR      : 510.00 Mbps
QFIs             : 0
Bearer contexts  : 1                    SDFs             : 1
Piggyback bearers requested           : 0
Piggyback bearers creation successful : 0

Primary DNS IPv4 address   : -
Secondary DNS IPv4 address : -
Primary DNS IPv6 address   : 3ffe:9abc:9abc:3333:60dd:27b7:c87d:a941
Secondary DNS IPv6 address : 3ffe:9abc:9abc:3333:60dd:27b7:c87d:a94a

Pri NBNS IPv4 ad*: -                    Sec NBNS IPv4 ad*: -
Pri NBNS IPv6 ad*: -
Sec NBNS IPv6 ad*: -

Charging bearer *: Home

UE IPv6 address  : 2013::a47e:ffff:fe00:1
UE IPv6 address source     : unknown


PCRF triggers    : RAT
Gx primary peer profile    :
Gx secondary peer profile  :
Gx peer profile in use     :
Gx failover count          : 0
Gx peer origin             : N/A
PCRF hostname              : N/A
```


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```
PCRF address               : 31.0.1.164
PCRF port                  : 80
PCRF destination host      : pcf2.diam.nokia.com
Gx local address           : -
PCRF enabled Gy Event Reporting :


S6b primary peer profile   :
S6b secondary peer profile :
S6b peer profile in use    :
S6b failover count         : 0
S6b peer hostname          : N/A
S6b peer address           : -
S6b peer port              : 0
S6b peer dest host         : N/A
S6b peer origin            : N/A
S6b local address          : -

Framed Routes    : 0
Redir Mob Ipv4 Addr        : -
Redir Mob Ipv6 Addr        : -
P-CSCF Ipv6 Addr : 3ffe:199:198:180:87bf:16dc:bea5:3f02
L2TP Connection *: 0

Restoration Priority Level : 0

P-CSCF Reselection         : Y
Registered P-CSCF Addr     : -

eMPS IMS priority session  : No

Alloc ePDG svr Ipv4 Addr   : -
Alloc ePDG svr Ipv6 Addr   : -

Override Rating Group      : N/A
Override Online Billing Method  : Disabled
Override Offline Billing Method : Disabled
Serving PLMN rat*: disabled
CPOPCI           : disabled            EPCOSI           : disabled
PGW UL Rate Control        : disabled
MO Exception Cou*: 0                   MO Exception Tim*: 0

CP Sx-N4 Seid    : 0x25100             UP Sx-N4 Seid    : 0x5
CP Sx-N4 Ctl V4 *: 30.0.0.5            UP Sx-N4 Ctl V4 *: 100.40.40.40
CP Sx-N4 Ctl V6 Addr       : 2028::5
UP Sx-N4 Ctl V6 Addr       : -
PDRs             : 3                   FARs             : 2
QERs             : 1                   BAR ID           : 5
-------------------------------------------------------------------------------
Service Based Interface (SBI) Information
-------------------------------------------------------------------------------
NF Service       : nchf-convergedcharging
NF Role          : consumer
NF ID            : a8756d07-e4e2-11ef-97b7-00ff09000001
URI              : http://31.0.1.111:80/nchf-convergedcharging/v3/chargingdata/
                   1
Service Instance : nchf_convergedcharging2

NF Service       : npcf-smpolicycontrol
NF Role          : consumer
NF ID            : a87569ee-e4e2-11ef-a639-00ff09000001
URI              : http://31.0.1.164:80/npcf-smpolicycontrol/v1/sm-policies/
                   206010000000003_2
Service Instance : npcf_smpolicycontrol2
```


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```
NF Service       : nudm-sdm
NF Role          : consumer
NF ID            : a87572f7-e4e2-11ef-8cc2-00ff09000001
URI              : http://31.0.1.195:80/nudm-sdm/v1/imsi-206010000000003/sdm-
                   subscriptions/206010000000003_0
Service Instance : nudm_sdm2

NF Service       : nudm-uecm
NF Role          : consumer
NF ID            : 00000000-0000-0000-0000-000000000000
Service Instance : nudm_uecm2
-------------------------------------------------------------------------------
Def PFCP-u Sess  : False
Network/Itf Realm: N/A
-------------------------------------------------------------------------------
Number of PDN contexts : 2
===============================================================================
```

4.2.32.70 ue-ip

Syntax

ue-ip *ip-address* **network-instance** *network-instance* [**access-type** {**utran** | **geran** | **wlan** | **gan** | **hspa** | **eutran** | **ehrpd** | **hrpd** | **1xrtt** | **umb** | **virtual** | **eutran-nb-iot**}]

ue-ip *ip-address* **network-instance** *network-instance* **detail acct stats** [**urr-id** *urr-id*] [**access-type** {**utran** | **geran** | **wlan** | **gan** | **hspa** | **eutran** | **ehrpd** | **hrpd** | **1xrtt** | **umb** | **virtual** | **eutran-nb-iot**}]

ue-ip *ip-address* **network-instance** *network-instance* **detail** [**access-type** {**utran** | **geran** | **wlan** | **gan** | **hspa** | **eutran** | **ehrpd** | **hrpd** | **1xrtt** | **umb** | **virtual** | **eutran-nb-iot**}]

Context

[Tree] show mobile-gateway pdn pdn-context ue-ip

Description

This command displays context information related to a specific UE IP address.

Parameters

ip-address

Specifies the UE IP address.

Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

network-instance

Specifies the network instance, up to 80 characters.

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urr-id

Specifies a unique identity for the usage rule report for this session.

Values: 1 to 2147483647

detail

Keyword to display additional details.

access-type

Specifies the access type.

4.2.32.71 up-seid

Syntax

up-seid *seid*

up-seid *seid* **detail acct** *stats* [**urr-id** *urr-id*]

up-seid *seid* **detail**

Context

[Tree] show mobile-gateway pdn pdn-context up-seid

Description

This command displays context information related to a specific Session Endpoint Identifier for the UP session context.

Parameters

seid

Specifies the Session Endpoint Identifier for the CP or UP session context, up to 40 characters.

urr-id

Specifies a unique identity for the usage rule report for this session.

Values: 1 to 2147483647

detail

Keyword to displays additional details.

4.2.32.72 pdu-session

Syntax

pdu-session supi *imsi* [**detail**] **acct nchf**

pdu-session

pdu-session gpsi *msisdn*

pdu-session detail gpsi *msisdn* [**dnn** *string*]

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pdu-session pei *imei*

pdu-session detail pei *imei* [**dnn** *string*]

pdu-session supi *imsi* **[n1-pdu-session-id** *pdu-seid***]**

pdu-session supi *imsi* **detail [dnn** *string***] [n1-pdu-session-id** *pdu-seid***]**

Context

[Tree] show mobile-gateway pdn pdu-session

Description

This command displays context information related to the PDU session SUPI and Nchf service.

Parameters

imsi

Specifies the IMSI, up to 15 digits.

msisdn

Specifies the MSISDN, up to 15 digits.

imei

Specifies the IMEI, up to 16 digits.

pdu-seid

Specifies the PDU session identifier.

Value: 1 to 255

string

Specifies the DNN identifier, up to 80 characters.

detail

Keyword to display additional details.

nchf

Keyword to display Nchf information.

Output

The following examples shows PDU session information.

Output example: Overview of PDU sessions

```
A:MAG-c# show mobile-gateway pdn pdu-session
===============================================================================
SUPI/PEI(#)         DNN       Type    QFIs   PDU Address (IPv4/IPv6) Ref-pt/Si*
  /GPSI(^)/MAC(`)
  /SubId/SEID(~)
===============================================================================
206010000000002     subscr2.* IPv6    1      -/2013::1:44f7:ffff:fe* N11/http2
206010000000002     subscr2.* IPv4    1      11.0.0.2/-              N11/http2
206010000000004     subscr4.* IPv6    1      -/2013::2:44f7:ffff:fe* N/A
206010000000004     subscr4.* IPv4    1      11.0.0.3/-              N/A
206010000000003     subscr3.* IPv4    1      11.0.0.6/-              N/A
206010000000003     subscr3.* IPv6    1      -/2013::6:44f7:ffff:fe* N/A
206010000000001     subscr1.* IPv4    1      11.0.0.1/-              N11/http2
```


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```
206010000000001     subscr1.* IPv6    1      -/2013::44f7:ffff:fe00* N11/http2
206010000000005     subscr5.* v4v6    1      11.0.0.4/2013::3:44f7:* N/A
206010000000005     subscr5.* IPv6    1      -/2013::4:44f7:ffff:fe* N/A
206010000000006     subscr6.* IPv4    1      11.0.0.5/-              N11/http2
206010000000006     subscr6.* IPv6    1      -/2013::5:44f7:ffff:fe* N11/http2
-------------------------------------------------------------------------------
Number of PDU sessions : 12
-------------------------------------------------------------------------------
# indicates that the corresponding row is PEI entry.
^ indicates that the corresponding row is GPSI entry.
` indicates that the corresponding row is MAC entry.
~ indicates that the corresponding row is SEID entry.
-------------------------------------------------------------------------------
* indicates that the corresponding row element may have been truncated.
```

Output example: PDU session information for specified PDU SEID

```
A:MAG-c# show mobile-gateway pdn pdu-session supi 206010000000001 n1-pdu-session-id 1
 detail

===============================================================================
PDU session detail
===============================================================================
SUPI             : 206010000000001
DNN              : subscr1.home.mnc001.mcc206.gprs
Public DNN       : N/A
Virtual DNN      : N/A
Virtual DNN sel  : -
Virtual DNN sel user-range type              : -
Virtual DNN sel scope                        : N/A
Auth Status      : IMSI authenticated
PEI              : 358505010000010
GPSI             : 8801812300001
RAT              : NR
Interworking     : Subscribed/N26
SMF type         : SMF
Ref-point/Sig-pr*: N11/http2           DNN restriction  : 0
5G Capability
  RQI            : Enabled               Multihoming    : Disabled
PDU Session ID   : 1
UL DNN AMBR      : 100.00 Mbps          DL DNN AMBR      : 500.00 Mbps
Bearer contexts  : 1                    SDFs             : 1

Primary DNS IPv4 address   : 188.178.173.67
Secondary DNS IPv4 address : 188.178.173.77
Primary DNS IPv6 address   : -
Secondary DNS IPv6 address : -

Pri NBNS IPv4 ad*: -                    Sec NBNS IPv4 ad*: -
Pri NBNS IPv6 ad*: -
Sec NBNS IPv6 ad*: -

Charging bearer *: Home

UE IPv4 address  : 11.0.0.1
UE IPv4 address source     : unknown


Framed Routes    : 0
P-CSCF Ipv4 Addr : 199.198.181.203

P-CSCF Reselection         : Y
```


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```
Override Rating Group      : N/A
Override Online Billing Method  : Disabled
Override Offline Billing Method : Disabled
MO Exception Cou*: 0                    MO Exception Tim*: 0

ULI Timestmp(sec): 0                    SSC Mode         : 1
N3 State         : Active
LADN state       : Inactive

NSSAI
SST              : 11                   SD               : 0xd143a5
-------------------------------------------------------------------------------
Service Based Interface (SBI) Information
-------------------------------------------------------------------------------
Service Realm    : Base

NF Service       : nsmf-pdusession
NF Role          : producer
NF ID            : d545b73a-e4e0-11ef-bf14-00ff09000001
URI              : http://31.0.0.7:65403/nsmf-pdusession/v1/sm-contexts/
                   00013100
Service Instance : nsmf_pdusession1

NF Service       : namf-comm
NF Role          : consumer
NF ID            : d545b73a-e4e0-11ef-bf14-00ff09000001
Service Instance : namf_comm1

NF Service       : namf-evts
NF Role          : consumer
NF ID            : d545b73a-e4e0-11ef-bf14-00ff09000001
URI              : http://31.0.0.7:65403/smfPduSession/00013100

NF Service       : nchf-convergedcharging
NF Role          : consumer
NF ID            : d55227d2-e4e0-11ef-bb20-00ff09000001
URI              : http://31.0.1.119:80/nchf-convergedcharging/v3/chargingdata/
                   0
Service Instance : nchf_convergedcharging1

NF Service       : npcf-smpolicycontrol
NF Role          : consumer
NF ID            : d5523149-e4e0-11ef-b460-00ff09000001
URI              : http://31.0.1.106:80/npcf-smpolicycontrol/v1/sm-policies/
                   206010000000001_1
Service Instance : npcf_smpolicycontrol1
PCF Triggers     : RAT

NF Service       : nudm-sdm
NF Role          : consumer
NF ID            : d552236f-e4e0-11ef-b1c6-00ff09000001
URI              : http://31.0.1.159:80/nudm-sdm/v1/imsi-206010000000001/sdm-
                   subscriptions/206010000000001_0
Service Instance : nudm_sdm1

NF Service       : nudm-uecm
NF Role          : consumer
NF ID            : d552236f-e4e0-11ef-b1c6-00ff09000001
Service Instance : nudm_uecm1
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
QoS Information
-------------------------------------------------------------------------------
QFI : 9   QFI Type : 5QI      QoS Flow Type : Default
```


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```
-------------------------------------------------------------------------------
QoS Profile
5QI/ARP              : 9/1              Priority Level       : 0
Avg Window (ms)      : 0                Max Bst Vol (bytes)  : 0
QNC                  : Disabled         RQI                  : Disabled
UL MBR (kbps)        : 0                DL MBR (kbps)        : 0
UL GBR (kbps)        : 0                DL GBR (kbps)        : 0
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
User Plane (UP) Information
-------------------------------------------------------------------------------
UP Type              : Original PSA
UP Sx-N4 Ctl V6      : 9901:13:13::13
CP Sx-N4 Ctl V4      : 30.0.0.5
CP Sx-N4 Ctl V6      : 2028::5
CP Sx-N4 Seid        : 0x13100
UP Sx-N4 Seid        : 0x2
gNb N3 Data TEID     : 0x10000001
gNb N3 IPv4 Address  : 32.0.0.7
UP N3 Data TEID      : 0x80000
UP N3 IPv4 Address   : 100.3.3.3
UP N3 IPv6 Address   : 9901:3:3::3

QFI(s)               : 9

-------------------------------------------------------------------------------

Def PFCP-u Sess  : False
Network/Itf Realm: N/A
-------------------------------------------------------------------------------
Number of PDN contexts : 1
===============================================================================
```

4.2.32.73 priority-service

Syntax

priority-service summary

Context

[Tree] show mobile-gateway pdn priority-service

Description

This command displays the priority services information.

Parameters

summary

Keyword to display summary information.

Output

The following example shows priority-service summary information.

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Output example: Priority-service summary information

```
================================================================================
Priority service summary
================================================================================
Local priority                                                  : 1
Number of 4G PDN sessions                                       : 0
Number of 5G PDU sessions                                       : 0

Local priority                                                  : 2
Number of 4G PDN sessions                                       : 0
Number of 5G PDU sessions                                       : 0

Local priority                                                  : 3
Number of 4G PDN sessions                                       : 0
Number of 5G PDU sessions                                       : 0

Local priority                                                  : 4
Number of 4G PDN sessions                                       : 0
Number of 5G PDU sessions                                       : 0

--------------------------------------------------------------------------------
Total
Number of 4G PDN sessions                                       : 0
Number of 5G PDU sessions                                       : 0
================================================================================
```

4.2.32.74 qos-flow

Syntax

qos-flow [**dnn** *dnn*]

qos-flow supi *supi* [**dnn** *dnn*] [**n1-pdu-session-id** *pdu-seid*]

qos-flow supi *supi* **detail** [**qfi** *qfi*] [**dnn** *dnn*] [**n1-pdu-session-id** *pdu-seid*]

Context

[Tree] show mobile-gateway pdn qos-flow

Description

This command displays QoS flow information for the specified SUPI for 5G sessions.

Parameters

dnn

Specifies the DNN, up to 80 characters.

supi

Specifies the SUPI identifier, up to 15 digits.

detail

Keyword to display detailed information.

qfi

Specifies the QFI identifier.

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Values: 0 to 63

pdu-seid

Specifies the PDU session identifier.

Value: 1 to 255

4.2.32.75 ref-point-peers

Syntax

ref-point-peers {**s11** | **s11u** | **s12** | **s1u** | **s4** | **s4u** | **s5** | **s5u** | **s8** | **s8u** | **gx** | **rf** | **gn** | **gnu** | **gp** | **gpu** | **ga** | **radius** | **gy** | **s2a** | **s2a-gtp** | **s2b** | **s6b** | **swm** | **sww** | **sta** | **sx-n4** | **sd** | **dhcp** | **n3** | **n9**} [**ref-point** *ref-point-name*] [**peer** *ip-address* [**port** *port-number*]] [**gateway** *gw-id*] [**peer-type** {**sgw** | **pgw**}]

ref-point-peers {**gn** | **gnu** | **gp** | **gpu**} [**ref-point** *ref-point-name*] [**peer** *ip-address*] [**gateway** *gw-id*] [**active**]

ref-point-peers {**radius**} [**radius-group** *radius-group* [**peer** *ip-address*]] [**gateway** *gw-id*]

ref-point-peers {**s5** | **s5u** | **s8** | **s8u** | **n9**} [**ref-point** *ref-point-name*] [**peer** *ip-address*] [**gateway** *gw-id*]

ref-point-peers {**dhcp**} [**dhcp-group** *dhcp-group* [**peer** *ip-address*]] [**gateway** *gw-id*]

ref-point-peers {**cdbx**} [**peer** *ip-address*] [**gateway** *gw-id*] [**vm** *vm-id*]

ref-point-peers {**s6b** | **gx** | **swm** | **sta** | **sd**} [**gateway-id** *gw-id*] [**peer** *ip-address* [**port** *port-number*]] **doic**

ref-point-peer {**sx-n4**} [**peer** *ip-address*] [**gateway** *gw-id*] [**ref-point** *ref-point-name*]

Context

[Tree] show mobile-gateway pdn ref-point-peers

Description

This command displays the reference point peers for the router instance.

Parameters

s11 | s11u | s12 | s1u | s4 | s4u | s5 | s5u | s8 | s8u | gx | rf | gn | gnu | gp | gpu | ga | radius | gy | s2a | s2a-gtp | s2b | s6b | swm | sww | sta | sx-n4 | sd | dhcp | n3 | n9

Keyword to specify the reference point type.

ip-address

Specifies the IP address of the peer.

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D

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gw-id

Specifies the gateway ID.

Values: 1 to 8

peer-type {sgw | pgw}

Keyword to specify the peer type.

radius-group

Specifies the RADIUS group name, up to 31 characters.

ref-point-name

Specifies the reference point name, up to 32 characters.

sww-type

Specifies the SWw type.

active

Keyword to display the active peers.

radius

Keyword to display the RADIUS peers.

dhcp

Keyword to display the DHCP peers.

dhcp-group

Specifies the DHCP group name, up to 31 characters.

dia-routing-table

Keyword to display the configuration of the Diameter routing table.

cdbx

Keyword to display the cloud database peers.

doic

Keyword to display the realms and hosts with valid Diameter Overload Indication Conveyance (DOIC) parameters.

vm-id

Specifies the VM ID.

Values: 1 to 22

4.2.32.76 ref-point-stats

Syntax

ref-point-stats [**peer** *ip-address*] [**card** *slot-number*] [**gateway** *gw-id*] [**group** *group-number*] [**instance**] [**aggregate**] **dhcp** [**dhcp-group** *dhcp-group-name*]

ref-point-stats [**peer** *ip-address*] [**card** *slot-number*] [**gateway** *gw-id*] [**group** *group-number*] [**instance**] [**aggregate**]**radius** [**radius-group** *radius-group*]

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ref-point-stats *ref-point-type* [**peer** *ip-address*] [**port** *port-number*] [**card** *slot-number*] [**gateway** *gw-id*] [**group** *group-number*] [**instance**] [**aggregate**] [**failure-codes**] [**active**] [**ref-point** *ref-point-name*] [**peer-type** *peer-type*]

ref-point-stats [**peer** *ip-address*] [**gateway** *gw-id*] [**instance**] [**aggregate**] [**vm** *vm-id*] **cdbx**

ref-point-stats [**card** *slot-number*] [**gateway** *gw-id*] [**aggregate**]**ibcp**

ref-point-stats [**peer** *ip-address*] [**card** *slot-number*] [**gateway** *gw-id*] [**group** *group-number*] [**instance**] [**aggregate**] [**failure-codes**] [**ref-point** *ref-point-name*]**sx-n4**

Context

[Tree] show mobile-gateway pdn ref-point-stats

Description

This command displays reference point statistics.

Parameters

ip-address

Specifies an existing peer IP address.

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

slot-number

Specifies the card slot number.

Values: 1 to 20 | A | B

gw-id

Specifies the gateway ID.

Values: 1 to 8

group-number

Specifies the group number.

Values: 1 to 15

instance

Keyword to show statistics per-peer per-card.

aggregate

Keyword to display aggregated statistics globally.

dhcp

Keyword to display the DHCP statistics.

dhcp-group-name

Specifies the DHCP group, up to 31 characters.

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radius

Keyword to display the RADIUS statistics.

radius-group

Specifies the RADIUS group, up to 31 characters.

ref-point-type

Keyword to specify the reference point type.

Values: s11 | sx-n4

port-number

Specifies a port ID.

Values: 1 to 65535

failure-codes

Keyword to show failure-code statistics.

active

Keyword to display statistics from the active peers.

ref-point-name

Specifies the reference point name, up to 32 characters.

peer-type

Specifies the peer type.

Values: sgw | pgw | epdg | twag | scef

vm-id

Specifies the VM ID.

Values: 1 to 22

cdbx

Keyword to display the cloud database statistics.

ibcp

Keyword to display the BNG IBCP statistics for both the default tunnel and the per-session tunnel.

sx-n4

Keyword to display sx-n4 statistics

4.2.32.77 remote-nf

Syntax

remote-nf [**gateway** *gw-id*] [**nf-type** *nf-type*]

remote-nf nf-id *nf-id* [**gateway** *gw-id*]

remote-nf nf-ip {*ip-address* | *fqdn*} [**gateway** *gw-id*]

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Context

[Tree] show mobile-gateway pdn remote-nf

Description

This command displays information for the specified remote network function (NF).

Parameters

gw-id

Specifies the gateway ID.

Values: 1 to 8

nf-type

Specifies the NF type.

Values: nrf | amf | udm | pcf | bsf

nf-id

Specifies the UUID of the remote NF.

Values: xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx

x - [0..F]H

ip-address

Specifies the IP address of the remote NF.

Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

fqdn

Specifies an existing fully qualified domain name (FQDN) of the remote NF, up to 255 characters.

Output

The following output example shows statistics for the specified remote NF.

Output example: Statistics for the specified remote NF

```
A:MAG-c# show mobile-gateway pdn remote-nf nf-id db565f26-13d8-11f1-9f76-00ff09000001
 gateway 1

===============================================================================
Remote Network Function
===============================================================================
NF instance ID: db565f26-13d8-11f1-9f76-00ff09000001            NF type: AMF
-------------------------------------------------------------------------------
Active HTTP/2 connections
-------------------------------------------------------------------------------
Region Id        : 1                   SetId           : 2
```


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```
GuamiList        : {206,01}
NF Set ID        : set2-region1.amfset.
                   5gc.mnc01.mcc206.
                   3gppnetwork.org
Gateway          : 1
Router           : vprn7
Local IP addr    : 16.0.0.7
Local port       : 65288
Remote IP addr   : 16.0.1.41
Remote port      : 80
Service name     : namf-comm            Service instance : namf_comm1
API version      : 1.R15.1.0            NF role          : consumer
-------------------------------------------------------------------------------
Region Id        : 1                    SetId            : 2
GuamiList        : {206,01}
NF Set ID        : set2-region1.amfset.
                   5gc.mnc01.mcc206.
                   3gppnetwork.org
Gateway          : 1
Router           : vprn7
Local IP addr    : 16.0.0.7
Local port       : 65453
Remote IP addr   : 16.0.1.41
Remote port      : 80
Service name     : namf-comm            Service instance : namf_comm1
API version      : 1.R15.1.0            NF role          : consumer
-------------------------------------------------------------------------------
Number of HTTP/2 connections : 2
===============================================================================
```

4.2.32.78 service-stats

Syntax

service-stats

Context

[Tree] show mobile-gateway pdn service-stats

Description

Commands in this context display Service Based Interface (SBI) statistics.

4.2.32.79 nf-type

Syntax

nf-type *nf-type* [**service-realm** *service-realm-name*] [**service-name** *service-name*] [**service-instance** *service-instance*] [**remote-nf-id** *uuid* | **remote-nf-ip** *ip-address* | *fqdn*] [**gateway** *gw-id* | **group** *group-id*] [**failure-codes**] [**instance** | **aggregate**]

Context

[Tree] show mobile-gateway pdn service-stats nf-type

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Description

This command displays the SBI statistics for a specific network function (NF).

Parameters

nf-type

Specifies the NF type.

Values: amf | nrf | pcf | udm | chf | scp

service-realm-name

Specifies the service realm name, up to 32 characters.

service-name

Specifies the service name.

Values: nsmf-pdusession | namf-comm | nnrf-nfm | nnrf-disc | npcf-smpolicycontrol | nudm-sdm | nudm-uecm | nchf-convergedcharging | scp

service-instance

Specifies the service instance name, up to 32 characters.

uuid

Specifies the UUID of the remote NF.

Values: xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx

x - [0..F]H

ip-address

Specifies the IP address of the remote NF.

Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D

fqdn

Specifies an existing fully qualified domain name (FQDN) of the remote NF, up to 255 characters.

gw-id

Specifies the gateway ID.

Values: 1 to 8

group-id

Specifies the VM ID, with 0 indicating the OAM-VM and any other value indicating and SM-VM.

Values: 0 to 15

failure-codes

Keyword to show failure-code statistics.

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instance

Keyword to show stats per remote-nf per VM

aggregate

Keyword to show aggregated stats per service-realm.

Output

The following output example shows SBI statistics for the AMF Network Function.

Output example: Statistics for the AMF

```
A:MAG-c# show mobile-gateway pdn service-stats nf-type amf

===============================================================================
AMF peer service statistics
===============================================================================
Service Realm          : fwa_realm                          Gateway Id   : 1
Service Name           : namf-comm
-------------------------------------------------------------------------------
Service Instance       : amf_comm_client
NF instance ID         : unknown
N1N2 Message Transfer  : 0
  N1 PDU Session Establishment Reject                  : 0
  N1 PDU Session Modification Command                  : 0
  N1 PDU Session Release Command                       : 0
  N2 PDU Session Resource Setup Request                : 0
  N1 PDU Session Establishment Accept                  : 0
  N2 PDU Session Resource Modify Request               : 0
  N2 PDU Session Resource Release Command              : 0
N1N2 Msg Transf Succ   : 0              N1N2 Msg Transf Fail   : 0
N1N2 Transf Fail Notif : 0
N1N2 Req Timed Out     : 0
EBI Assignment Req     : 0              EBI Assignment Succ    : 0
EBI Assignment Fail    : 0
EBI Asgn Req Timed Out : 0
Number Of Sessions     : 0
-------------------------------------------------------------------------------
Service Instance       : amf_comm_client
NF instance ID         : 4f4738e7-41a8-4485-963e-db1124007808
N1N2 Message Transfer  : 1
  N1 PDU Session Establishment Reject                  : 0
  N1 PDU Session Modification Command                  : 0
  N1 PDU Session Release Command                       : 0
  N2 PDU Session Resource Setup Request                : 1
  N1 PDU Session Establishment Accept                  : 1
  N2 PDU Session Resource Modify Request               : 0
  N2 PDU Session Resource Release Command              : 0
N1N2 Msg Transf Succ   : 1              N1N2 Msg Transf Fail   : 0
N1N2 Transf Fail Notif : 0
N1N2 Req Timed Out     : 0
EBI Assignment Req     : 1              EBI Assignment Succ    : 1
EBI Assignment Fail    : 0
EBI Asgn Req Timed Out : 0
Number Of Sessions     : 0
-------------------------------------------------------------------------------
Number of instances    : 2
-------------------------------------------------------------------------------
Service Realm          : fwa_realm                          Gateway Id   : 1
Service Name           : nsmf-pdusession
-------------------------------------------------------------------------------
Service Instance       : fwa_smf
```


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```
NF instance ID         : unknown
Create SM Ctx Req      : 0
  N1 PDU Session Establishment Request                  : 0
  N2 Handover Required                                  : 0
  N2 Path Switch Request                                : 0
Create SM Ctx Succ     : 0
  N2 PDU Session Resource Setup Request                 : 0
  N2 Path Switch Request Acknowledge                    : 0
  N2 Path Switch Request Unsuccessful                   : 0
Create SM Ctx Fail     : 0
  N1 PDU Session Establishment Reject                   : 0
  N1 5GSM Status                                        : 0
Update SM Ctx Req      : 0
  N1 PDU Session Modification Request                   : 0
  N1 PDU Session Modification Complete                  : 0
  N1 PDU Session Release Request                        : 0
  N1 PDU Session Release Complete                       : 0
  N1 5GSM Status                                        : 0
  N2 PDU Session Resource Setup Response                : 0
  N2 PDU Session Resource Setup Unsuccessful            : 0
  N2 PDU Session Resource Notify                        : 0
  N2 PDU Session Resource Modify Indication             : 0
  N2 PDU Session Resource Modify Response               : 0
  N2 PDU Session Resource Modify Unsuccessful           : 0
  N2 PDU Session Resource Release Response              : 0
  N2 PDU Session Resource Notify Released               : 0
  N2 Path Switch Request                                : 0
  N2 Path Switch Request Setup Failed                   : 0
  N2 Handover Required                                  : 0
  N2 Handover Request Acknowledge                       : 0
  N2 Handover Resource Allocation Unsuccessful          : 0
  With HoState Completed                                : 0
  With HoState Cancelled                                : 0
  With upCnxState Activating                            : 0
  With upCnxState Deactivated                           : 0
  With amfId change                                     : 0
  With dataForwarding True                              : 0
  With dataForwarding False                             : 0
  With release due to reactivation                      : 0
  With release due to duplicate session Id              : 0
  With release due to slice not available               : 0
  With AN not responding                                : 0
Update SM Ctx Succ     : 0
  N1 PDU Session Modification Command                   : 0
  N1 PDU Session Release Command                        : 0
  N1 PDU Session Establishment Reject                   : 0
  N2 PDU Session Resource Setup Request                 : 0
  N2 PDU Session Resource Modify Confirm                : 0
  N2 PDU Session Resource Modify Request                : 0
  N2 PDU Session Resource Release Command               : 0
  N2 Path Switch Request Acknowledge                    : 0
  N2 Handover Command                                   : 0
  With upCnxState Deactivated                           : 0
Update SM Ctx Fail     : 0
  N1 PDU Session Modification Reject                    : 0
  N1 PDU Session Release Reject                         : 0
  N1 5GSM Status                                        : 0
  N2 PDU Session Resource Modify Indication Unsuccessful : 0
  N2 Path Switch Request Unsuccessful                   : 0
  N2 Handover Preparation Unsuccessful                  : 0
Release SM Ctx Req     : 0
  With PDU session status mismatch                      : 0
Release SM Ctx Succ    : 0              Release SM Ctx Fail    : 0
SM Ctx Stat Notif      : 0              SM Ctx Stat Notif Succ : 0
```


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```
SM Ctx Stat Notif Fail : 0
Retrieve SM Ctx Req    : 0              Retrieve SM Ctx Succ   : 0
Retrieve SM Ctx Fail   : 0
-------------------------------------------------------------------------------
Service Instance       : fwa_smf
NF instance ID         : 4f4738e7-41a8-4485-963e-db1124007808
Create SM Ctx Req      : 1
  N1 PDU Session Establishment Request                  : 1
  N2 Handover Required                                  : 0
  N2 Path Switch Request                                : 0
Create SM Ctx Succ     : 1
  N2 PDU Session Resource Setup Request                 : 0
  N2 Path Switch Request Acknowledge                    : 0
  N2 Path Switch Request Unsuccessful                   : 0
Create SM Ctx Fail     : 0
  N1 PDU Session Establishment Reject                   : 0
  N1 5GSM Status                                        : 0
Update SM Ctx Req      : 1
  N1 PDU Session Modification Request                   : 0
  N1 PDU Session Modification Complete                  : 0
  N1 PDU Session Release Request                        : 0
  N1 PDU Session Release Complete                       : 0
  N1 5GSM Status                                        : 0
  N2 PDU Session Resource Setup Response                : 1
  N2 PDU Session Resource Setup Unsuccessful            : 0
  N2 PDU Session Resource Notify                        : 0
  N2 PDU Session Resource Modify Indication             : 0
  N2 PDU Session Resource Modify Response               : 0
  N2 PDU Session Resource Modify Unsuccessful           : 0
  N2 PDU Session Resource Release Response              : 0
  N2 PDU Session Resource Notify Released               : 0
  N2 Path Switch Request                                : 0
  N2 Path Switch Request Setup Failed                   : 0
  N2 Handover Required                                  : 0
  N2 Handover Request Acknowledge                       : 0
  N2 Handover Resource Allocation Unsuccessful          : 0
  With HoState Completed                                : 0
  With HoState Cancelled                                : 0
  With upCnxState Activating                            : 0
  With upCnxState Deactivated                           : 0
  With amfId change                                     : 0
  With dataForwarding True                              : 0
  With dataForwarding False                             : 0
  With release due to reactivation                      : 0
  With release due to duplicate session Id              : 0
  With release due to slice not available               : 0
  With AN not responding                                : 0
Update SM Ctx Succ     : 1
  N1 PDU Session Modification Command                   : 0
  N1 PDU Session Release Command                        : 0
  N1 PDU Session Establishment Reject                   : 0
  N2 PDU Session Resource Setup Request                 : 0
  N2 PDU Session Resource Modify Confirm                : 0
  N2 PDU Session Resource Modify Request                : 0
  N2 PDU Session Resource Release Command               : 0
  N2 Path Switch Request Acknowledge                    : 0
  N2 Handover Command                                   : 0
  With upCnxState Deactivated                           : 0
Update SM Ctx Fail     : 0
  N1 PDU Session Modification Reject                    : 0
  N1 PDU Session Release Reject                         : 0
  N1 5GSM Status                                        : 0
  N2 PDU Session Resource Modify Indication Unsuccessful : 0
  N2 Path Switch Request Unsuccessful                   : 0
```


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```
  N2 Handover Preparation Unsuccessful                  : 0
Release SM Ctx Req     : 0
  With PDU session status mismatch                      : 0
Release SM Ctx Succ    : 0              Release SM Ctx Fail    : 0
SM Ctx Stat Notif      : 0              SM Ctx Stat Notif Succ : 0
SM Ctx Stat Notif Fail : 0
Retrieve SM Ctx Req    : 0              Retrieve SM Ctx Succ   : 0
Retrieve SM Ctx Fail   : 0
-------------------------------------------------------------------------------
Number of instances    : 2
===============================================================================
```

4.2.32.80 static-predefined-pcc

Syntax

static-predefined-pcc [**apn** *name*] [**default-policy-rule-base** *base-policy-name*] [**gateway** *gw-id*]

Context

[Tree] show mobile-gateway pdn static-predefined-pcc

Description

This command displays PCC information.

Parameters

name

Specifies the APN name, up to 80 characters.

base-policy-name

Specifies the default base policy name, up to 64 characters.

gw-id

Specifies the gateway ID.

Values: 1 to 8

Output

The following output example shows static predefined PCC configuration information for the specified APN and gateway.

Output example: Static predefined PCC information for a specified APN and gateway

```
A:MAG-c# show mobile-gateway pdn static-predefined-pcc gateway 1 apn "bngfwaapn"

===============================================================================
Static Predefined PCC
===============================================================================
Gateway ID      : 1
APN             : bngfwaapn
Policy rule base name: prb2

-------------------------------------------------------------------------------
Number of policies : 1
```


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```
===============================================================================
```

4.2.32.81 statistics

Syntax

statistics [**gw-type** *gw-type*] [**gateway** *gw-id* | **group** *group-number* | **vm** *vm-id*] [**summary**] [**suppress-zero**]

statistics attach-failure-statistics [**gateway** *gw-id* | **group** *group-number*] [**summary**]

statistics aggregates [**up** *node-id*] [**radio-access-type** *rat*] [**apn** *apn*] [**qos-identifier** *qos-id*] [**slice-service-type** *sst*] [**slice-differentiator** *sd*]

Context

[Tree] show mobile-gateway pdn statistics

Description

This command displays statistics.

Parameters

gw-type

Specifies the gateway type.

Values: sgw | pgw | upf | smf

gw-id

Specifies the gateway ID.

Values: 1 to 8

group-number

Specifies the group number.

Values: 1 to 15

vm-id

Specifies the VM ID.

Values: 1 to 20

summary

Keyword to display summarized information.

attach-failure-statistics

Keyword to attach failure statistics.

suppress-zero

Keyword to hide counters with value zero.

aggregates

Keyword to display aggregate session statistics.

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node-id

Specifies the UP node ID.

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D
- fqdn – fully qualified domain name, up to 255 characters.

rat

Specifies the radio access type (RAT).

Values: eutran | nr

apn

Specifies the APN name, up to 80 characters.

qos-id

Specifies the QoS ID.

Values: 1 to 255

sst

Specifies the slice service type (SST) value.

Values: 0 to 255

sd

Specifies the service differentiator (SD) value.

Values: 000000 to FFFFFE

Output

The following output example shows a summary of the pdn statistics.

Output example

```
A:MAG-c# show mobile-gateway pdn statistics summary

===============================================================================
PDN gateway statistics summary
===============================================================================

Real APNs                  : 24        Roamers                   : 0
Homers                     : 12        Visitors                  : 0
VPRNs                      : 3         IP Local Pools            : 0
PDN Sessions               : 0         Ipv4 PDN Sessions         : 0
Ipv6 PDN Sessions          : 0         Ipv4v6 PDN Sessions       : 0
BNG PDN Sessions           : 0
Bearers                    : 0         Default Bearers           : 0
Dedicated Bearers          : 0         Ipv4 Bearers              : 0
Ipv6 Bearers               : 0         Ipv4v6 Bearers            : 0
SDFs                       : 0
HSS Static IPv4 PDN Sessio*: 0         HSS Static IPv6 PDN Sessio*: 0
HSS Static IPv4v6 PDN Sess*: 0         eHRPD PDN sessions        : 0
```


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```
LTE PDN sessions           : 5          2G/3G PDN sessions         : 0
PDN sessions in suspend st*: 0          Emergency PDN sessions     : 0
Rf Peers                   : 0          Rf Acct start buffered     : 0
Rf Acct Int buffered       : 0          Rf Acct stop buffered      : 0
Ga DRT Req in queue        : 0          Ga DRT Req max queued      : 0
Ga CDRs buffered           : 0          S2b Sessions               : 0
Redirected Sessions        : 0          Tethered Sessions          : 0
Overload - Dropped requests: 0
Paging in progress         : 0          Allocated Paging Buffers   : 0
Available Paging Buffers   : 2          Paging Buffers n/a Errors  : 0
Charging paused sessions   : 0
Number of ENBs             : 4          Number of MMEs             : 2
Total Number of UEs        : 12         Total Number of Idle UEs   : 0
UEs in suspended state     : 0          Paging drops               : 0
Buff Pkts drop tmr expired : 0          Buff Bytes drop tmr expired: 0 B
Buff Pkts drop max pkt lmt : 0          Buff Bytes drop max pkt lmt: 0 B
Buff Pkts drop max cap lmt : 0          Buff Bytes drop max cap lmt: 0 B
BNG UEs                    : 0
Number of RNCs             : 0          Number of SGSNs            : 0
Combo Bearers              : 5          Combo Default bearers      : 5
Combo Active Bearers       : 5          Combo Idle bearers         : 0
Combo Dedicated bearers    : 0          Combo Ipv4 bearers         : 1
Combo Ipv6 bearers         : 3          Combo Ipv4v6 bearers       : 1
Combo sessions             : 5          Combo Ipv4 sessions        : 1
Combo Ipv6 sessions        : 3          Combo Ipv4v6 sessions      : 1
Ga Big DTRs buffered       : 0
S2a Sessions               : 0
TWAG SaMOG Sessions        : 0          TWAG NSWO sessions         : 0
Steering default sessions  : 0
Low Priority Combo Sessions: 0          Low Priority PGW Sessions  : 0
Unsol. SSG Sess In Att Ret*: 0
PDN sessions w dedic bear  : 0
Number of PFCP Peers       : 0          PDN sessions in Idle state : 0
eMPS IMS Sessions          : 0          eMPS IMS Advance Prio Sess : 0
eMPS dedicated bearers     : 0
5G capable 4G sessions     : 4
PFCP-u Shared Tnl Sess     : 0          PFCP-u Shared Tnl Sess Ipv4: 0
PFCP-u Shared Tnl Sess Ipv6: 0

UL Throughput (Mbps)       : 0
DL Throughput (Mbps)       : 0
-------------------------------------------------------------------------------
Number of VMs : 2
===============================================================================
* indicates that the corresponding row element may have been truncated.

===============================================================================
Serving gateway statistics summary
===============================================================================

APNs                       : 48         Bearers                    : 0
Default bearers            : 0          Dedicated bearers          : 0
Ipv4 bearers               : 0          Ipv6 bearers               : 0
Ipv4v6 bearers             : 0          Roamers                    : 0
Active bearers             : 0          Idle bearers               : 0

Number of MMEs             : 1          Number of PGWs             : 0
Rf Peers                   : 0          Number of ENBs             : 2
Number of RNCs             : 0

Paging in progress         : 0          Allocated Paging Buffers   : 0
Available Paging Buffers   : 2          Paging Buffers n/a Errors  : 0
Pause chrg hold timer start: 0          Pause chrg hold timer stop : 0
Number of Homers           : 0          Number of Visitors         : 0
```


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```
Total Number of UEs        : 12         Total Number of Idle UEs   : 0
Active Serving UEs         : 12
Rf Acct start buffered     : 0          Rf Acct Int buffered       : 0
Rf Acct stop buffered      : 0          Emergency PDN sessions     : 0
UEs in suspended state     : 0          Paging drops               : 0
Ga DRT Req in queue        : 0          Ga DRT Req max queued      : 0
Ga CDRs buffered           : 0          Number of SGSNs            : 0
Overload - Dropped requests: 0
Ga Big DRTs Buffered       : 0
Low Priority SGW Sessions  : 0
PDN sessions w dedic bear  : 0
eMPS IMS Sessions          : 0          eMPS dedicated bearers     : 0
SGW Sessions by 5G UEs     : 0
Local breakout sessions    : 0          Local breakout bearers     : 0

UL Throughput (Mbps)       : 0
DL Throughput (Mbps)       : 0
-------------------------------------------------------------------------------
Number of VMs : 2
===============================================================================

===============================================================================
Session Management Function statistics summary
===============================================================================
Real DNNs                  : 0
H-SMF Roamers              : 0          V-SMF Roamers              : 0
Homers                     : 7          Visitors                   : 0
VPRNs                      : 0          IP Local Pools             : 0
PDU Sessions               : 7          Ipv4 PDU Sessions          : 3
Ipv6 PDU Sessions          : 3          Ipv4v6 PDU Sessions        : 1
UDM Static IPv4 PDU Sessio*: 0          UDM Static IPv6 PDU Sessio*: 0
UDM Static IPv4v6 PDU Sess*: 0
Active PDU Sessions        : 7          Idle PDU Sessions          : 0
QoS Flows                  : 7
Default QoS Flows          : 7          Dedicated QoS Flows        : 0
Paging in progress         : 0          Allocated Paging Buffers   : 0
Available Paging Buffers   : 0          Paging Buffers n/a Errors  : 0
Number of GNBs             : 0          Number of AMFs             : 0
Total Number of UEs        : 7          Total Number of Idle UEs   : 0
Num of UEs SGW Serv Node   : 0          Num of UEs ePDG Serv Node  : 0
Num of UEs AMF Serv Node   : 7          5G sessions w N26 Indicati*: 6
Paging drops               : 0
-------------------------------------------------------------------------------
Number of VMs : 2
===============================================================================
* indicates that the corresponding row element may have been truncated.
```

4.2.32.82 ue-context

Syntax

ue-context [**imei** *imei* | **imsi** *imsi* | **mac** *ieee-address* | **msisdn** *msisdn*] [**gateway** *gw-id* | **group** *group-number* | **vm** *vm-id*] [**access-type** *access-type*]

ue-context {**imei** *imei* | **imsi** *imsi* | **mac** *ieee-address* | **msisdn** *msisdn*} **detail** [**gateway** *gw-id* | **group** *group-number* | **vm** *vm-id*] [**access-type** *access-type*]

ue-context {**gpsi** *gpsi* | **pei** *pei* | **supi** *supi*} [**detail**]

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Context

[Tree] show mobile-gateway pdn ue-context

Description

This command displays the individual UE contexts for each session.

Parameters

imei imsi ieee-address msisdn gpsi pei supi

Specifies the UE IMSI, IMEI, MSISDN, MAC address, SUPI, GPSI, or PEI.

Values:

- *imsi* | *msisdn* | *supi* | *gpsi* – maximum 15 digits
- *imei* | *pei* – maximum 16 digits
- *ieee-address* – xx:xx:xx:xx:xx:xx or xx-xx-xx-xx-xx-xx (cannot be all zeros; broadcast/multicast is not allowed)

detail

Keyword to display detailed summary information for the UE context.

gw-id

Specifies the gateway ID.

Values: 1 to 8

group-number

Specifies the group number.

Values: 1 to 15

vm-id

Specifies the VM ID.

Values: 1 to 20 | A | B

access-type

Specifies the access type.

Values: eps | gprs | non-3gpp

4.2.32.83 def-pfcp-u-sessions

Syntax

def-pfcp-u-sessions [**network-realm** *realm-name*] [**pfcp-u-peer-ip** *ip-address*] [**gateway** *gw-id* | **vm** *vm-id* | **group** *group-number*]

Context

[Tree] show mobile-gateway pdn ue-context def-pfcp-u-sessions

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Description

This command displays the default PFCP-u shared tunnel session information, when PFCP-u (GTP-U) tunnels are configured to handle ICMPv6 RS/RA and NS/NA message exchange between the CP function and the UP function. When only **def-pfcp-u** is specified, results for all default PFCP-u sessions are displayed. The **network-realm** option may also be specified to identify the realm name of the network instance that has the PFCP GTP-U interface on the UP function, and is communicated in the Network-Instance IE part of the PFCP Session Establishment/Modification process. The **pfcp-u-peer-ip** option can also be used to display information for a specific PFCP-u Peer IP address.

Parameters

realm-name

Specifies the realm name of the network instance that has the PFCP GTP-U interface on the UP function, up to 80 characters.

ip-address

Specifies the PFCP-u peer IP address, up to 64 characters.

Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

gw-id

Specifies the gateway ID.

Values: 1 to 8

vm-id

Specifies the VM ID.

Values: 1 to 20 | A | B

group-number

Specifies the group number.

Values: 1 to 15

4.2.32.84 profile

Syntax

profile

Context

[Tree] show mobile-gateway profile

Description

Commands in this context display configured mobile gateway profiles.

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4.2.32.85 amf-profile

Syntax

amf-profile *profile-name*

Context

[Tree] show mobile-gateway profile amf-profile

Description

This command displays the configuration information of the specified AMF profile.

Parameters

profile-name

Specifies the AMF profile to display, up to 32 characters.

Output

The following output example shows AMF profile configuration.

Output example: AMF profile

```
A:MAG-c# show mobile-gateway profile amf-profile "default"

===============================================================================
Namf profile
===============================================================================
Profile Name               : default

Max Peer Failover          : 1          Retry Count               : 0
FH session no response     : attempt-continue
Transaction Timer (msec)   : 5000

-------------------------------------------------------------------------------
Number of Namf profiles : 1
===============================================================================
```

4.2.32.86 authentication-database

Syntax

authentication-database *name*

authentication-database *name* **associations**

authentication-database *name* **entry** *name*

authentication-database

Context

[Tree] show mobile-gateway profile authentication-database

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Description

This command displays ADB information. If no parameter is specified, the output displays the list of configured ADBs.

Parameters

authentication-database *name*

Specifies the name of the ADB, up to 32 characters.

entry *name*

Specifies the name of the entry for which to display more information, up to 32 characters.

associations

Keyword to display the references to the ADB.

Output

The following output example shows ADB information.

Output example: ADB information

```
A:MAG-c# show mobile-gateway profile authentication-database
===============================================================================
Authentication database instances
===============================================================================
Name                            Admin-state Entries Entries-up
-------------------------------------------------------------------------------
adb1                            enabled     1       1
adb2                            enabled     1       1
-------------------------------------------------------------------------------
No. of authentication database instances: 2
===============================================================================
A:BNG-SMF#
A:BNG-SMF# show mobile-gateway profile authentication-database "adb1"
===============================================================================
Authentication database "adb1"
===============================================================================
Administrative state          : enabled
Description                   : N/A
Default entry                 : 10
Last management change        : 04/22/2021 19:03:12
===============================================================================
===============================================================================
Name                            Admin-state Oper-state       Match-count
-------------------------------------------------------------------------------
10                              enabled     up               5533
-------------------------------------------------------------------------------
No. of entries: 1
===============================================================================
A:BNG-SMF#
A:BNG-SMF# show mobile-gateway profile authentication-database "adb1" entry "10"
===============================================================================
Authentication database "adb1" entry "10"
===============================================================================
Description                 : (Not Specified)
Administrative state        : enabled
Operational state           : up
Match Count                 : 5533
Fail Reason                 : N/A
Access Loop Encapsulation   : N/A
Action                      : accept
```


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```
Address Assignment           :
    AAA IPv4                 : radius
    AAA IPv6 NA              : N/A
    AAA IPv6 PD              : N/A
    AAA IPv6 SLAAC           : N/A
    Local IPv4               : p1
    Local IPv6 NA            : p1
    Local IPv6 PD            : p1
    Local IPv6 SLAAC         : N/A
    Lifetimes                :
        Valid                : N/A
        Preferred            : N/A
        dhcpv6-renew         : N/A
        dhcpv6-renew         : N/A
    PD as Framed Route       : No
    Delegated Prefix Length  : N/A
    Unmatching Prefix        : N/A
APN                          : mybngvrf
Charging                     :
    BNG Charging Profile     : N/A
    CP Volume Tracking       :
        Max Upstream         : N/A
        Max Downstream       : N/A
        Max Total            : N/A
CP NAT Profile               : N/A
DHCP Profile                 : mydefault
DHCPv6 Profile               : N/A
IP Anti-Spoof                : N/A
Interface                    :
    Group Interface Template : defaultgrp
    Link Local Address       : N/A
    Sap Template             : defaultsap
Match                        :
    Circuit ID               : N/A
    Layer-2 Access ID        :
    Remote ID                : N/A
    UP IP address            : N/A
    Username Domain          : N/A
    Vendor Class             : N/A
    C-VLAN ID range          : N/A
    S-VLAN ID range          : N/A
PPPoE                        :
    pado-delay               : N/A
Subscriber Mgmt              :
    SLA Profile              : base
    Sub Profile              : base
Router Advertisement Profile : N/A
Session Timeout              : N/A
===============================================================================
A:BNG-SMF#
A:BNG-SMF# show mobile-gateway profile authentication-database "adb1" associations
===============================================================================
BNG entry-point entry associations
===============================================================================
entry-point                    entry
-------------------------------------------------------------------------------
e1                             10                              IPoE
e1                             10                              PPPoE auth
-------------------------------------------------------------------------------
No. of BNG entry-point entries: 2
===============================================================================
```


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4.2.32.87 bng

Syntax

bng

Context

[Tree] show mobile-gateway profile bng

Description

Commands in this context display the configured BNG profiles.

4.2.32.88 cp-nat-profile

Syntax

cp-nat-profile

cp-nat-profile *profile-name*

Context

[Tree] show mobile-gateway profile bng cp-nat-profile

Description

This command displays a list of CP NAT profiles or information for the specified CP NAT profile.

Parameters

profile-name

Specifies the name of the CP NAT profile, up to 32 characters.

Output

The following output is an example of information for the specified CP NAT profile.

Output example

```
A:MAG-c# show mobile-gateway profile bng cp-nat-profile "Dut-C_pol_l2a-0-1_1"

===============================================================================
CP NAT profile
===============================================================================
Description                   : Converted old nat-pool of dut Dut-C into CUPS
                                nat-cp-profile
Access mode                   : auto
Last management change        : 05/22/2023 12:29:30
-------------------------------------------------------------------------------
Pool                          : l2a-0-1
Description                   : nat-policy Dut-C_pol_l2a-0-1_1 with nat-pool
                                l2a-0-1
Mode                          : napt
```


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```
Port forwarding range          : 1 - 1023
Port reservation               : 1 ports
Forwarding port limit          : (Not Specified)
Local address assignment pool
Name                          : l2a-0-1
Network realm                 : 123321
UP NAT policy                  : l2a-0-1_1
Last management change         : 05/22/2023 12:29:32
```

4.2.32.89 entry-point

Syntax

entry-point *entry-point-name*

entry-point

entry-point *entry-point-name* **associations**

entry-point *entry-point-name* **entry** *entry-name*

Context

[Tree] show mobile-gateway profile bng entry-point

Description

This command displays BNG entry point information. If no parameter is specified, the output displays the list of the configured entry points.

Parameters

entry-point-name

Specifies the name of the entry point, up to 32 characters.

entry-name

Specifies the name of the entry for which to display more information, up to 32 characters.

associations

Keyword to display the references to the entry point.

Output

The following output examples show BNG entry point information.

Output example: BNG entry point information

```
A:MAG-c# show mobile-gateway profile bng entry-point
===============================================================================
BNG entry-points
===============================================================================
Name                            Admin-state Entries Entries-up
-------------------------------------------------------------------------------
e1                              enabled     1       1
-------------------------------------------------------------------------------
No. of entry-points: 1
===============================================================================
A:BNG-SMF#
```


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```
A:BNG-SMF# show mobile-gateway profile bng entry-point "e1"
===============================================================================
BNG entry-point
===============================================================================
Name                            : e1
Description                     :
Administrative state            : enabled
Match ID                        : 1
Attribute                       : up-ip
Optional                        : no
-------------------------------------------------------------------------------
Entry-name                     Admin-state Oper-state Reason (if down)
-------------------------------------------------------------------------------
10                              enabled     up
-------------------------------------------------------------------------------
===============================================================================
A:BNG-SMF#
A:BNG-SMF# show mobile-gateway profile bng entry-point "e1" entry "10"
===============================================================================
BNG entry-point entry
===============================================================================
Entry name                      : 10
Description                     : (Not Specified)
Administrative state            : enabled
Operational state               : up
Per-MAC session limit           : 1
Per-L2-Access-Id session limit  : N/A
Per-L2-Circuit session limit    : N/A
Session lockout profile         : N/A
Match
UP IP address                   : 172.16.10.51
Subscriber identification       : per-session
PPPoE
PPPoE profile                   : pppoeProf1
Session ID allocation scope     : l2-circuit-mac
Session ID random               : No
ADB for PAP or CHAP no. 1       : adb1
ADB for PAP or CHAP no. 2       : adb2
IPoE
IPoE profile                    : mydefault
ADB no. 1                       : adb1
ADB no. 2                       : adb2
===============================================================================
```

4.2.32.90 call-insight

Syntax

call-insight

Context

[Tree] show mobile-gateway profile call-insight

Description

This command displays call-insight profiles.

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4.2.32.91 all-ues

Syntax

all-ues [*profile-name*]

Context

[Tree] show mobile-gateway profile call-insight all-ues

Description

This command displays information for the call trace profiles that are configured to trace all UEs. When the optional *profile-name* parameter is used, only information for that profile is displayed.

Parameters

profile-name

Displays information about the specified profile, up to 32 characters.

Output

The following output example shows information for the call trace profiles configured to trace all UEs.

Output example

```
A:MAG-c# show mobile-gateway profile call-insight all-ues

===============================================================================
Call-insight all-UEs profile
===============================================================================
Profile name         : default_profile
Description          : none
Live output          : none
Reference points     : none
SBA services         : none
Events               : none
Format               : simulated-pcap
Path mgmt ref-points : none
Path mgmt SBA service: none
Size limit           : 1000 MB
Time limit           : 86400 secs
-------------------------------------------------------------------------------
Number of profiles : 1
===============================================================================
```

4.2.32.92 ue

Syntax

ue *profile-name*

Context

[Tree] show mobile-gateway profile call-insight ue

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Description

This command displays information for the call trace profile specified by the profile name.

Parameters

profile-name

Displays information about the specified profile, up to 32 characters.

Output

The following output example shows call trace UE profile information, and Table 5: Show mobile profile call-insight UE output fields describes the fields.

Table 5: Show mobile profile call-insight UE output fields

Label	Description
Profile name	The name of the current profile
Description	The profile, if necessary
Live output	Where to resend each captured message/event
Reference points	Which reference points are needed
User traffic	The user traffic
Events	The events that occur with the profile
Format	The format of the profile
Size limit	The space used in total
Time limit	The time used in total
User traffic capture type	The type of the captured user traffic
User traffic capture location	The location of the captured user traffic
Number of profiles	The number of profiles retrieved

Output example: Call trace UE profile

```
A:MAG-c# show mobile-gateway profile call-insight ue "default"
===============================================================================
Call-insight UE profile
===============================================================================
Profile name         : default
Description          : none
Live output          : none
Reference points     : dhcp,dns,ga,gn,gp,gx,gxc,pi,radius,rf,ro,s1,s11,s12,s2a
                       ,s2b,s4,s5,s6b,s8,sd,swm,swu,swu-cleartext,sww,sta,sx-n4
User-traffic         : none
Events               : none
Format               : simulated-pcap
Size limit           : 10 MB
Time limit           : 86400 secs
user-traffic capture-type     : packet-and-stats
user-traffic capture-location : inner-only
```


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```
-------------------------------------------------------------------------------
Number of profiles : 1
===============================================================================
```

4.2.32.93 charging

Syntax

charging

Context

[Tree] show mobile-gateway profile charging

Description

Commands in this context display charging profile information.

4.2.32.94 bng-charging

Syntax

bng-charging [*name*]

Context

[Tree] show mobile-gateway profile charging bng-charging

Description

This command displays the BNG charging profile.

Parameters

name

Specifies the BNG charging profile name, up to 32 characters.

4.2.32.95 ccfh-profile

Syntax

ccfh-profile *profile-id*

Context

[Tree] show mobile-gateway profile charging ccfh-profile

Description

This command displays the credit control failure handling (CCFH) profile.

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Parameters

profile-id

Specifies the CCFH profile ID.

Values: 0 to 255

Output

The following output example shows the profile information for the default CCFH profile 0.

Output example: CCFH profile output

```
A:MAG-c# show mobile-gateway profile charging ccfh-profile 0

===============================================================================
ccfh-profile
===============================================================================
ccfh-profile-id            : 0

Failure Handling
cc-failure-handling        : terminate
cc-session-failover        : enabled
fh-session-continue-timer *: 30
session-restore-retry-time*: 0
-------------------------------------------------------------------------------

nchf-cause-codes
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------

nchf-http-code
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------

Number of profiles : 1
===============================================================================
* indicates that the corresponding row element may have been truncated.
```

4.2.32.96 chf-profile

Syntax

chf-profile *profile-id*

Context

[Tree] show mobile-gateway profile charging chf-profile

Description

This command displays the charging function (CHF) profile.

Parameters

profile-id

Specifies the CHF profile ID.

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Values: 0 to 255

Output

The following output example shows the profile information for the default CHF profile 0.

Output example: CHF profile output

```
A:MAG-c# show mobile-gateway profile charging chf-profile 0

===============================================================================
CHF profile
===============================================================================
Profile Id                 : 0
Description                : default
activity-threshold         : 0          ccfh-profile               : 0
request-quota-before-traff*: disabled   unit-count-inactivity-timer: 0 (secs)

UUC Options
no-quota-initial           : suppress
no-quota-mid-session       : suppress
with-quota                 : none
uuc-reporting-enh          : disabled
smf-generate-charging-data*: disabled

sbi-srvc-operation
transaction-timer          : 5000       retry-count                : 0

smf-attributes-profile     : 0
default-rg-list

-------------------------------------------------------------------------------
Number of profiles : 1
===============================================================================
* indicates that the corresponding row element may have been truncated.
```

4.2.32.97 cloud-db

Syntax

cloud-db [*profile-name*]

Context

[Tree] show mobile-gateway profile cloud-db

Description

This command displays the cloud database profile.

Parameters

profile-name

Specifies the cloud database profile name, up to 32 characters.

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4.2.32.98 dns-profile

Syntax

dns-profile [*profile-name*]

Context

[Tree] show mobile-gateway profile dns-profile

Description

This command displays DNS profile information.

Parameters

profile-name

Displays information about the specified DNS profile.

Output

The following output example shows DNS profile configuration.

Output example: DNS profile

```
A:MAG-c# show mobile-gateway profile dns-profile "basic"

===============================================================================
DNS profile
===============================================================================
Profile                    : basic
Primary DNS                :
Secondary DNS              :
Tertiary DNS               :
IP time-to-live            : 255        IP DSCP                    : 56
Msg Retransmit Timeout     : 5          Msg Retransmit Retry Count : 3
-------------------------------------------------------------------------------
Number of DNS profiles : 1
===============================================================================
```

4.2.32.99 gtp

Syntax

gtp [*profile-name*]

Context

[Tree] show mobile-gateway profile gtp

Description

Commands in this context display PGW and SGW charging profile information.

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Parameters

profile-name

Displays information about the specified existing profile name, up to 32 characters.

Output

GTP profile statistics shows an example of PGW and SGW charging profile information, and Table 6: Show GTP profile output fields describes the output fields.

Table 6: Show GTP profile output fields

Label	Description
Profile name	The name of the profile being viewed
Description	Describes the profile, if applicable
Msg retransmit timeout	The time, in seconds, before a request message is retransmitted
Msg retransmit retry count	The number of retries until a request message to the server fails
Keep alive interval	The keep alive message interval, in seconds
Keep alive retry count	The number of retries until the path is declared to be down
Keep alive T3 response	The time, in seconds, until a message is retransmitted
IP TTL	The IP TTL value for GTP signaling messages
IP DSCP	The DSCP value in the IP header for GTP signaling messages
GTPv2 Configurable Cause Code IEs	The GTPv2 Configurable Cause Code IEs context
APN Shutdown Cause Code	The code for the Cause IE when the APN is in shutdown state
GW Suspend Cause Code	The code for the Cause IE when the gateway is in suspend state
Username Missing Cause Code	The code for the Cause IE when the PDN connection activation is rejected because a username or password is required for session activation
Sx MSG Timeout Cause Code	The code for the Cause IE in the following cases: • when the PDP Context activation is rejected because of Sx connection failure • the PDN Connection activation is rejected because of Sx connection failure
GTPv1 Configurable IEs	The GTPv1 Configurable IEs context
Recovery IE	The option to include or exclude the recovery IE from the PGW/GGSN create PDP context response, update PDP context request, and update PDP context response messages
NSAPI IE	The option to include or exclude the NSAPI IE in the PGW/GGSN create PDP context response messages

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Label	Description
PCO IE	The option to include or exclude the PCO IE in the PGW/GGSN initiate PDP context request, create PDP context response, and update PDP context response messages
Charging GW Addr IE	The option to include or exclude the charging gateway address in the PGW/GGSN create PDP context response and update PDP context response messages
Common Flags IE	The option to include or exclude the common flags IE in the PGW/GGSN create PDP context response and update PDP context response messages
APN Restriction IE	The option to include or exclude the APN restriction IE in the PGW/GGSN create PDP context response, update PDP context request, and update PDP context response messages
BCM IE	The option to include or exclude the BCM IE in the PGW/GGSN messages
GTPv2 Configurable IEs	The GTPv2 Configurable IEs context
PCO IE	The option to include or exclude the PCO/ePCO IE in the GTPv2 messages
APCO IE	The option to include or exclude the APCO IE in the GTPv2 messages
Node Features IE	The option to include or exclude the node features IE in the PGW/GGSN messages
DDN IMSI IE	The option to include or exclude the DDN IMSI IE in the PGW/GGSN messages
DDN FTEID IE	The option to include or exclude the DDN FTEID IE in the PGW/GGSN
Access Point MAC Address IE	The option to cause the ePDG to send the WiFi Access Point MAC address if learned from the IDi format
ARP IE	The option to include or exclude the ARP IE in the PGW/GGSN messages
Paging Priority	The option to include or exclude of the paging and service information IE within a DDN message on an S11 interface
CSG Reporting Action	The option to include or exclude the CSG reporting action IE in GTPv2 messages
Change Reporting Action	The option to include or exclude the change reporting action IE in GTPv2 messages
Signaling Priority	The option to include or exclude the signaling priority indication IE on S5 and S8 interfaces

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Label	Description
RAN/NAS Cause IE	The option to include or exclude the RAN/NAS cause IE in the GTPv2 messages
MO Exception Data Counter	The option to include or exclude the MO Exception Data Counter IE in GTPv2 messages
Serving PLMN Rate Control	The option to include or exclude the serving PLMN rate control IE in GTPv2 messages
CN Operator Selection	The option to include or exclude the sending of a CN Operator Selection Entity IE
ULI-Timestamp	The option to include or exclude the sending of a ULI Timestamp IE
TWAN Identifier	The TWAN identifier
TWAN Id Timestamp	The option to include or exclude the TWAN Timestamp ID
Origination Timestamp	The option to include or exclude the Origination Timestamp IE
Maximum Wait Time	The option to include or exclude the Maximum Wait Time IE
LCI	Load Control Indicator IE
OCI	Overload Control Indicator IE
AAA Node Identifier	The option to include or exclude the AAA node identifier IE
non-3gpp-rat-type-pref	The RAT type value that the ePDG sends to the PGW
GTPv2 Node Features	The GTPv2 Node Features context
CIOT	The option to include or exclude the CIOT flag in the Node Features IE
Number of Profiles	The number of profiles being viewed

Output example: GTP profile statistics

```
A:MAG-c# show mobile-gateway profile gtp "default"
===============================================================================
GTP profile
===============================================================================
Profile name               : default
Description                : N/A
Msg retransmit timeout-msec: 5000 ms    Msg retransmit retry count : 3
Keep alive interval        : 60 secs    Keep alive retry count     : 4
Keep alive T3 response     : 5 secs
IP TTL                     : 255        IP DSCP                    : 56


GTPv1 Configurable Cause Code IEs
APN Shutdown Cause Code    : 78         Username Missing Cause Code: 70
GW Suspend Cause Code      : 113        Sx MSG Timeout Cause Code  : 209


GTPv2 Configurable Cause Code IEs
APN Shutdown Cause Code    : 93         Username Missing Cause Code: 70
GW Suspend Cause Code      : 89         Sx MSG Timeout Cause Code  : 94
```


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```
GTPv1 Configurable IEs
Recovery IE                : Included   NSAPI IE                   : Excluded
PCO IE                     : Included   Charging GW Addr IE        : Included
Common Flags IE            : Excluded   APN Restriction IE         : Included
BCM IE                     : Included

GTPv2 Configurable IEs
PCO IE                     : Included   APCO IE                    : Included
Node Features IE           : Included   DDN IMSI IE                : Included
DDN FTEID IE               : Included   Access Point MAC address IE: Excluded
ARP IE                     : Included   Paging Priority            : Included
CSG Reporting Action       : Included   Change Reporting Action    : Included
Signaling Priority         : Included   RAN/NAS Cause IE           : Included
MO Exception Data Counter  : Excluded   Serving PLMN Rate Control  : Excluded
CN Operator Selection      : Included   ULI-Timestamp              : Included
TWAN Identifier            : Included   TWAN Id TimeStamp          : Included
Origination Timestamp      : Included   Maximum Wait Time          : Included
LCI IE                     : Included   OCI IE                     : Included
AAA Node Identifier        : Included
UP Selection Indication    : Included
non-3gpp-rat-type-pref     : wlan

GTPv2 Node Features
CIOT                       : Excluded
-------------------------------------------------------------------------------
Number of profiles : 1
===============================================================================
```

4.2.32.100 http2

Syntax

http2[*profile-name*]

http2 *profile-name* **associations**

Context

[Tree] show mobile-gateway profile http2

Description

This command displays HTTP/2 profile information.

Parameters

profile-name

Specifies the profile name, up to 32 characters.

associations

Keyword to show the references to this profile.

Output

The following output example shows HTTP/2 profile configuration.

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Output example: HTTP/2 profile

```
A:MAG-c# show mobile-gateway profile http2 "basic"

===============================================================================
HTTP/2 profile
===============================================================================
Profile Name               : basic

TLS Options
Client TLS Profile         :
Server TLS Profile         :
Strict Validation          :

HTTP/2 Options
Srv Max Streams Allowed    : 256        Srv Disable SNI Check      : Disabled

IP Options
IP DSCP                    : 56

Connection Timers
Request Timeout (seconds)  : 20         Connection Timer (seconds) : 20
Fail Num Retries           : 0          Fail Retry Interval (secs) : 5
Python policy              : N/A
-------------------------------------------------------------------------------
Number of profiles : 1
===============================================================================
```

4.2.32.101 list

Syntax

list

Context

[Tree] show mobile-gateway profile list

Description

Commands in this context display information about configured lists.

4.2.32.102 cell-id-list

Syntax

cell-id-list *name*

cell-id-list plmn-summary

cell-id-list summary

Context

[Tree] show mobile-gateway profile list cell-id-list

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Description

This command displays information about a specific list or all lists of e-UTRAN cell global identification (ECGI) and NR cell global identification (NCGI) values.

Parameters

name

Specifies a list name, up to 32 characters.

plmn-summary

Keyword to display an overview of the PLMNs in all configured lists.

summary

Keyword to display an overview of all configured lists.

Output

The following output example shows information about a specific cell ID list configuration.

Output example: NF list

```
A:MAG-c# show mobile-gateway profile list cell-id-list "example"

===============================================================================
E-UTRAN cells
===============================================================================
MCC MNC ECI                     Description
-------------------------------------------------------------------------------
001 01  0x0000001..0x0000001     Example ECI
999 999 0x0000002..0x0000002     Internal use ECI
===============================================================================

===============================================================================
New Radio cells
===============================================================================
MCC MNC NCI                     Description
-------------------------------------------------------------------------------
001 01  0x000000001..0x100000000 Example NCI range
===============================================================================
```

4.2.32.103 nf-id-list

Syntax

nf-id-list [*list-name*]

Context

[Tree] show mobile-gateway profile list nf-id-list

Description

This command displays information about configured NF lists.

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Parameters

list-name

Specifies the NF ID list name, up to 32 characters.

Output

The following output example shows NF list configuration.

Output example: NF list

```
A:MAG-c# show mobile-gateway profile list nf-id-list "nrfs"

===============================================================================
Network Function List(s)
===============================================================================
List-Name          : nrfs

NF profile Id      : 1 (enabled)
    Uuid           : ab61220b-f589-40d4-978b-d9c9f5ab742e
    Address List   : nrfs
    Priority       : 65535
    API prefix     : -
    FQDN           :
    Peer selection : enabled
-------------------------------------------------------------------------------
Number of lists: 1
===============================================================================
```

4.2.32.104 plmn-list

Syntax

plmn-list[*list-name*]

Context

[Tree] show mobile-gateway profile list plmn-list

Description

This command displays PLMN list information.

Parameters

list-name

Displays information about the specified existing list, up to 32 characters.

Output

The following output example shows PLMN List configuration.

Output example: PLMN list

```
A:MAG-c# show mobile-gateway profile list plmn-list home_plmn

===============================================
```


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```
PLMN list
==============================================
List name                       MCC   MNC
----------------------------------------------
home_plmn                       001   001
----------------------------------------------
Number of lists : 1
==============================================
```

4.2.32.105 prioritized-ip-address-list

Syntax

prioritized-ip-address-list[*list-name*]

Context

[Tree] show mobile-gateway profile list prioritized-ip-address-list

Description

This command displays prioritized IP address list information.

Parameters

list-name

Specifies the prioritized IP address list name, up to 32 characters.

Output

The following output example shows a Prioritized IP Address List configuration.

Output example: Prioritized IP address list

```
A:MAG-c# show mobile-gateway profile list prioritized-ip-address-list "nrfs"

===============================================================================
Prioritized IP Address List(s)
===============================================================================

-------------------------------------------------------------------------------
List Name : nrfs
-------------------------------------------------------------------------------
IP Address                                      Port          Priority
-------------------------------------------------------------------------------
192.168.40.1                                    80            8

Number of IP Addresses     : 1
-------------------------------------------------------------------------------
Number of IP Address lists : 1
===============================================================================
```


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4.2.32.106 slice-instance-list

Syntax

slice-instance-list[*list-name*]

Context

[Tree] show mobile-gateway profile list slice-instance-list

Description

This command displays slice instance list information.

Parameters

list-name

Specifies the slice instance list name, up to 32 characters.

Output

The following output example shows a Slice Instance List.

Output example: Slice instance list

```
A:MAG-c# show mobile-gateway profile list slice-instance-list "fwa_slice"

================================================================================
Network Slice Instance List(s)
================================================================================
Slice Instance List        : fwa_slice
--------------------------------------------------------------------------------

--------------------------------------------------------------------------------
Slice Instance                                                  Suspended
--------------------------------------------------------------------------------
fwa_slice                                                       No
--------------------------------------------------------------------------------

Number of Slice Instances  : 1
--------------------------------------------------------------------------------
Nbr of Slice Instance lists: 1
================================================================================
```

4.2.32.107 slice-list

Syntax

slice-list [*list-name*]

Context

[Tree] show mobile-gateway profile list slice-list

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Description

This command displays slice list information.

Parameters

list-name

Specifies the slice list name, up to 32 characters.

Output

The following output example shows a Slice List.

Output example: Slice list

```
A:MAG-c# show mobile-gateway profile list slice-list "fwa_slices"

===============================================================================
Network Slice List(s)
===============================================================================
Slice List                : fwa_slices
-------------------------------------------------------------------------------
Slice Name                : fwa_slice
    Slice Service Type    : 1
    Suspended             : No
    Slice Differentiator  : 0xcafe01
    Slice Instances       : -

Number of Slices          : 1
-------------------------------------------------------------------------------
Number of Slice lists     : 1
===============================================================================
```

4.2.32.108 tai-list

Syntax

tai-list [*tai-list-name*]

Context

[Tree] show mobile-gateway profile list tai-list

Description

This command displays the TAI list profile information.

Parameters

tai-list-name

Displays information about the specified existing TAI list profile, up to 32 characters.

Output

The following output is an example of TAI list profile information.

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Output example: TAI list profile

```
A:MAG-c# show mobile-gateway profile list tai-list "example"

===============================================================================
TAI List(s)
===============================================================================

-------------------------------------------------------------------------------
List Name : example
-------------------------------------------------------------------------------
MCC     MNC     TAC         TAC Range Start      TAC Range End        Priority
-------------------------------------------------------------------------------
001     01      0x000001                                              N/A
001     01                  0x000020             0x000030             N/A
-------------------------------------------------------------------------------
Number of TAI entries      : 2
-------------------------------------------------------------------------------
Number of TAI lists        : 1
===============================================================================
```

4.2.32.109 n1-profile

Syntax

n1-profile *profile-name*

Context

[Tree] show mobile-gateway profile n1-profile

Description

This command displays the N1 profile.

Parameters

profile-name

Specifies the N1 profile name, up to 32 characters.

Output

The following output example shows the profile information for the default N1 profile.

Output example: N1 profile output

```
A:MAG-c>config>mobile>profile# show mobile-gateway profile n1-profile "default"

===============================================================================
N1 profile
===============================================================================
Profile Name               : default

n1-t3591 (deciseconds)     : 160        n1-t3592 (deciseconds)     : 160
n1-t3591 retry count       : 4          n1-t3592 retry count       : 4

Cause Codes
```


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```
  APN Shutdown
    5GSM Cause Code        : 8
    HTTP Status Code       : 403
    Application Error      : DNN_NOT_SUPPORTED

  DNN Subscription Removed
    5GSM Cause Code        : 29

  GW Suspend
    5GSM Cause Code        : 8
    HTTP Status Code       : 500
    Application Error      : NF_FAILOVER
-------------------------------------------------------------------------------
Number of N1 profiles : 1
===============================================================================
```

4.2.32.110 node-selection

Syntax

node-selection

Context

[Tree] show mobile-gateway profile node-selection

Description

Commands in this context display node selection information.

4.2.32.111 client-profile

Syntax

client-profile [*profile-name*]

Context

[Tree] show mobile-gateway profile node-selection client-profile

Description

This command displays client profile information.

Parameters

profile-name

Specifies the profile name, up to 32 characters.

Output

The following output example shows the client profile information.

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Output example

```
A:MAG-c# show mobile-gateway profile node-selection client-profile
===============================================================================
Client profile
===============================================================================
Profile name               : client_profile1
Description                : -
Default action
    Target profile         : default_prof

    Entry id               : 1
    Description            : -
    Action
        Target profile     : target_prof_0
    Match criteria
        TAI LAI list       : tai_list_0
        APN(s)
            "apn1"

    Entry id               : 2
    Description            : -
    Action
        Target profile     : target_prof_3
    Match criteria
        TAI LAI list       : tai_list_3
        APN(s)
            "apn2"
-------------------------------------------------------------------------------
Number of Client profiles : 1
===============================================================================
```

4.2.32.112 group-label

Syntax

group-label [*profile-name*]

Context

[Tree] show mobile-gateway profile node-selection group-label

Description

This command displays group label information.

Parameters

profile-name

Specifies the profile name, up to 32 characters.

Output

The following output example shows the group label information.

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Output example

```
A:MAG-c# show mobile-gateway profile node-selection group-label

===============================================================================
node selection group lable profile
===============================================================================
Profile name               : label_0
Description                : (Not Specified)
-------------------------------------------------------------------------------
Profile name               : label_1
Description                : (Not Specified)
-------------------------------------------------------------------------------
Number of policies : 2
===============================================================================
```

4.2.32.113 target-profile

Syntax

target-profile [*profile-name*]

Context

[Tree] show mobile-gateway profile node-selection target-profile

Description

This command displays target profile information.

Parameters

profile-name

Specifies the profile name, up to 32 characters.

Output

The following output example shows the target profile information.

Output example

```
A:MAG-c# show mobile-gateway profile node-selection target-profile

===============================================================================
Target Profile
===============================================================================
Profile Name               : target_prof_tai1
Description                : -
Default Action
    Reject                 : disabled

    Entry Id               : 1
    Description            : -
    Threshold              : 3
    Match Criteria
        Apn                : -
        Group(s)
```


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```
            site1
    Action
        Reject             : disabled

    Entry Id               : 2
    Description            : -
    Threshold              : 2
    Match Criteria
        Apn                : -
        Group(s)
            site2
    Action
        Reject             : disabled

Statistics
    UP Peer                : 30.0.1.29
        Primary            : Y
        Available          : Y
        Number Of Sessions : 0
        Load               : 0 %

    UP Peer                : 30.0.1.54
        Primary            : Y
        Available          : Y
        Number Of Sessions : 10
        Load               : 2 %

    UP Peer                : 30.0.1.68
        Primary            : N
        Available          : Y
        Number Of Sessions : 0
        Load               : 0 %

    UP Peer                : 30.0.1.124
        Primary            : Y
        Available          : Y
        Number Of Sessions : 10
        Load               : 2 %

-------------------------------------------------------------------------------
Number of Target Profiles : 1
===============================================
```

4.2.32.114 pcf-profile

Syntax

pcf-profile *profile-name*

Context

[Tree] show mobile-gateway profile pcf-profile

Description

This command displays the configuration information of the specified PCF profile.

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Parameters

profile-name

Specifies the PCF profile to display, up to 32 characters.

Output

The following output example shows PCF association peer list profile information.

Output example: PCF profile

```
A:MAG-c# show mobile-gateway profile pcf-profile "default"

===============================================================================
Pcf profile
===============================================================================
Profile name               : default

Failure Handling:
fh-volume-limit (kbytes)   : 0          fh-time-limit (minutes)    : 0
fh-session-no-response     : terminate  ap-action-profile-no-resp  :
npcf-error-mapping-profile :
ap-action                  : none
supported-vendor           : none

Supported Features:
adc                        : disabled   sponsored-connectivity     : disabled
netloc                     : disabled   umc                        : disabled
tsc                        : disabled   prov-af-signal-flow        : disabled
pcscf-restoration          : disabled   pra                        : disabled
policy-update-when-ue-susp*: disabled   session-rule-error-handling: disabled
eps-fallback-report        : disabled   pdu-session-rel-cause      : disabled
policy-decision-error-hand*: disabled   resp-based-session-rel     : disabled
af-charging-id             : disabled
unlimited-multi-ipv6-prefix: disabled
-------------------------------------------------------------------------------
Number of profiles : 1
===============================================================================
* indicates that the corresponding row element may have been truncated.
```

4.2.32.115 pcmd

Syntax

pcmd *profile-name*

Context

[Tree] show mobile-gateway profile pcmd

Description

This command displays PCMD profile information.

Parameters

profile-name

Specifies the profile name, up to 32 characters.

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Output

The following output example displays PCMD profile information.

Output example: PCMD profile

```
A:MAG-c# show mobile-gateway profile pcmd "PCMD-Prof1"
===============================================================================
PCMD profile
===============================================================================
Profile name         : PCMD-Prof1
Description          : none
Destination address  : 24.0.1.6
Destination port     : 7797
Destination router   : Base
Heartbeat            : disabled

Session Report:
Verbosity            : standard
-------------------------------------------------------------------------------
Number of profiles : 1
===============================================================================
```

4.2.32.116 pfcp

Syntax

pfcp

Context

[Tree] show mobile-gateway profile pfcp

Description

Commands in this context display PFCP profile information.

4.2.32.117 pfcp-association-peer-list

Syntax

pfcp-association-peer-list [*profile-name*]

Context

[Tree] show mobile-gateway profile pfcp pfcp-association-peer-list

Description

This command displays PFCP association peer list profile information.

Parameters

profile-name

Displays information about the specified existing profile, up to 32 characters.

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Output

The following output example shows PFCP association peer list profile information.

Output example: PFCP association peer list profile

```
A:MAG-c# show mobile-gateway profile pfcp pfcp-association-peer-list
===============================================================================
PFCP association peer list profile
===============================================================================
Profile name               : pfcpAPList1
Description                : Test List
Node ID                    : 310.150.PGW.1.1.1
    BFD                    : Disabled
    Partial Failure        : Enabled
    UE IP Allocation       : Disabled
    Peer [Port]            : 33.34.1.1 [8001]
    Peer [Port]            : 3ffe::2122:101  [8005]
Node ID                    : 510.180.PGW.1.1.2
    BFD                    : Disabled
    Partial Failure        : Disabled
    UE IP Allocation       : Disabled
    Peer                   : 33.34.1.2
    Peer                   : 3ffe::2122:102
-------------------------------------------------------------------------------
Number of PFCP-peers : 4
-------------------------------------------------------------------------------
Number of profiles   : 1
===============================================================================
```

4.2.32.118 pfcp-profile

Syntax

pfcp-profile [*profile-name*]

Context

[Tree] show mobile-gateway profile pfcp pfcp-profile

Description

This command displays PFCP profile information.

Parameters

profile-name

Displays information about the specified existing profile, up to 32 characters.

Output

PFCP profile shows an example of PFCP profile information and Table 7: Show mobile profile PFCP output fields describes the output fields.

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Table 7: Show mobile profile PFCP output fields

Label	Description
Profile name	The name of the PFCP profile
Description	The description of the PFCP profile
Msg retransmit timeout	The time, in seconds, that the PFCP waits before resending a message if there is no response to an initial message
Msg retransmit retry count	The number of times the PFCP attempts to send a message
Heartbeat timeout	The heartbeat timeout interval, in seconds
Heartbeat retry count	The heartbeat retry count
Heartbeat response	The heartbeat response, in seconds
IP TTL	The IP TTL value used for PFCP signaling messages
IP DSCP	The DSCP value in the IP Header used for PFCP signaling messages
Association Retry Time	The association retry time
PDI Optimization	The PDI optimization status
PFCP-u Shared Tunnel Re-attempt Timer	The configured value of the re-attempt timer for failed PFCP-u tunnel session establishment between the CP function and the UP function, when ICMPv6 RS/RA and NS/NA message handling is enabled for the CP function
LCI IE	LCI information to be included or excluded
OCI IE	OCI information to be included or excluded
Number of profiles	The number of profiles retrieved

Output example: PFCP profile

```
A:MAG-c# show mobile-gateway profile pfcp pfcp-profile
===============================================================================
PFCP profile
===============================================================================
Profile name               : pfcp_prof_1
Description                : N/A
Msg retransmit timeout     : 5 secs     Msg retransmit retry count : 3
Heartbeat timeout          : 5 secs     Heartbeat retry count      : 4
Heartbeat response         : 60 secs
IP TTL                     : 255        IP DSCP                    : 56
Association Retry Time     : 10 secs
PDI Optimization           : enabled


PFCP Configurable IEs
LCI IE                     :Included/Excluded           OCI IE: Included/Excluded
PFCP-u Shared Tunnel
Re-attempt timer           : 600 secs
```


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```
-------------------------------------------------------------------------------
Number of profiles : 1
===============================================================================
```

4.2.32.119 pfcp-translate-profile

Syntax

pfcp-translate-profile [*profile-name*]

Context

[Tree] show mobile-gateway profile pfcp pfcp-translate-profile

Description

This command displays PFCP translation profile information.

Parameters

profile-name

Displays information about the specified existing profile, up to 32 characters.

4.2.32.120 up-peer-list

Syntax

up-peer-list [*profile-name*]

Context

[Tree] show mobile-gateway profile pfcp up-peer-list

Description

This command displays user plane peer list profile information.

Parameters

profile-name

Displays information about the specified existing profile, up to 32 characters.

Output

UP peer list profile shows an example of UP peer list profile information and Table 8: Show mobile profile PFCP UP peer list output fields describes the output fields.

Table 8: Show mobile profile PFCP UP peer list output fields

Label	Description
Profile name	The name of the UP peer list

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Label	Description
Peer	IPv4 or IPv6 address of the UP peer list peer
UPF Selection	The peer selection status is allowed (True) or not allowed (False)
upf-id	The UPF ID used by the SMF in charging records to report charging information over the Nchf SBI, to allocate quota and report usage per UPF Configured locally per peer, but is overridden by the UPF ID received in the NRF discovery, if NRF is used
Block	The blocking state of the UP peer according to the block configuration. “True” is displayed when the peer is blocked at the APN level or when all the APN prefixes for this peer are blocked
EPS interworking	The EPS interworking is enabled or disabled
Slice	The slice specifies the network slice name associated with the user plane peer

Output example: UP peer list profile

```
A:MAG-c# show mobile-gateway profile pfcp up-peer-list "listTest"
===============================================================================
UP peer list profile
===============================================================================
-------------------------------------------------------------------------------
Profile name               : listTest
Description                : N/A
-------------------------------------------------------------------------------
Peer                       : 1.2.3.4
UPF Selection              : True
upf-id                     : -

APN                        : test
tai-lai-list               : TaiLaiListTest
Block                      : true
EPS interworking           : Enabled
Slice                      : (Not Specified)
-------------------------------------------------------------------------------
Number of profiles : 1
===============================================================================
```

```
A:MAG-c# show mobile-gateway profile pfcp up-peer-list "up_peer_list1"
===============================================================================
UP peer list profile
===============================================================================
-------------------------------------------------------------------------------
Profile name : up_peer_list1
Description : N/A
-------------------------------------------------------------------------------
Peer : 100.16.16.16
UPF Selection : True
upf-id : 2c341340-0f10-11ef-8cde-aa67a1e3f7e7

APN : internet.apn1
Block : False
All IP Prefixes blocked : False
```


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```
APN : internet.apn1.mnc001.mcc206.gprs
Block : False
All IP Prefixes blocked : False

APN : bb4.home
Block : False
All IP Prefixes blocked : False

Peer : 30.0.1.63
UPF Selection : True
upf-id : 2c0d1a9c-0f10-11ef-8cde-aa67a1e3f7e7
-------------------------------------------------------------------------------
Number of profiles : 1
===============================================================================
```

4.2.32.121 policy-options

Syntax

policy-options

Context

[Tree] show mobile-gateway profile policy-options

Description

Commands in this context display mobile gateway policy information.

4.2.32.122 action-rule-unit

Syntax

action-rule-unit [*aru-name*]

Context

[Tree] show mobile-gateway profile policy-options action-rule-unit

Description

This command displays ARU information.

Parameters

[*aru-name***]**

Specifies an existing ARU name, up to 32 characters, configured using the following command.

```
configure mobile-gateway profile policy-options action-rule-unit
```


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Output

The following output examples display ARU information.

Output example: Information for a specified ARU profile

```
A:MAG-c# show mobile-gateway profile policy-options action-rule-unit "aru1"

===============================================================================
Action Rule Unit profile
===============================================================================
Profile name         : aru1
Custom PCO           : none
Disable UBR signaling: no
Gy filter-id action  : none

App profile          : testAppProfile
aa-notify-action     : none
In use               : yes             Reference count      : 1

Total Number of Action Rule Unit profiles: 1
===============================================================================
```

Output example: Information for all ARU profiles

```
A:MAG-c# show mobile-gateway profile policy-options action-rule-unit

===============================================================================
Action Rule Unit profile
===============================================================================
Profile name         : aru1

Custom PCO           : none
Disable UBR signaling: no
Gy filter-id action  : none

App profile          : testAppProfile
aa-notify-action     : none
In use               : yes             Reference count      : 1

Profile name         : aru2
Custom PCO           : none
Disable UBR signaling: no
Gy filter-id action  : none

App profile          : testAppProfile2
aa-notify-action     : none
In use               : yes             Reference count      : 1

Total Number of Action Rule Unit profiles: 2
===============================================================================
```

4.2.32.123 qci-policy

Syntax

qci-policy *policy-name*

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Context

[Tree] show mobile-gateway profile policy-options qci-policy

Description

This command displays the configuration information of the specified QCI Policy.

Parameters

policy-name

Specifies the QCI Policy to display, up to 32 characters.

Output

The following output example shows QCI Policy configuration.

Output example: QCI Policy configuration

```
A:MAG-c# show mobile-gateway profile policy-options qci-policy "default"

===============================================================================
QCI policy
===============================================================================
Policy rule name           : default
Description                : N/A
QCI                        : 1          ARP                       : *
In-profile DSCP            : nc2        Out-profile DSCP          : nc2
DSCP preserve              : enabled    FC                        : nc
Profile                    : None
QCI                        : 2          ARP                       : *
In-profile DSCP            : ef         Out-profile DSCP          : ef
DSCP preserve              : enabled    FC                        : ef
Profile                    : None
QCI                        : 3          ARP                       : *
In-profile DSCP            : af41       Out-profile DSCP          : af42
DSCP preserve              : enabled    FC                        : h2
Profile                    : None
QCI                        : 4          ARP                       : *
In-profile DSCP            : nc1        Out-profile DSCP          : nc1
DSCP preserve              : enabled    FC                        : h1
Profile                    : None
QCI                        : 5          ARP                       : *
In-profile DSCP            : af21       Out-profile DSCP          : af22
DSCP preserve              : enabled    FC                        : l1
Profile                    : None
QCI                        : 6          ARP                       : *
In-profile DSCP            : af11       Out-profile DSCP          : af12
DSCP preserve              : enabled    FC                        : af
Profile                    : None
QCI                        : 7          ARP                       : *
In-profile DSCP            : af11       Out-profile DSCP          : af12
DSCP preserve              : enabled    FC                        : af
Profile                    : None
QCI                        : 8          ARP                       : *
In-profile DSCP            : cs1        Out-profile DSCP          : cs1
DSCP preserve              : enabled    FC                        : l2
Profile                    : None
QCI                        : 9          ARP                       : *
In-profile DSCP            : be         Out-profile DSCP          : be
DSCP preserve              : enabled    FC                        : be
Profile                    : None
```


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```
QCI                         : 10         ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 11         ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 12         ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 13         ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 14         ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 15         ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 16         ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 17         ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 18         ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 19         ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 20         ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 21         ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 22         ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 23         ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 24         ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 25         ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
```


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```
QCI                         : 26          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 27          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 28          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 29          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 30          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 31          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 32          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 33          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 34          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 35          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 36          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 37          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 38          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 39          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 40          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 41          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
```


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```
QCI                         : 42          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 43          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 44          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 45          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 46          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 47          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 48          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 49          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 50          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 51          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 52          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 53          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 54          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 55          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 56          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 57          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
```


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```
QCI                         : 58          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 59          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 60          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 61          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 62          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 63          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 64          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 65          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 66          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 67          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 68          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 69          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 70          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 71          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 72          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 73          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
```


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```
QCI                         : 74          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 75          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 76          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 77          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 78          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 79          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 80          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 81          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 82          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 83          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 84          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 85          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 86          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 87          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 88          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 89          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
```


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```
QCI                         : 90          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 91          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 92          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 93          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 94          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 95          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 96          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 97          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 98          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 99          ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 100         ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 101         ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 102         ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 103         ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 104         ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
QCI                         : 105         ARP                         : *
In-profile DSCP             : be          Out-profile DSCP            : be
DSCP preserve               : enabled     FC                          : be
Profile                     : None
```


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```
QCI                         : 106        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 107        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 108        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 109        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 110        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 111        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 112        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 113        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 114        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 115        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 116        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 117        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 118        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 119        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 120        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 121        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
```


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```
QCI                       : 122        ARP                       : *
In-profile DSCP           : be         Out-profile DSCP          : be
DSCP preserve             : enabled    FC                        : be
Profile                   : None
QCI                       : 123        ARP                       : *
In-profile DSCP           : be         Out-profile DSCP          : be
DSCP preserve             : enabled    FC                        : be
Profile                   : None
QCI                       : 124        ARP                       : *
In-profile DSCP           : be         Out-profile DSCP          : be
DSCP preserve             : enabled    FC                        : be
Profile                   : None
QCI                       : 125        ARP                       : *
In-profile DSCP           : be         Out-profile DSCP          : be
DSCP preserve             : enabled    FC                        : be
Profile                   : None
QCI                       : 126        ARP                       : *
In-profile DSCP           : be         Out-profile DSCP          : be
DSCP preserve             : enabled    FC                        : be
Profile                   : None
QCI                       : 127        ARP                       : *
In-profile DSCP           : be         Out-profile DSCP          : be
DSCP preserve             : enabled    FC                        : be
Profile                   : None
QCI                       : 128        ARP                       : *
In-profile DSCP           : be         Out-profile DSCP          : be
DSCP preserve             : enabled    FC                        : be
Profile                   : None
QCI                       : 129        ARP                       : *
In-profile DSCP           : be         Out-profile DSCP          : be
DSCP preserve             : enabled    FC                        : be
Profile                   : None
QCI                       : 130        ARP                       : *
In-profile DSCP           : be         Out-profile DSCP          : be
DSCP preserve             : enabled    FC                        : be
Profile                   : None
QCI                       : 131        ARP                       : *
In-profile DSCP           : be         Out-profile DSCP          : be
DSCP preserve             : enabled    FC                        : be
Profile                   : None
QCI                       : 132        ARP                       : *
In-profile DSCP           : be         Out-profile DSCP          : be
DSCP preserve             : enabled    FC                        : be
Profile                   : None
QCI                       : 133        ARP                       : *
In-profile DSCP           : be         Out-profile DSCP          : be
DSCP preserve             : enabled    FC                        : be
Profile                   : None
QCI                       : 134        ARP                       : *
In-profile DSCP           : be         Out-profile DSCP          : be
DSCP preserve             : enabled    FC                        : be
Profile                   : None
QCI                       : 135        ARP                       : *
In-profile DSCP           : be         Out-profile DSCP          : be
DSCP preserve             : enabled    FC                        : be
Profile                   : None
QCI                       : 136        ARP                       : *
In-profile DSCP           : be         Out-profile DSCP          : be
DSCP preserve             : enabled    FC                        : be
Profile                   : None
QCI                       : 137        ARP                       : *
In-profile DSCP           : be         Out-profile DSCP          : be
DSCP preserve             : enabled    FC                        : be
Profile                   : None
```


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```
QCI                         : 138        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 139        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 140        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 141        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 142        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 143        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 144        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 145        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 146        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 147        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 148        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 149        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 150        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 151        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 152        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 153        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
```


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```
QCI                         : 154        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 155        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 156        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 157        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 158        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 159        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 160        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 161        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 162        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 163        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 164        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 165        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 166        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 167        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 168        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 169        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
```


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```
QCI                         : 170        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 171        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 172        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 173        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 174        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 175        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 176        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 177        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 178        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 179        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 180        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 181        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 182        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 183        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 184        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 185        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
```


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```
QCI                         : 186        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 187        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 188        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 189        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 190        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 191        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 192        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 193        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 194        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 195        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 196        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 197        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 198        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 199        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 200        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 201        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
```


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```
QCI                         : 202        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 203        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 204        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 205        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 206        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 207        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 208        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 209        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 210        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 211        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 212        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 213        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 214        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 215        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 216        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 217        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
```


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```
QCI                         : 218        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 219        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 220        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 221        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 222        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 223        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 224        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 225        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 226        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 227        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 228        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 229        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 230        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 231        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 232        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 233        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
```


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```
QCI                         : 234        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 235        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 236        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 237        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 238        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 239        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 240        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 241        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 242        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 243        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 244        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 245        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 246        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 247        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 248        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 249        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
```


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```
QCI                         : 250        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 251        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 252        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 253        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 254        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
QCI                         : 255        ARP                         : *
In-profile DSCP             : be         Out-profile DSCP            : be
DSCP preserve               : enabled    FC                          : be
Profile                     : None
-------------------------------------------------------------------------------
Number of policies : 1
Note: ARP * indicates wildcard arp and maps to arp value 0 in SNMP.
===============================================================================
```

4.2.32.124 qfi-mapping-profile

Syntax

qfi-mapping-profile [*profile-name*]

Context

[Tree] show mobile-gateway profile qfi-mapping-profile

Description

This command displays the contents of the specified QFI mapping profile.

Parameters

profile-name

Specifies the name of the QFI mapping profile.

Output

The following output example shows a QFI Mapping Profile.

Output example: QFI mapping profile

```
A:MAG-c# show mobile-gateway profile qfi-mapping-profile "basic"

===============================================================================
Qfi Mapping Profile
```


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```
===============================================================================
Profile-Name         : basic
5qi-as-qfi           : disabled

Dynamic-mapping
qnc                  : disabled         average-window       : disabled
priority-level       : disabled         max-data-burst-vol   : disabled

Static-mapping
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
Number of Qfi-Mapping-Profile : 1
===============================================================================
```

4.2.32.125 qos-5g-profile

Syntax

qos-5g-profile *profile-name*

Context

[Tree] show mobile-gateway profile qos-5g-profile

Description

This command displays the 5G QoS profile.

Parameters

profile-name

Specifies the 5G QoS profile name, up to 32 characters.

Output

The following output example shows the profile information for a 5G QoS profile with default values.

Output example: 5G QoS profile output

```
A:MAG-c>config>mobile>profile>qos-5g-profile# show mobile-gateway profile qos-5g-profile
 "example"

===============================================================================
5G Qos profile
===============================================================================
Profile name              : example
5qi                       : 0          arp                        : 0
ul-ambr (kbps)            : 0          dl-ambr (kbps)             : 0

Number of profiles : 1
===============================================================================
```


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4.2.32.126 qos-profile

Syntax

qos-profile [*profile-name*]

Context

[Tree] show mobile-gateway profile qos-profile

Description

This command is used to display the contents of the specified QoS profile.

Parameters

profile-name

Specifies the name of the QoS profile, up to 32 characters.

Output

The following output example shows QoS profile information.

Output example: QoS profile

```
A:MAG-c# show mobile-gateway profile qos-profile "qosProf1"
===============================================================================
Qos profile
===============================================================================
Profile name               : qosProf1
qci                        : 9          arp                        : 11
ul-ambr                    : 500000 kb* dl-ambr                    : 600000 kb*
-------------------------------------------------------------------------------
Number of profiles : 1
===============================================================================
```

4.2.32.127 radius

Syntax

radius [*profile-name*]

Context

[Tree] show mobile-gateway profile radius

Description

This command displays RADIUS profile information.

Parameters

profile-name

Displays information about the specified existing RADIUS profile, up to 32 characters.

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Output

The following output example shows RADIUS profile information.

Output example: RADIUS profile

```
A:MAG-c# show mobile-gateway profile radius
===============================================================================
Radius profile
===============================================================================
Profile name               : default
Description                : N/A
Auth Prob Interval         : 0 secs     Server Dead Time           : 300 secs
Auth Retry Timeout         : 4 secs     Auth Retry Count           : 3
Acct Retry Timeout         : 4 secs     Acct Retry Count           : 3
Apn Acct On/Off Init Intrvl: 0          Apn Acct On Retry Interval : 0
Max Peer Reselections Count: 3
NAS Port Type              : 15
-------------------------------------------------------------------------------
Number of Radius profiles : 1
===============================================================================
```

4.2.32.128 radius-group

Syntax

radius-group [*radius-group-name*]

Context

[Tree] show mobile-gateway profile radius-group

Description

This command displays RADIUS group information.

Parameters

radius-group-name

Displays information about the specified existing RADIUS group, up to 32 characters.

Output

The following output example shows RADIUS group information.

Output example: RADIUS group profile

```
A:MAG-c# show mobile-gateway profile radius-group "Radius Group"
===============================================================================
Radius Group profile
===============================================================================
Group name                 : Radius Group
Description                : acctAuthBasic
Interface                  : pgwicr-ra* Router                    : vprn20005
Auth Server Port           : 1812       Acct Server Port          : 1813
Interim Update Interval    : disabled   Server Type               : both
Radius Profile             : Profile1 Ignore Acct Resp           : disabled
Transaction Based LB       : disabled
```


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```
Use Acct-interim-avp-optio*: enabled    Use Disconnect-ack-avp-opt*: enabled
Use Disconnect-nak-avp-opt*: enabled
Limit User Name Length     : enabled


via-up-function
APN                        : Nokia
up-peer-ip-address         : 0.0.0.0


radius-avp-options
-------------------------------------------------------------------------------
service-type               : include    framed-protocol            : include
calling-station-id         : include    nas-port-type              : include
acct-delay-time            : exclude    acct-authentic             : include
3gpp-imsi                  : include    3gpp-charging-Id           : include
3gpp-pdp-type              : include    3gpp-gprs-negotiated-qos-p*: include
3gpp-sgsn-address          : include    3gpp-ggsn-address          : include
3gpp-imsi-mcc-mnc          : exclude    3gpp-ggsn-mcc-mnc          : include
3gpp-nsapi                 : include    3gpp-session-stop-indicator: include
3gpp-selection-mode        : include    3gpp-charging-characterist*: include
3gpp-sgsn-ipv6-address     : include    3gpp-ggsn-ipv6-address     : include
3gpp-sgsn-mcc-mnc          : include    3gpp-imeisv                : include
3gpp-rat-type              : include    3gpp-user-location-info    : include
3gpp-ms-timezone           : include    served-mdn                 : exclude
alc-subsc-id-str           : exclude    alc-subsc-prof-str         : exclude
alc-sla-prof-str           : exclude    nas-port-id                : exclude
acct-session-id            : include    event-timestamp            : exclude
user-name                  : include
nas-identifier             : exclude    class                      : exclude
framed-ip-address          : include    framed-ip-netmask          : include
framed-ipv6-prefix         : include    framed-interface-id        : exclude
acct-session-time          : include
acct-input-gigawords       : include    acct-output-gigawords      : include
acct-input-octets          : include    acct-output-octets         : include
acct-input-packets         : exclude    acct-output-packets        : exclude
called-station-id-apn-in-o*: include
acct-session-id-in-on-off-*: include
called-station-id          : include    3gpp-allocate-ip-type      : include

acct-interim-avp-options
-------------------------------------------------------------------------------
service-type               : exclude    framed-protocol            : exclude
calling-station-id         : include    nas-port-type              : include
acct-delay-time            : exclude    acct-authentic             : exclude
3gpp-imsi                  : include    3gpp-charging-Id           : include
3gpp-pdp-type              : include    3gpp-gprs-negotiated-qos-p*: include
3gpp-sgsn-address          : include    3gpp-ggsn-address          : include
3gpp-imsi-mcc-mnc          : exclude    3gpp-ggsn-mcc-mnc          : exclude
3gpp-nsapi                 : include
3gpp-selection-mode        : include    3gpp-charging-characterist*: include
3gpp-sgsn-ipv6-address     : exclude    3gpp-ggsn-ipv6-address     : exclude
3gpp-sgsn-mcc-mnc          : exclude    3gpp-imeisv                : exclude
3gpp-rat-type              : exclude    3gpp-user-location-info    : exclude
3gpp-ms-timezone           : exclude    nas-port-id                : exclude
user-name                  : include    event-timestamp            : exclude
nas-identifier             : exclude    class                      : exclude
nas-ip-address             : include    nas-ipv6-address           : exclude
framed-ip-address          : include
framed-ipv6-prefix         : include    framed-interface-id        : exclude
acct-session-time          : include
acct-input-gigawords       : include    acct-output-gigawords      : include
acct-input-octets          : include    acct-output-octets         : include
acct-input-packets         : exclude    acct-output-packets        : exclude
```


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```
called-station-id          : include

disconnect-ack-avp-options
-------------------------------------------------------------------------------
proxy-state                : include    acct-terminate-cause       : include
event-timestamp            : include

disconnect-nak-avp-options
-------------------------------------------------------------------------------
proxy-state                : include    error-cause                : include

Peer Address               : 10.23.12.2
Priority                   : 3          Radius Profile             : Profile1
Auth Server Port           : 1812       Acct Server Port           : 1813
Admin State                : up         Failure Detection Time     : 10 secs

Peer Address               : 10.23.14.2
Priority                   : 2          Radius Profile             : Profile1
Auth Server Port           : 1812       Acct Server Port           : 1813
Admin State                : up         Failure Detection Time     : 10 secs

Peer Address               : 10.23.11.2
Priority                   : 1          Radius Profile             : Profile1
Auth Server Port           : 1812       Acct Server Port           : 1813
Admin State                : up         Failure Detection Time     : 10 secs
-------------------------------------------------------------------------------
Number of Radius Groups: 1
===============================================================================
* indicates that the corresponding row element may have been truncated.
```

4.2.32.129 sbi-error-mapping-profile

Syntax

sbi-error-mapping-profile *profile-name*

Context

[Tree] show mobile-gateway profile sbi-error-mapping-profile

Description

This command displays the SBI error mapping profile.

Parameters

profile-name

Specifies the profile name, up to 32 characters.

Output

The following output example shows the profile information for an SBI error mapping profile with default values.

Output example: SBI error mapping profile output

```
A:MAG-c>config>mobile>profile>sbi-error-mapping# show mobile-gateway profile sbi-error-
mapping-profile "example"
```


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```
===============================================================================
Sbi Error Mapping profile
===============================================================================
Profile                    : example

http-to-gtp (http-status, app-error)         : gtp-code

http-to-5gsm (http-status, app-error)        : 5gsm-code
-------------------------------------------------------------------------------
Number of profiles : 1
===============================================================================
```

4.2.32.130 udm-sdm-profile

Syntax

udm-sdm-profile *profile-name*

Context

[Tree] show mobile-gateway profile udm-sdm-profile

Description

This command displays configuration information of the specified UDM SDM Profile.

Parameters

profile-name

Specifies the UDM SDM profile to display, up to 32 characters.

Output

The following output example shows UDM SDM profile configuration.

Output example: UDM SDM profile configuration output

```
A:MAG-c# show mobile-gateway profile udm-sdm-profile "default"

=======================================
UDM SDM Profile(s)
=======================================
Profile name               : default
max-peer-failover          : 2
retry-count                : 3
transaction-timer(ms)      : 5000

get-sm-subscription-data
    retry-count            : 3
    transaction-timer(ms)  : 5000

create-subscription
    retry-count            : 3
    transaction-timer(ms)  : 5000

-------------------------------------------------------------------------------
Number of profiles: 1
```


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```
=======================================
```

4.2.32.131 udm-uecm-profile

Syntax

udm-uecm-profile *profile-name*

Context

[Tree] show mobile-gateway profile udm-uecm-profile

Description

This command displays the configuration information of the specified UDM UECM Profile.

Parameters

profile-name

Specifies the UDM UECM profile to display, up to 32 characters.

Output

The following output example shows UDM UECM profile configuration.

Output example: UDM UECM profile configuration output

```
A:MAG-c# show mobile-gateway profile udm-uecm-profile "default"

=======================================
UDM UECM Profile(s)
=======================================
Profile name               : default
max-peer-failover          : 2
retry-count                : 3
transaction-timer(ms)      : 5000

register-smf
    retry-count            : 3
    transaction-timer(ms)  : 5000

-------------------------------------------------------------------------------
Number of profiles: 1
=======================================
```

4.2.32.132 system

Syntax

system [**card** *slot-number*] [**summary**] [**vm** *vm-id*]

system cdbx-redundancy

system call-insight

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system gateway *gw-id* [**summary**]

system group *group-number* [**summary**]

Context

[Tree] show mobile-gateway system

Description

This command displays mobile gateway system information.

Parameters

slot-number

Specifies the slot number.

Values: 1 to 20 | A | B

summary

Keyword to display aggregated statistics at the per-peer level.

vm-id

Specifies the VM ID.

Values: 1 to 20 | A | B

cdbx-redundancy

Keyword to display the active/standby state of the cloud database peer and the synchronization state of the database instances.

call-insight

Keyword to display global call-insight settings.

gw-id

Specifies the gateway ID.

Values: 1 to 8

group-number

Specifies the group number.

Values: 1 to 15

Output

The following output examples display system information and Table 9: Show mobile gateway system information describes the output fields.

- System information (one-to-one redundancy)
- System information (many-to-many redundancy)
- Database redundancy status and synchronization states of the database instances

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Table 9: Show mobile gateway system information

Label	Description
Ue-fragmented-packets-handling	Indicates if the IP packet reassembly of the user-level traffic for packet classification is used Enabled or disabled (default)
ttc-accuracy	TTC accuracy optimization
GTP-U Source Port Dist	Selects a UDP source port for GTP-U packets
Gateway	Gateway ID
Instance type	UP node (UPF/SGW-U/PGW-U, combined SGW-U/PGW-U) or CP node (SMF/SGW-C/PGW-C, combined SGW-C/PGW-C)
Admin State	Administrative state of the gateway or the group (Up or Down)
Oper State	Operational state of the gateway (Up or Down) or the group (Up, Down, in transition, and scale-in in progress)
Suspend	Indicates if the gateway is in a suspended state, in which it does not accept new sessions, but continues to support call-flow on existing sessions
Suspend since	Time at which the gateway was suspended
Restart counter	Restart counter value
EPC Node	EPC node name; up to 31 characters; format:: <MCC>.<MNC>.<SGW|PGW|ePDG|TWAG>.<Region String>.<Group Id>.<Node Id>
AA-grp/Part-id	AA group/partition ID assigned to the mobile-gateway system
Def app profile	Default AA application profile assigned to the mobile-gateway system
parent-ctl-cc-na	Optional parental control ASO charging characteristic name, when the AA group and the default application profile are configured
Admin Uptime	Time at which the gateway became administratively up
Gateway Uptime	Time at which the gateway became operationally up
PFCP Recover Time	Time of the PFCP recovery
Group	Mobile-gateway system group number
Override profile	Indicates if an override profile is configured for each group for GTP-U redirection
Group Uptime	Time at which the group became operationally up
Red State	Redundancy state (Hot or Cold)
Switch over count	Indicates for the group, the number of switchovers (active to standby) for each transition of the VM or card

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Label	Description
Switch over time	Time of the last switchover
Switch over state	State of the switchover
Resource pool	Resource pool assigned to the group; it defines the VM resources (cards) and the redundancy method used for the group
Redundancy	Possible values: • many-to-many (m active VMs are configured to have n standby or spares to provide hot redundancy) • one-to-one (each group is configured to provide hot redundancy per VM or card)
PCMD Profile	Indicates if the group inherits the PCMD profile: • inherit — the PCMD profile configured in the **config mobile profile pcmd** context is applied to the group • none — PCMD records are not generated for this group
PCMD Oper state	Operational state of the PCMD (up or down)
Card/VM	Card or VM slot number
Role/Red state	Indicates whether the VM or card is in the working/active or protect/ standby state

Output example: System information (one-to-one redundancy)

```
A:MAG-c# show mobile-gateway system
===============================================================================
Mobile gateway system
===============================================================================
Ue-fragmented-packets-handling : Disabled
ttc-accuracy : false
GTP-U Source Port Dist : Disabled
-------------------------------------------------------------------------------
Gateway : 1 Instance-type : None
Admin State : Down Oper state : Down
Suspended : No Suspended Since : N/A
Restart counter : N/A EPC Node :
Aa-grp/Part-id : 0/0 Def app profile :
parent-ctl-cc-na*:
Admin Uptime : N/A Gateway Uptime : N/A
-------------------------------------------------------------------------------
Number of gateways : 1
===============================================================================
* indicates that the corresponding row element may have been truncated.
```

Output example: System information (many-to-many redundancy)

```
A:MAG-c# show mobile-gateway system

===============================================================================
Mobile gateway system
===============================================================================
Gateway          : 1                    Instance-type    : control
```


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```
Admin State      : Up                    Oper state       : Up
Suspended        : No                    Suspended Since  : N/A
Restart counter  : 39                    EPC Node         : 206.01.pgw.antwerp.*
Aa-grp/Part-id   : 0/0                   Def app profile  :
parent-ctl-cc-na*:
Admin Uptime     : 09/25/2024 11:31:08  Gateway Uptime   : 09/25/2024 11:31:08
PFCP Recover Time: 09/25/2024 11:29:42 UTC 3936252582#

Resource Pool    : 1                     Redundancy       : many-to-many
-------------------------------------------------------------------------------
Card/VM          Red State               Group
-------------------------------------------------------------------------------
1/3              standby                 N/A
1/4              active                  2
1/5              standby                 N/A
1/6              active                  1
1/7              standby                 N/A
1/8              active                  3
-------------------------------------------------------------------------------

Group            : 1
Admin State      : Up                    Oper state       : Up
Group Uptime     : 09/25/2024 11:45:02
Switch over count: 1                     Switch over time : 09/25/2024 11:45:02
Graceful SWO     : N/A
Resource Pool    : 1                     Oper Redundancy  : many-to-many

Group            : 2
Admin State      : Up                    Oper state       : Up
Group Uptime     : 09/25/2024 11:31:08
Switch over count: 0                     Switch over time : N/A
Graceful SWO     : N/A
Resource Pool    : 1                     Oper Redundancy  : many-to-many

Group            : 3
Admin State      : Up                    Oper state       : Up
Group Uptime     : 09/25/2024 11:45:02
Switch over count: 2                     Switch over time : 09/25/2024 11:45:02
Graceful SWO     : N/A
Resource Pool    : 1                     Oper Redundancy  : many-to-many
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
Number of gateways : 1
===============================================================================
* indicates that the corresponding row element may have been truncated.
# indicates the number of seconds elapsed from epoch January 1 1900.
```

Output example: Database redundancy status and synchronization states of the database instances

```
A:MAG-c# show mobile-gateway system cdbx-redundancy

===============================================================================
Database redundancy status
===============================================================================
Redundancy role             : active
Status                      : up
IP address                  : 10.10.10.1

Redundancy role             : standby
Status                      : up
IP address                  : 10.10.10.2
```


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```
-------------------------------------------------------------------------------
Database instances
-------------------------------------------------------------------------------
Database instance           : 1
State                       : Hot
Last replication time       : 01/01/2024 12:00:00
Replication ratio           : 100%

Database instance           : 2
State                       : Hot
Last replication time       : 01/01/2024 12:00:00
Replication ratio           : 100%

Database instance           : 3
State                       : Warm
Last replication time       : 01/01/2024 12:00:00
Replication ratio           : 100%

Database instance           : 4
State                       : Warm
Last replication time       : 01/01/2024 12:00:00
Replication ratio           : 100%
```

4.2.33 tools mobile-gateway command descriptions

4.2.33.1 mobile-gateway

Syntax

mobile-gateway *gw-id*

Context

[Tree] tools dump mobile-gateway

Description

Commands in this context execute mobile gateway dump commands.

Parameters

gw-id

Specifies a mobile gateway identifier.

Values: 1 to 8

4.2.33.2 bng

Syntax

bng

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Context

[Tree] tools dump mobile-gateway bng

Description

Commands in this context dump BNG information.

4.2.33.3 error-history

Syntax

error-history [**l2-access-id** *string-64*] [**up-ip** *ip-address* | *ipv6-address*] [**mac** *ieee-address*] [**imsi** *imsi*]

Context

[Tree] tools dump mobile-gateway bng error-history

Description

This command dumps the history of BNG errors. It dumps the BNG errors that match the specified filters, or all errors if there is no parameter specified. The error history can be cleared using the **error-history** command in the **clear mobile-gateway bng** context.

Parameters

string-64

Specifies the Layer 2 access ID filter, up to 64 characters.

ip-address | *ipv6-address*

Specifies the UP IP address filter.

Values:

- ip-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

ieee-address

Specifies the session MAC address filter.

Values: xx:xx:xx:xx:xx:xx or xx-xx-xx-xx-xx-xx

imsi

Specifies the IMSI, up to 15 digits.

4.2.33.4 local-address-assignment

Syntax

local-address-assignment

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Context

[Tree] tools dump mobile-gateway bng local-address-assignment

Description

Commands in this context dump information about local address assignments.

4.2.33.5 address-status

Syntax

address-status network-realm *realm-name* **pool** *pool-name* **type** *addr-type* **address** *ip-address* [/*prefix-length*]

Context

[Tree] tools dump mobile-gateway bng local-address-assignment address-status

Description

This command displays the assignment status of a specified address in a specified pool. This address can be a single address, or in case of PD or SLAAC, an IPv6 prefix.

Parameters

realm-name

Specifies the name of the network realm, up to 80 characters.

pool-name

Specifies the pool name, up to 32 characters.

addr-type

Specifies the address type.

Values: ipv4 | ipv6-na | ipv6-pd | ipv6-slaac

ip-address

Specifies the IPv4 or IPv6 address.

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D

prefix-length

Specifies the IPv6 prefix length.

Output

The following output is an example of the status of the specified local assignment.

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Output example

```
tools>dump>mobile>bng>laa# address-status network-realm "mybngvrf" pool "p1" type ipv4 address
 20.20.20.1
Address     : 20.20.20.1/32
State       : not in use
Ue-id       : N/A
Context-pool:
Micro-net   : 20.20.20.0/24
```

4.2.33.6 nf-profile

Syntax

nf-profile

Context

[Tree] tools dump mobile-gateway nf-profile

Description

This command displays the NF profile of the SMF that is received by the NRF after a successful registration operation.

Output

The following output example shows output of the nf-profile tools command.

Output example: NF profile tools output

```
A:MAG-c# tools dump mobile-gateway 1 nf-profile
Active Nrf Peer IP      : 192.168.40.1
Active Nrf Peer ID      : ab61220b-f589-40d4-978b-d9c9f5ab742e
Active Nrf Prof Name    : nrf_client
Registered NfProfile
NfInstanceID            : ce23c7c3-b710-49ac-9e3c-764849a012fa
NfType                  : SMF
Nf Status               : Registered
PLMN List Elements (0)  :
sNssai List (1) :
        sst             : 1, sd : 0xcafe01
nsi List (0)            :
IpV4 addresses (1)      :
        ip              : 192.168.2.1
Recovery Time           : 1692338779 (2023:08:18 - 06:06:19)
Fqdn                    : mag-c.nokia.com
HeartBeat Timer         : 60
SMFInfo                 :
                          Num of slices (1)             :
                                        sst             : 1, sd : 0xcafe01
                                        dnn[0]          : defaultbng
                                        dnn[1]          : fwa.mnc01.mcc001.gprs
                                        dnn[2]          : hsi
                          Tai list (0)

NfServices (1)          :
```


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```
                            NfService[0]                  :
                            ServiceInstanceId             : fwa_smf
                            ServiceName                   : nsmf-pdusession
                            Scheme                        : HTTP
                            ServiceStatus                 : Registered
                            ApiVersionInUri               : v1
                            ApiFullVersion                : 1.0.2
                            Ip endpoints (1)              :
                                         ip               : 192.168.2.1, port 80
                            allowedNfTypes (0)            :
                            Allowed PLMN IDs List Elements (0):
                            Allowed Nssais List (0)       :
```

4.2.33.7 pfcp-audit

Syntax

pfcp-audit remote-peer *ip-address* | *ipv6-address* [**router** *router-name*]

Context

[Tree] tools dump mobile-gateway pfcp-audit

Description

This command displays the progress of the ongoing bulk audit for the paths of a specified PFCP peer.

Parameters

ip-address | *ipv6-address*

IPv4 or IPv6 address of a remote PFCP peer.

Values:

- ip-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D

router-name

router-name | *service-id*, specifies the routing context.

Values:

- router-name – Base | a VPRN service name
- service-id – 1 to 2147483647

Default: Base

Output

The following output example shows the progress of an ongoing PFCP audit.

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Output example: PFCP audit

```
A:MAG-c# tools dump mobile-gateway 1 pfcp-audit remote-peer 10.20.1.2
===============================================================================
PFCP Audit
===============================================================================
UPF: VR: 1 Peer Address: 10.20.1.2 Local Address: 10.20.1.7
Session Audit: In Progress
Total number of sessions: 26155 Number of audited sessions: 18186
-------------------------------------------------------------------------------
No. of Entries: 1
===============================================================================
```


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5 perform command reference

5.1 perform hierarchy descriptions

This section provides the following perform hierarchy descriptions:

- tools perform command hierarchy

5.1.1 tools perform command hierarchy

```
tools
  – perform
      – mobile-gateway
          – pdn
              – bng
                  – data-triggered-host
                  – static-session
                  – up-resiliency
                      – force-reselection
                      – lookup
                      – sync
              – force-clear
                  – bearer-context
                  – path
              – nf-register
              – pfcp-audit
          – profile
              – authentication-database
                  – lookup
              – bng
                  – entry-point
                      – lookup
                  – radius
                      – coa
                          – attribute
                          – debug
                          – deliver-request
                          – destination-ip
                          – info
                          – router
                          – source-ip
```

5.2 perform command descriptions

This section provides the following perform command descriptions:

- tools perform command descriptions

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5.2.1 tools perform command descriptions

5.2.1.1 mobile-gateway

Syntax

mobile-gateway

Context

[Tree] tools perform mobile-gateway

Description

Commands in this context execute mobile gateway performance commands.

5.2.1.2 pdn

Syntax

pdn *gw-id*

Context

[Tree] tools perform mobile-gateway pdn

Description

Commands in this context execute tools commands on a specific mobile gateway instance.

Parameters

gw-id

Specifies the gateway ID.

Values: 1 to 8

5.2.1.3 bng

Syntax

bng

Context

[Tree] tools perform mobile-gateway pdn bng

Description

Commands in this context execute **tools** commands specific to BNG CUPS functionality.

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5.2.1.4 data-triggered-host

Syntax

data-triggered-host l2-access-id *string-64* **l2-access-id-mac** *ieee-address* **up-ip** *ip-address* | *ipv6-address* [**c-vlan** *tag*] [**s-vlan** *tag*] **ip** *ip-address* | *ipv6-address* **mac** *ieee-address* [**dot1q-etype** *hex-value*] [**qinq-etype** *hex-value*]

Context

[Tree] tools perform mobile-gateway pdn bng data-triggered-host

Description

This command configures data-trigger options for IPoE sessions.

Parameters

string-64

Specifies the Layer 2 access ID filter, up to 64 characters.

l2-access-id-mac *ieee-address*

Specifies the Layer 2 MAC address ID filter.

Values: xx:xx:xx:xx:xx:xx or xx-xx-xx-xx-xx-xx

up-ip *ip-address* **|** *ipv6-address*

Specifies the UP IP address filter.

Values:

- ip-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

c-vlan *tag*

Specifies the customer VLAN (inner VLAN) filter.

Values: 1 to 4094

s-vlan *tag*

Specifies the service VLAN (outer VLAN) filter.

Values: 1 to 4094

ip *ip-address* **|** *ipv6-address*

Specifies the IP address filter.

Values:

- ip-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

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x – [0..FFFF]H

d – [0..255]D

mac *ieee-address*

Specifies the MAC address filter.

Values: xx:xx:xx:xx:xx:xx or xx-xx-xx-xx-xx-xx, cannot be all zeros

dot1q-etype *hex-value*

Specifies the Dot1Q Ethernet type HEX value.

Values: 0x8100, 0x88a8, or 0x9100

qinq-etype *hex-value*

Specifies the QinQ Ethernet type HEX value.

Values: 0x8100, 0x88a8, or 0x9100

5.2.1.5 static-session

Syntax

static-session *name* **action** *action-id*

Context

[Tree] tools perform mobile-gateway pdn bng static-session

Description

This command configures options for static IPoE sessions.

Parameters

name

Specifies the name, up to 64 characters.

action-id

Specifies the action to perform.

Values: retry

5.2.1.6 up-resiliency

Syntax

up-resiliency

Context

[Tree] tools perform mobile-gateway pdn bng up-resiliency

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Description

Commands in this context execute tools commands specific to UP Resiliency functionality.

5.2.1.7 force-reselection

Syntax

force-reselection up-group *group-name* [**fsg** *fsg-id*]

Context

[Tree] tools perform mobile-gateway pdn bng up-resiliency force-reselection

Description

This command forces a reselection of the active and standby BNG-UPs in the referenced fate sharing group (FSG). This reselection ignores the setting of the following command and treats it as if it is configured to **always**.

```
configure mobile-gateway profile bng fsg-profile active-standby-selection active-change-without-failure
```

Parameters

group-name

Specifies the name of the UP group, up to 32 characters.

fsg-id

Specifies the ID of the FSG.

Values: 0 to 4294967295

5.2.1.8 lookup

Syntax

lookup up *node-identifier* **l2-access-id** *id* [**s-vlan** *s-tag*] [**c-vlan** *c-tag*]

Context

[Tree] tools perform mobile-gateway pdn bng up-resiliency lookup

Description

This command looks up the UP group and FSG to which a specific UP and Layer-2 access ID belongs . Optionally, an s-tag or c-tag can be provided if multiple UP groups are used for different VLAN ranges.

Parameters

node-identifier

Specifies the BNG-UP for which the lookup is performed , either by address or by FQDN. This is the value as passed in the Node ID Information Element in PFCP.

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Values: ip-addr | fqdn

ip-addr – specifies the IPv4 or IPv6 address

Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

  fqdn – specifies a fully qualified domain name, up to 255 characters

id

Specifies the l2-access-id, up to 64 characters.

s-tag

Specifies the s-tag/s-vlan value.

Values: 0 to 4094

c-tag

Specifies the c-tag or c-vlan value.

Values: 0 to 4094

Output

The following output example shows a UP group and FSG lookup for a specific UP and Layer-2 access ID.

Output example: UP group and FSG lookup for a specific UP and Layer-2 access ID

```
A:MAG-c# tools perform mobile-gateway pdn 1 bng up-resiliency lookup up "bng_east" l2-
access-id "to_access"

-------------------------------------------------------------------------------
Up-Group                              : basic_access
Up-Id                                 : bng_east (192.0.2.11)
Admin-State                           : enabled
S-Vlan Range                          : N/A
C-Vlan Range                          : N/A
FSG Id                                : 1
FSG Role                              : Active
Locked                                : no
-------------------------------------------------------------------------------
No of Up-Groups : 1
```

5.2.1.9 sync

Syntax

sync fsg *fsg-id*

sync up-group *group-name*

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Context

[Tree] tools perform mobile-gateway pdn bng up-resiliency sync

Description

This command manually triggers a synchronization of the FSG state and all sessions to the active and standby UP of an FSG. It does not trigger a re-selection of active and standby UPs. If an FSG change is already ongoing when this command is executed, the **tools** command does not trigger any action.

This command can be used as a last resort in any case where the UPs and CPs are potentially out of sync and the system does not automatically triggers another FSG re-selection.

Parameters

fsg-id

Specifies the FSG ID to synchronize.

Values: 1 to 4294967295

group-name

Specifies the name of the UP group to synchronize, up to 32 characters.

5.2.1.10 force-clear

Syntax

force-clear

Context

[Tree] tools perform mobile-gateway pdn force-clear

Description

Commands in this context forcefully clear system state.

Caution: Use the commands in this context only if necessary and as instructed by Nokia technical support.

5.2.1.11 bearer-context

Syntax

bearer-context {**imsi** | **imei** | **msisdn**} *string* [**local-only**] [**apn** *apn*] [**slave**]

Context

[Tree] tools perform mobile-gateway pdn force-clear bearer-context

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Description

This command forcefully clears the bearer context for a specific UE. The system clears all sessions of the UE at the PDN level when the APN option is not used. To apply rate limiting, the system accepts only 16 commands in parallel and allows only one command per second to proceed internally for execution.

Caution: This command performs an exhaustive search of the UE identity on the VMs of the mobile gateway. Use this command only if necessary and as instructed by Nokia technical support.

Parameters

string

Specifies the value of the address string for the UE key (IMEI, IMSI, or MSISDN) used to locate the bearer context, up to 15 digits for IMSI or MSISDN or 16 digits for IMEI.

apn

Specifies the name of the APN, up to 80 characters; when used, only the UE sessions on this APN are cleared.

local-only

Keyword to specify an internal cleanup.

slave

Keyword to clear the standby system in an ICR deployment.

5.2.1.12 path

Syntax

path router *router-name* [**local-peer** *local-peer-addr*] **remote-peer** *remote-peer-addr* **protocol-type** *protocol*

Context

[Tree] tools perform mobile-gateway pdn force-clear path

Description

This command forcefully clears PFCP path peers from the MAG-c database. Any sessions associated with the path are deleted from the MAG-c but no delete request is sent to the BNG-UP. If the association is already established, the path is recreated after deletion.

Caution: This command cleans up lingering PFCP path state information that should have been removed already. Using it on a valid path to an actively used BNG-UP may lead to service interruption.

Parameters

router-name

Specifies the router name or service ID.

Values: *router-name* | *service-id*

- *router-name* – Base

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- *service-id* – 1 to 2147483647

Default: Base

local-peer-addr

Specifies the local PFCP path address.

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

remote-peer-addr

Specifies the remote PFCP path address.

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

protocol

Specifies the protocol. The only valid value is **pfcp**.

Value: **pfcp** – keyword to clear the PFCP paths

5.2.1.13 nf-register

Syntax

nf-register

Context

[Tree] tools perform mobile-gateway pdn nf-register

Description

This command triggers an NF registration message toward the NRF as SMF.

5.2.1.14 pfcp-audit

Syntax

pfcp-audit [**remote-peer** *ip-address* | *ipv6-address*]

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Context

[Tree] tools perform mobile-gateway pdn pfcp-audit

Description

This command performs a PFCP audit for all PFCP paths or for the paths of a specified PFCP peer.

Parameters

ip-address | *ipv6-address*

Specifies the IPv4 or IPv6 address of a remote PFCP peer.

Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D

5.2.1.15 profile

Syntax

[**no**] **profile** *profile-id*

Context

[Tree] tools perform mobile-gateway profile

Description

Commands in this context execute profile performance management commands.

Parameters

profile-id

Specifies a profile number identifier.

Values: 0 to 255

5.2.1.16 authentication-database

Syntax

authentication-database *name*

Context

[Tree] tools perform mobile-gateway profile authentication-database

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Description

Commands in this context execute the tool commands for the ADB.

Parameters

name

Specifies the name of the ADB, up to 32 characters.

5.2.1.17 lookup

Syntax

lookup [**circuit-id-string** *string-id*] [**remote-id-string** *string-id*] [**circuit-id-hex** *hex-id*] [**remote-id-hex** *hex-id*] [**l2-access-id** *string-id*] [**up-ip** *ip-address*] [**username** *username*] [**c-vlan** *vlan-id*] [**s-vlan** *vlan-id*] [**vendor-class-string** *string-id*] [**vendor-class-hex** *hex-id*] [**apn** *apn-name*] [**imsi-mcc** *mcc value*] [**imsi-mnc** *mnc value*] [**imei-tac** *tac value*] [**up-group** *name*] [**up-group-derive**] [**up-node-id** *fqdn*] [**mac** *ieee-address*] [**client-id-string** *cid-string*] [**client-id-hex** *binary-cid*] [**source-ip** *ip-address*] [**s-nssai-sst** *sst value*] [**s-nssai-sd** *sd hex string*] [**pdn-type** *pdn-type*]

Context

[Tree] tools perform mobile-gateway profile authentication-database lookup

Description

This command performs a lookup action within the authentication-database with the specified parameters and displays the resulting entry name.

Parameters

circuit-id-string *string-id*

Specifies the circuit ID string filter, up to 64 characters.

remote-id-string *string-id*

Specifies the remote ID string filter, up to 64 characters.

circuit-id-hex *hex-id*

Specifies the circuit ID binary value filter.

Values: 0x0 to 0xFFFFFFFF...(max 128 hex nibbles)

remote-id-hex *hex-id*

Specifies the remote ID binary value filter.

Values: 0x0 to 0xFFFFFFFF...(max 128 hex nibbles)

l2-access-id *string-id*

Specifies the Layer 2 access ID filter, up to 64 characters.

up-ip *ip-address*

Specifies the UP IP address filter.

Values:

- IPv4 address – a.b.c.d

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- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

username

Specifies the PPP username filter, up to 253 characters.

c-vlan *vlan-id*

Specifies the customer VLAN (inner VLAN) filter.

Values: 1 to 4096

s-vlan *vlan-id*

Specifies the service VLAN (outer VLAN) filter.

Values: 1 to 4096

vendor-class-string *string-id*

Specifies the DHCP vendor class option ASCII string, up to 64 characters.

vendor-class-hex *hex-id*

Specifies the DHCP vendor class option hexadecimal string.

Values: 0x0 to 0xFFFFFFFF...(max 128 hex nibbles)

apn-name

Specifies the APN filter, up to 80 characters.

mcc value

Specifies the filter on the IMSI-based MCC value.

Values: 000 to 999 (three-digit number)

mnc value

Specifies the filter on the IMSI-based MNC value.

Values: 00 to 999 (two- or three-digit number)

tac value

Specifies the filter on the IMEI-based TAC value.

Values: eight-digit number

name

Specifies the UP group filter, up to 32 characters.

up-group-derive

Keyword to derive the UP group filter automatically based on the up-node-id, l2-access-id, and optionally s-vlan or c-vlan parameters. The parameter values are used to do a lookup in all configured UP groups, and the result is automatically used as if up-group was passed directly.

fqdn

Specifies the UP node ID filter, up to 255 characters.

ieee-address

Specifies the MAC address filter.

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Values: xx:xx:xx:xx:xx:xx or xx-xx-xx-xx-xx-xx

cid-string

Specifies the client ID filter, up to 255 characters.

binary-cid

Specifies the binary client ID filter.

Values: 0x0 to 0xFFFFFFFF... (maximum of 510 hex nibbles)

source-ip *ip-address*

Specifies the source IP address filter.

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

sst value

Specifies the S-NSSAI SST filter.

Values: 0 to 255

sd hex string

Specifies the S-NSSAI SD filter.

Values: 000000 to FFFFFF

pdn-type

Specifies the PDN type filter.

Values: ipv4 | ipv6 | ipv4v6

5.2.1.18 bng

Syntax

bng

Context

[Tree] tools perform mobile-gateway profile bng

Description

Commands in this context execute the tool commands for BNG CUPS.

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5.2.1.19 entry-point

Syntax

entry-point *entry-point-name*

Context

[Tree] tools perform mobile-gateway profile bng entry-point

Description

Commands in this context execute the tool commands for BNG CUPS entry points.

Parameters

entry-point-name

Specifies the name of the BNG entry point, up to 32 characters.

5.2.1.20 lookup

Syntax

lookup [**l2-access-id** *string-64*] [**up-ip** *ip-address*] [**c-vlan** *vlan-id*] [**s-vlan** *vlan-id*] [**up-group** *name*] [**up-group-derive**] [**up-node-id** *fqdn*]

Context

[Tree] tools perform mobile-gateway profile bng entry-point lookup

Description

This command performs a lookup action within the entry point with the specified parameters. It displays the matching entry name.

Parameters

string-64

Specifies the Layer 2 access ID filter, up to 64 characters.

ip-address

Specifies the UP IP address filter.

Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d
  where

  x – [0..FFFF]H

  d – [0..255]D

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c-vlan *vlan-id*

Specifies the customer VLAN (inner VLAN) filter.

Values: 1 to 4096

s-vlan *vlan-id*

Specifies the service VLAN (outer VLAN) filter.

Values: 1 to 4096

name

Specifies the UP group filter, up to 32 characters.

up-group-derive

Keyword to derive the UP group filter automatically based on the up-node-id, l2-access-id, and optionally s-vlan or c-vlan parameters. The parameter values are used to do a lookup in all configured UP groups, and the result is automatically used as if up-group was passed directly.

fqdn

Specifies the fully qualified domain name (FQDN) for the UP, up to 255 characters.

5.2.1.21 radius

Syntax

radius

Context

[Tree] tools perform mobile-gateway profile bng radius

Description

Commands in this context execute the tool commands for BNG CUPS RADIUS profiles.

5.2.1.22 coa

Syntax

coa

no coa

Context

[Tree] tools perform mobile-gateway profile bng radius coa

Description

This command creates a RADIUS CoA test action.

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The action can send a CoA request to a specified destination using the following context.

```
tools perform mobile-gateway profile bng radius coa deliver-request
```

The CoA request can be customized using the following the context.

```
tools perform mobile-gateway profile bng radius coa
```

For example, using the **attribute** command to include specific RADIUS attributes in the request.

The **no** form of this command removes the CoA test action.

5.2.1.23 attribute

Syntax

no attribute *attribute-name*

attribute *attribute-name* **hex** *hex-string* [**tag** *tag-number*]

attribute *attribute-name ip-address ip-address* | *ipv6-address* [**tag** *tag-number*]

attribute *attribute-name* **ip-prefix** *ip-prefix*/*ip-prefix-length* [**tag** *tag-number*]

attribute *attribute-name* **mac-address** *ieee-address* [**tag** *tag-number*]

attribute *attribute-name* **number** *num* [**tag** *tag-number*]

attribute *attribute-name* **string** *ascii-string* [**tag** *tag-number*]

Context

[Tree] tools perform mobile-gateway profile bng radius coa attribute

Description

This command adds an attribute to the CoA test message.

The **no** form of this command removes the specified attribute from the CoA test message.

Parameters

attribute-name

Specifies the name of a RADIUS attribute, must be a supported CoA attribute, up to 64 characters.

hex-string

Specifies a hexadecimal string.

Values: 0x0 to 0xFFFFFFFF...(max 506 hex nibbles)

tag-number

Specifies the RADIUS attribute tag.

Values: 1 to 31

ip-address **|** *ipv6-address*

Specifies the IP address.

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Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

ip-prefixIip-prefix-length

Specifies the IP prefix.

- ipv4-prefix – a.b.c.d (host bits must be 0)
- ipv4-prefix-length – 0 to 32
- ipv6-prefix – x:x:x:x:x:x:x:x (eight 16-bit pieces) x:x:x:x:x:d.d.d.d

  where

  x - [0..FFFF]H

  d - [0..255]D
- ipv6-prefix-length – 0 to 128

ieee-address

Specifies the MAC address.

Values: xx:xx:xx:xx:xx:xx or xx-xx-xx-xx-xx-xx

num

Specifies a number.

Values: 0 to 4294967295

ascii-string

Specifies an ASCII string, up to 253 characters.

5.2.1.24 debug

Syntax

debug

no debug

Context

[Tree] tools perform mobile-gateway profile bng radius coa debug

Description

This command enables debugging for the CoA test.

The **no** form of this command disables the debugging.

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5.2.1.25 deliver-request

Syntax

deliver-request

Context

[Tree] tools perform mobile-gateway profile bng radius coa deliver-request

Description

This command sends the CoA request.

5.2.1.26 destination-ip

Syntax

destination-ip *ip-address* | *ipv6-address*

no destination-ip

Context

[Tree] tools perform mobile-gateway profile bng radius coa destination-ip

Description

This command sets the destination IP address for the CoA request.

The **no** form of this command removes the destination IP address.

Parameters

ip-address **|** *ipv6-address*

Specifies the IP address.

Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

5.2.1.27 info

Syntax

info

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Context

[Tree] tools perform mobile-gateway profile bng radius coa info

Description

This command displays the configuration of the CoA test message; for example, the router, the destination IP address, the attributes.

5.2.1.28 router

Syntax

no router

router *router-instance*

Context

[Tree] tools perform mobile-gateway profile bng radius coa router

Description

This command specifies the router instance to which the request is sent.

The **no** form of this command sets the router instance to Base.

Parameters

router-instance

Specifies the router instance.

Values: *router-name* | *vprn-svc-id*

- *router-name* - Base | management
- *vprn-svc-id* - 1 to 2147483647

5.2.1.29 source-ip

Syntax

no source-ip

source-ip *ip-address* | *ipv6-address*

Context

[Tree] tools perform mobile-gateway profile bng radius coa source-ip

Description

This command sets the source IP address for the CoA request.

The **no** form of this command sets the source IP address to [::]

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Parameters

ip-address | *ipv6-address*

Specifies the IP address.

Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

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6 python command reference

6.1 python hierarchy descriptions

This section provides the following python hierarchy descriptions:

- configure python command hierarchy

6.1.1 configure python command hierarchy

```
configure
  – python
      – python-policy
          – http2
```

6.2 python command descriptions

This section provides the following python command descriptions:

- configure python command descriptions

6.2.1 configure python command descriptions

6.2.1.1 http2

Syntax

http2 *type* **direction** *direction* **script** *script-name*

no http2 *type* **direction** *direction*

Context

[Tree] configure python python-policy http2

Description

This command configures a Python script for HTTP2 messages on Service Based Interfaces (SBI), such as N7, N10, N11, and N40.

The **no** form of this command removes the script for the specified direction.

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Parameters

type

Specifies the message type to which the Python script is applied.

Values:

- http2-request – HTTP/2 request message, including GET, POST, and PUT messages
- http2-response – HTTP/2 response message

direction

Specifies the direction of the message.

Values:

- ingress – the script is only applied to messages received by the MAG-c.
- egress – the script is only applied to messages sent by the MAG-c.

script-name

Specifies the Python script name as defined using the **configure python python-script** command, up to 32 characters.

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7 redundancy command reference

7.1 redundancy hierarchy descriptions

This section provides the following redundancy hierarchy descriptions:

- admin redundancy command hierarchy
- clear redundancy command hierarchy
- configure redundancy command hierarchy
- show redundancy command hierarchy

7.1.1 admin redundancy command hierarchy

```
admin
  – redundancy
      – cpm-switchover
      – mc-master-lock
      – mc-mobile-switchover
      – mc-slave-lock
      – mg-switchover
          – group
```

7.1.2 clear redundancy command hierarchy

```
clear
  – redundancy
      – multi-chassis
          – mc-mobile
```

7.1.3 configure redundancy command hierarchy

```
configure
  – redundancy
      – multi-chassis
          – peer
              – mc-mobile
                  – bfd-enable
                  – hold-on-neighbor-failure
                  – keep-alive-interval
                  – master-traffic-detection
                  – mc-complete-ue-sync
                  – mc-redirect
```


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```
                        – mobile-gateway
                            – shutdown
                        – peer-connect
                        – slave-traffic-delay-timer
                        – traffic-detection
                        – traffic-detection-poll-timer
```

7.1.4 show redundancy command hierarchy

```
show
  – redundancy
      – multi-chassis
          – mc-mobile
```

7.2 redundancy command descriptions

This section provides the following redundancy command descriptions:

- admin redundancy command descriptions
- clear redundancy command descriptions
- configure redundancy command descriptions
- show redundancy command descriptions

7.2.1 admin redundancy command descriptions

7.2.1.1 cpm-switchover

Syntax

cpm-switchover [**now**]

Context

[Tree] admin redundancy cpm-switchover

Description

This command triggers a controlled CPM switchover.

Parameters

now

Keyword to perform the CPM switchover without requesting confirmation.

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7.2.1.2 mc-master-lock

Syntax

[**no**] **mc-master-lock**

Context

[Tree] admin redundancy mc-master-lock

Description

This command locks the gateway in the active operational role when ICR or geo-redundancy is deployed. The gateway remains in the active operational role regardless of any ICR active/standby election criteria that may occur.

The **no** form of this command unlocks and restores the use of normal ICR active/standby election criteria.

Note: When enabled, the manual switchover command (**admin redundancy mc-mobile-switchover**) is also locked. An error is returned if a manual switchover is attempted while the **mc-master-lock** command is enabled.

WARNING: In an active/active case, the command must only be executed on one node. If executed on both nodes, the multi-chassis synchronization (MCS) fails and an alarm is issued.

Default

no mc-master-lock

7.2.1.3 mc-mobile-switchover

Syntax

mc-mobile-switchover mobile-gateway *gw-id* **peer** *ip-address* [{**reboot** | **now**}] [**abort**]

Context

[Tree] admin redundancy mc-mobile-switchover

Description

This command issues a manual switchover to transition the active gateway to a standby role and its peer gateway to the active role. The manual switchover is not hitless, but synchronizes the complete charging information and state for each bearer, enabling the standby system to transition with minimal disruption and data loss.

Parameters

gw-id

Specifies the gateway ID.

Values: 1 to 8

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ip-address

Specifies the peer IP address for the manual switchover.

Values: ip-address | ipv6-address

reboot

Keyword to reboot the node after mc-mobile switchover.

now

Keyword to force the switchover without full reconciliation. If the ICR is in the up state, the manual switchover can be performed even when the synchronization state is not hot.

WARNING: If the **now** keyword is specified, the switchover is executed, but the new active node may have incomplete UE records. In some cases this can be service impacting.

abort

Keyword to abort an in-progress mc-mobile switchover. This keyword can only be specified for an ongoing switchover that is in progress for at least five minutes. The user must respond to a confirmation request to proceed. If "yes" is specified, the system issues a disconnect to the standby system, makes it active, switches the active to the standby state, and activates the MC redirect tunnel.

7.2.1.4 mc-slave-lock

Syntax

[**no**] **mc-slave-lock**

Context

[Tree] admin redundancy mc-slave-lock

Description

This command locks the gateway in the standby operational role when ICR or geo-redundancy is deployed. The gateway remains in the standby operational role regardless of any ICR active/standby election criteria that may occur.

The **no** form of this command unlocks and restores the use of normal ICR active/standby election criteria.

Note: When enabled, the manual switchover command (**admin redundancy mc-mobile-switchover**) is also locked. An error is returned if a manual switchover is attempted while the **mc-slave-lock** command is enabled.

Default

no mc-slave-lock

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7.2.1.5 mg-switchover

Syntax

mg-switchover

Context

[Tree] admin redundancy mg-switchover

Description

Commands in this context perform a controlled SM-VM switchover.

7.2.1.6 group

Syntax

group *mg-group-id* [**now**] [**max-preparation-time** *max-preparation-time*]

Context

[Tree] admin redundancy mg-switchover group

Description

This command triggers an SM-VM controlled switchover.

Parameters

mg-group-id

Specifies the MG group ID for which to perform the controlled switchover.

Values: 1 to 15

now

Keyword to perform the controlled switchover without requesting confirmation.

max-preparation-time

Specifies the waiting time, in seconds, that the SM-VM uses to process all charging data before the standby SM-VM becomes active. When set to 0, the switchover proceeds without a maximum preparation time, until all charging data has been processed.

Note: Incoming control messages are not served during the preparation phase defined by the *max-preparation-time* parameter.

Values: 0 (disabled) to 60

Default: 5

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7.2.2 clear redundancy command descriptions

7.2.2.1 mc-mobile

Syntax

mc-mobile [**peer** *ipv4-address* | *ipv6-address*] **statistics**

Context

[Tree] clear redundancy multi-chassis mc-mobile

Description

This command clears mc-mobile related statistics.

Parameters

ipv4-address | *ipv6-address*

Specifies the IP address.

Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

7.2.3 configure redundancy command descriptions

7.2.3.1 mc-mobile

Syntax

[**no**] **mc-mobile**

Context

[Tree] configure redundancy multi-chassis peer mc-mobile

Description

Commands in this context configure mc-mobile parameters.

The **no** form of this command removes the mc-mobile configuration.

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Default

no mc-mobile

7.2.3.2 bfd-enable

Syntax

bfd-enable [**service** *service-id*] **interface** *interface-name*

no bfd-enable

Context

[Tree] configure redundancy multi-chassis peer mc-mobile bfd-enable

Description

This command enables the use of bidirectional forwarding detection (BFD) to be associated with the peer. The mc-mobile redundancy protocol uses the BFD state to determine the health of its peer. The parameters for the BFD session are set via the BFD command under the IP interface configuration.

The **no** form of this command disables the use of BFD.

Default

no bfd-enable

Parameters

service-id

Specifies the service identifier string.

Values: 1 to 2148278386 or a service name, up to 64 characters

interface-name

Specifies the interface name, up to 32 characters.

Default: none

7.2.3.3 hold-on-neighbor-failure

Syntax

hold-on-neighbor-failure *multiplier*

no hold-on-neighbor-failure

Context

[Tree] configure redundancy multi-chassis peer mc-mobile hold-on-neighbor-failure

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Description

This command configures the number of keep-alive intervals that may expire before the local node decides that the peer has failed. A peer failure is declared if no keep-alive responses are received after **hold-on-neighbor-failure** × **keep-alive-interval**.

The **no** form of this command reverts to the default.

Default

hold-on-neighbor-failure 3

Parameters

multiplier

Specifies the multiplier.

Values: 2 to 25

7.2.3.4 keep-alive-interval

Syntax

keep-alive-interval *interval*

no keep-alive-interval

Context

[Tree] configure redundancy multi-chassis peer mc-mobile keep-alive-interval

Description

This command sets the interval to send keep-alive messages to the peer when the BFD is not enabled or is down.

The **no** form of this command reverts to the default.

Default

keep-alive-interval 10

Parameters

interval

Specifies the interval, in tenths of a second.

Values: 5 to 500

7.2.3.5 master-traffic-detection

Syntax

master-traffic-detection {**enable** | **disable**}

no master-traffic-detection

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Context

[Tree] configure redundancy multi-chassis peer mc-mobile master-traffic-detection

Description

This command enables or disables the mc-mobile active node to perform traffic detection before the switchover to standby.

The **no** form of this command reverts to the default.

Default

master-traffic-detection enable

7.2.3.6 mc-complete-ue-sync

Syntax

[**no**] **mc-complete-ue-sync**

Context

[Tree] configure redundancy multi-chassis peer mc-mobile mc-complete-ue-sync

Description

This command enables data synchronization between the active and standby nodes in MC redundancy at the call flow level (synchronization in hot state) and the UE level (synchronization in reconcile state).

When enabled, the MC mobile synchronization goes immediately into the ICR hot state and the progress of the synchronization from the active to the standby node is completed for all UE records. This allows a switchover to take place at any time if an issue arises. If a failover occurs, the number of UEs synced so far all survive.

The **no** form of this command disables the data synchronization.

Default

no mc-complete-ue-sync

7.2.3.7 mc-redirect

Syntax

[**no**] **mc-redirect**

Context

[Tree] configure redundancy multi-chassis peer mc-mobile mc-redirect

Description

This command enables the use of the MC redirect.

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The **no** form of this command disables the use of MC redirect.

Default

no mc-redirect

7.2.3.8 mobile-gateway

Syntax

mobile-gateway *gw-id* **role** *role*

no mobile-gateway *gw-id*

Context

[Tree] configure redundancy multi-chassis peer mc-mobile mobile-gateway

Description

This command configures the administrative role of the node. If set to primary, the peer must be configured as secondary. If set to secondary, the peer must be configured as primary.

The **no** form of this command removes the configuration.

Parameters

gw-id

Specifies the gateway ID.

Values: 1 to 8

role

Specifies the administrative role of the node.
Values: primary | secondary

7.2.3.9 shutdown

Syntax

shutdown

no shutdown

Context

[Tree] configure redundancy multi-chassis peer mc-mobile mobile-gateway shutdown

Description

This command administratively disables the entity. When disabled, an entity does not change, reset, or remove any configuration settings or statistics. Many entities must be explicitly enabled using the **no shutdown** command.

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The operational state of the entity is disabled as well as the operational state of any entities contained within. Many objects must be shut down before they may be deleted.

Default

shutdown

7.2.3.10 peer-connect

Syntax

peer-connect {**enable** | **disable**}

no peer-connect

Context

[Tree] configure redundancy multi-chassis peer mc-mobile peer-connect

Description

This command is configured when the ICR routing and the MC mobile are left configured on the primary node, and the secondary node is removed. For example, when the ICR is used only for ISSU and, after the ISSU process, the secondary node is removed.

Note: Enable this command during the normal ICR operation; that is, when both the primary and the secondary ICR nodes are deployed.

The **no** form of this command reverts to the default.

Default

peer-connect enable

7.2.3.11 slave-traffic-delay-timer

Syntax

slave-traffic-delay-timer *delay-timer*

no slave-traffic-delay-timer

Context

[Tree] configure redundancy multi-chassis peer mc-mobile slave-traffic-delay-timer

Description

This command configures a timer that is enabled when the multi-chassis synchronization (MCS) is detected as lost. The timer delays the start of traffic detection to prevent switchovers when the MCS link is

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restored before the timer expires. If MC redirection is enabled using the following command, the standby node continues to try and route any traffic over the MC redirect tunnel.

```
configure redundancy multi-chassis peer mc-mobile mc-redirect
```

The **no** form of this command disables the timer (the timer is set to 0 seconds).

Caution: Before executing the command, make sure that a switchover is not in progress.

Default

delay-timer 0

Parameters

delay-timer

Specifies the delay timer, in seconds.

Values: 0 to 60 where 0 means disabled

Default: 0

7.2.3.12 traffic-detection

Syntax

traffic-detection {**strict** | **relaxed**}

no traffic-detection

Context

[Tree] configure redundancy multi-chassis peer mc-mobile traffic-detection

Description

This command configures the traffic detection before an mc-mobile state change.

The **no** form of this command reverts to the default.

Default

traffic-detection relaxed

Parameters

strict

Keyword to transition from standby to active only after the standby system receives a PFCP packet and a GTP-C packet on S11 for 4G FWA, or an HTTP/2 packet on N11 for 5G SA FWA.

relaxed

Keyword to transition from standby to active only after the standby system has received a PFCP or IBCP packet.

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7.2.3.13 traffic-detection-poll-timer

Syntax

traffic-detection-poll-timer *seconds*

no traffic-detection-poll-timer

Context

[Tree] configure redundancy multi-chassis peer mc-mobile traffic-detection-poll-timer

Description

This command configures the traffic detection poll timer.

The **no** form of this command reverts to the default value.

Note: Nokia recommends configuring the same value for the traffic detection poll timer in the primary and secondary gateways.

Default

traffic-detection-poll-timer 5

Parameters

seconds

Specifies the traffic detection poll timer, in seconds.

Values: 5 to 1200

Default: 5

7.2.4 show redundancy command descriptions

7.2.4.1 mc-mobile

Syntax

mc-mobile peer *ip-address*

mc-mobile [**peer** *ip-address*] **mc-red-tcp-stats**

mc-mobile [**peer** *ip-address*] **statistics**

Context

[Tree] show redundancy multi-chassis mc-mobile

Description

This command displays the synchronization state of the node with the specified IP address.

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Parameters

ip-address

Specifies the IP address.

Values:

- IPv4 address – a.b.c.d
- IPv6 address – x:x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:x:d.d.d.d where

  x – [0..FFFF]H

  d – [0..255]D

mc-red-tcp-stats

Keyword to display TCP connection statistics for the multi-chassis redundancy.

statistics

Keyword to display statistics.

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8 router command reference

8.1 router hierarchy descriptions

This section provides the following router hierarchy descriptions:

- configure router command hierarchy

8.1.1 configure router command hierarchy

```
configure
  – router
      – interface
          – ip-reassembly
          – mc-redirect-mode
          – monitor-mc-redirect
          – steering
          – track-mobile
```

8.2 router command descriptions

This section provides the following router command descriptions:

- configure router command descriptions

8.2.1 configure router command descriptions

8.2.1.1 ip-reassembly

Syntax

ip-reassembly *port-name*

no ip-reassembly

Context

[Tree] configure router interface ip-reassembly

Description

This command configures the virtual ISA used for IP reassembly on this interface.

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The **no** form of this command removes the configuration.

Parameters

port-name

Specifies the port name.

Values: *port-id* [:*context-val*] where

- *port-id*

  Specifies the configured port ID.

  Values: *slot*/*mda*/*port* or lag-*id* where

  id – 1 to 200
- *context-val* – 1 to 31

8.2.1.2 mc-redirect-mode

Syntax

mc-redirect-mode{**epdg** | **home-agent**}

no mc-redirect-mode

Context

[Tree] configure router interface mc-redirect-mode

Description

This command configures the multi-chassis redirect mode.

Parameters

epdg

Keyword to configure ePDG multi-chassis redirect mode.

home-agent

Keyword to specify home agent multi-chassis redirect mode.

8.2.1.3 monitor-mc-redirect

Syntax

monitor-mc-redirect high-threshold *high-threshold* **low-threshold** *low-threshold*

no monitor-mc-redirect

Context

[Tree] configure router interface monitor-mc-redirect

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Description

This command configures to monitor traffic on the interface for the mc-redirect tunnel.

The **no** form of this command reverts to the default.

Default

monitor-mc-redirect high-threshold 1000 low-threshold 500

Parameters

high-threshold

Specifies the high threshold value in number of packets.

Values: 0 to 4294967295

low-threshold

Specifies the low threshold value in number of packets.

Values: 0 to 4294967295

8.2.1.4 steering

Syntax

steering {**ul-from-gw** | **dl-from-sfc**}

Context

[Tree] configure router interface steering

Description

This command enables the steering function based on the direction of the user traffic flow and the connectivity to peering nodes.

Parameters

ul-from-gw

Keyword to configure the interface between a standalone SSG and PGW/GGSN. The **ul-from-gw** keyword enables the source IP-based packet processing for uplink user traffic received from the PGW/GGSN. User traffic received from the PGW/GGSN is processed on the anchor ISM-MG card. Source IP-based packet processing allows locating the anchor ISM-MG card on IOM.

dl-from-sfc

Keyword to configure the interface between a standalone SSG node (or PGW/GGSN combined with SSG) and the service function chain (SFC). The dl-from-sfc keyword enables packet processing for downlink user traffic received from SFC. User traffic received from the SFC is processed on the anchor ISM-MG card. To avoid sending user traffic from the ISM-MG back to the SFC, a flag is required to indicate that the SFC is done and user traffic must be forwarded based on the destination IP address.

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8.2.1.5 track-mobile

Syntax

[**no**] **track-mobile**

Context

[Tree] configure router interface track-mobile

Description

This command attaches the mc-mobile active/standby state to the interface route, so that it can be used to attract traffic to the active MAG-c.

The **no** form of this command detaches the mc-mobile state from the interface route.

Default

no track-mobile

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9 service command reference

9.1 service hierarchy descriptions

This section provides the following service hierarchy descriptions:

- configure service command hierarchy

9.1.1 configure service command hierarchy

```
configure
  – service
      – ies
          – interface
              – ipv6
                  – track-mobile
              – track-mobile
              – ip-reassembly
              – monitor-mc-redirect
              – steering
              – track-mobile
```

9.2 service command descriptions

This section provides the following service command descriptions:

- configure service command descriptions

9.2.1 configure service command descriptions

9.2.1.1 track-mobile

Syntax

[**no**] **track-mobile**

Context

[Tree] configure service ies interface ipv6 track-mobile

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Description

This command attaches the mc-mobile active/standby state to the interface route, so that it can be used to attract traffic to the active MAG-c.

The **no** form of this command detaches the mc-mobile state from the interface route.

Default

no track-mobile

9.2.1.2 track-mobile

Syntax

[**no**] **track-mobile**

Context

[Tree] configure service ies interface track-mobile

Description

This command attaches the mc-mobile active/standby state to the interface route, so that it can be used to attract traffic to the active MAG-c.

The **no** form of this command detaches the mc-mobile state from the interface route.

Default

no track-mobile

9.2.1.3 ip-reassembly

Syntax

ip-reassembly *port-name*

no ip-reassembly

Context

[Tree] configure service vprn interface ip-reassembly

Description

This command configures the virtual ISA used for IP reassembly on this interface.

The **no** form of this command removes the configuration.

Default

no ip-reassembly

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Parameters

port-name

Specifies the port name.

Values: *port-id* [:*context-val*] where

- *port-id*

  Specifies the configured port ID.

  Values: *slot*/*mda*/*port* or lag-*id* where

  id – 1 to 200

- *context-val* – 1 to 31

9.2.1.4 monitor-mc-redirect

Syntax

monitor-mc-redirect high-threshold *high-threshold* **low-threshold** *low-threshold*

no monitor-mc-redirect

Context

[Tree] configure service vprn interface monitor-mc-redirect

Description

This command configures to monitor traffic on the interface for the mc-redirect tunnel.

The **no** form of this command reverts to the default.

Default

monitor-mc-redirect high-threshold 1000 low-threshold 500

Parameters

high-threshold

Specifies the high threshold value in number of packets.

Values: 0 to 4294967295

low-threshold

Specifies the low threshold value in number of packets.

Values: 0 to 4294967295

9.2.1.5 steering

Syntax

steering{**ul-from-gw** | **dl-from-sfc**}

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Context

[Tree] configure service vprn interface steering

Description

This command enables the steering function based on the direction of the user traffic flow and connectivity to peering nodes.

Parameters

ul-from-gw

Keyword to configure the interface between a standalone SSG and PGW/GGSN. The **ul-from-gw** keyword enables the source IP-based packet processing for uplink user traffic received from the PGW/GGSN. User traffic received from the PGW/GGSN is processed on the anchor ISM-MG card. Source IP-based packet processing allows locating the anchor ISM-MG card on IOM.

dl-from-sfc

Keyword to configure the interface between a standalone SSG node (or PGW/GGSN combined with SSG) and the service function chain (SFC). The **dl-from-sfc** keyword enables packet processing for downlink user traffic received from SFC. User traffic received from the SFC is processed on the anchor ISM-MG card. To avoid sending user traffic from the ISM-MG back to the SFC, a flag is required to indicate that the SFC is done and user traffic must be forwarded based on the destination IP address.

9.2.1.6 track-mobile

Syntax

[**no**] **track-mobile**

Context

[Tree] configure service vprn interface track-mobile

Description

This command attaches the mc-mobile active/standby state to the interface route, so that it can be used to attract traffic to the active MAG-c.

The **no** form of this command detaches the mc-mobile state from the interface route.

Default

no track-mobile

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10 system command reference

10.1 system hierarchy descriptions

This section provides the following system hierarchy descriptions:

- configure system command hierarchy
- show system command hierarchy
- tools system command hierarchy

10.1.1 configure system command hierarchy

```
configure
  – system
      – license
          – advanced-expiration-alarm
```

10.1.2 show system command hierarchy

```
show
  – system
      – virtual-fabric
```

10.1.3 tools system command hierarchy

```
tools
  – dump
      – system
          – virtual-fabric
```

10.2 system command descriptions

This section provides the following system command descriptions:

- configure system command descriptions
- show system command descriptions
- tools system command descriptions

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10.2.1 configure system command descriptions

10.2.1.1 license

Syntax

license

Context

[Tree] configure system license

Description

The command in this context configures the license expiration alarm.

10.2.1.2 advanced-expiration-alarm

Syntax

advanced-expiration-alarm

Context

[Tree] configure system license advanced-expiration-alarm

Description

This command triggers the advanced license expiration alarm 30 days before the license expires. The alarm is raised daily and on the last day it is raised every five minutes.

The **no** form of this command reverts to the default (the license expiration alarm is raised daily seven days before the license expires).

Default

no advanced-expiration-alarm

10.2.2 show system command descriptions

10.2.2.1 virtual-fabric

Syntax

virtual-fabric [**control** | **data**] **detail** [**vm** *vm-id*]

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Context

[Tree] show system virtual-fabric

Description

This command displays virtual fabric information.

Parameters

control

Keyword to display CSF information.

data

Keyword to display DSF information.

detail

Keyword to display more information for the specified VM.

Note: The **detail** keyword can be used with or without the **vm** parameter and is valid only for the new fabric.

vm-id

Specifies the ID of the VM for which information is to be displayed.

Values: 1 to 20 | A | B

Note: The **vm** parameter can be used in conjunction with the **detail** keyword.

Output

The following output examples show virtual fabric information.

- Virtual fabric information
- Virtual fabric detail information
- Virtual fabric detail VM information

Output example: Virtual fabric information

Check for connection error.

```
A:MAG-c# show system virtual-fabric

Data Fabric-1
                        VM-ID TX
       0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 2
       1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 A B
       - - - - - - - - - - - - - - - - - - - - - -
   01| - * . . . . . . . . . . . . . . . . . * * . .
   02| * - * * * * * * * * * * * * * * * * * * * * *
   03| . * - . . . . . . . . . . . . . . . . * * . .
   04| . * . - . . . . . . . . . . . . . . . * * . .
   05| . * . . - . . . . . . . . . . . . . . * * . .
V  06| . * . . . - . . . . . . . . . . . . . * * . .
M  07| . * . . . . - . . . . . . . . . . . . * * . .
-  08| . * . . . . . - . . . . . . . . . . . * * . .
I  09| . * . . . . . . - . . . . . . . . . . * * . .
D  10| . * . . . . . . . - . . . . . . . . . * * . .
```


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```
   11| . * . . . . . . . . . - . . . . . . . * * . .
R  12| . * . . . . . . . . . . - . . . . . . * * . .
X  13| . * . . . . . . . . . . . - . . . . . * * . .
   14| . * . . . . . . . . . . . . - . . . . * * . .
   15| . * . . . . . . . . . . . . . - . . . * * . .
   16| . * . . . . . . . . . . . . . . - . . * * . .
   17| . * . . . . . . . . . . . . . . . - . * * . .
   18| . * . . . . . . . . . . . . . . . . - * * . .
   19| * * * * * * * * * * * * * * * * * * * _ * * *
   20| * * * * * * * * * * * * * * * * * * * * _ * *
    A| . * . . . . . . . . . . . . . . . . . * * - .
    B| . * . . . . . . . . . . . . . . . . . * * . -

Data Fabric-2
                        VM-ID
       0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 2
       1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0
       - - - - - - - - - - - - - - - - - - - -
   01| - * * * * * * * * * * * * * * * * * * *
   02| * - * * * * * * * * * * * * * * * * * *
   03| * * - * * * * * * * * * * * * * * * * *
   04| * * * - * * * * * * * * * * * * * * * *
   05| * * * * - * * * * * * * * * * * * * * *
   06| * * * * * - * * * * * * * * * * * * * *
 V 07| * * * * * * - * * * * * * * * * * * * *
 M 08| * * * * * * * - * * * * * * * * * * * *
 - 09| * * * * * * * * - * * * * * * * * * * *
 I 10| * * * * * * * * * - * * * * * * * * * *
 D 11| * * * * * * * * * * - * * * * * * * * *
   12| * * * * * * * * * * * - * * * * * * * *
   13| * * * * * * * * * * * * - * * * * * * *
   14| * * * * * * * * * * * * * - * * * * * *
   15| * * * * * * * * * * * * * * - * * * * *
   16| * * * * * * * * * * * * * * * - * * * *
   17| * * * * * * * * * * * * * * * * - * * *
   18| * * * * * * * * * * * * * * * * * - * *
   19| * * * * * * * * * * * * * * * * * * - *
   20| * * * * * * * * * * * * * * * * * * * -

Control Fabric
                          VM-ID
       0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 2
       1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 A B
       - - - - - - - - - - - - - - - - - - - - - -
   01| - . . . * * * * * * * * * * * * * * * . .
   02| . - . . * * * * * * * * * * * * * * * . .
   03| . . - . * * * * * * * * * * * * * * * . .
   04| . . . - * * * * * * * * * * * * * * * . .
   05| * * * * - * * * * * * * * * * * * * * * *
   06| * * * * * - * * * * * * * * * * * * * * *
   07| * * * * * * - * * * * * * * * * * * * * *
 V 08| * * * * * * * - * * * * * * * * * * * * *
 M 09| * * * * * * * * - * * * * * * * * * * * *
 - 10| * * * * * * * * * - * * * * * * * * * * *
 I 11| * * * * * * * * * * - * * * * * * * * * *
 D 12| * * * * * * * * * * * - * * * * * * * * *
   13| * * * * * * * * * * * * - * * * * * * * *
   14| * * * * * * * * * * * * * - * * * * * * *
   15| * * * * * * * * * * * * * * - * * * * * *
   16| * * * * * * * * * * * * * * * - * * * * *
   17| * * * * * * * * * * * * * * * * - * * * *
   18| * * * * * * * * * * * * * * * * * - * * *
   19| * * * * * * * * * * * * * * * * * * - * *
   20| * * * * * * * * * * * * * * * * * * * - * *
```


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```
    A| . . . . * * * * * * * * * * * * * * * * - .
    B| . . . . * * * * * * * * * * * * * * * * . -

  '.' ->  Connection ok
  'x' ->  Connection error
  '*' ->  Not installed
  '-' ->  Same vm-id
  '1'-'9' ->  Lost keepalive messages over the last minute

Active Control Fabric
                          VM-ID
      0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 2
      1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 A B
      - - - - - - - - - - - - - - - - - - - - - -
      1 1 1 1 * * * * * * * * * * * * * * * * 1 1
```

Note:

- Each row of the matrix represents the VM-specific view of the other VMs.
- A connection error (x) means that this VM had established connection with the other VM, but now the connection is lost.

Output example: Virtual fabric detail information

```
A:MAG-c# show system virtual-fabric detail

VM-1 Data Fabric-1:
  MAC Addr: fa:ac:a7:00:dc:03
  L2 Encap: 802.1Q
  VLAN ID : 11 (0x00b)
  IP Addr : 192.168.103.1/24
  Def GW  : 192.168.103.254 @ fa:ac:b4:00:17:01
  UDP Port: 1000 (0x03e8)
  DSCP    : 48 (0x30)
VM-2 Data Fabric-1:
  MAC Addr: fa:ac:b3:00:d1:03
  L2 Encap: 802.1Q
  VLAN ID : 14 (0x00e)
  IP Addr : 192.168.104.1/24
  Def GW  : 192.168.104.254 @ fa:ac:b4:00:24:01
  UDP Port: 1000 (0x03e8)
  DSCP    : 48 (0x30)
VM-3 Data Fabric-1:
  MAC Addr: fa:ac:a9:00:25:02
  L2 Encap: 802.1Q
  VLAN ID : 12 (0x00c)
  IP Addr : 192.168.203.1/24
  Def GW  : 192.168.203.254 @ fa:ac:b4:00:24:01
  UDP Port: 1000 (0x03e8)
  DSCP    : 48 (0x30)
VM-4 Data Fabric-1:
  MAC Addr: fa:ac:b3:00:a0:02
  L2 Encap: 802.1Q
  VLAN ID : 13 (0x00d)
  IP Addr : 192.168.204.1/24
  Def GW  : 192.168.204.254 @ fa:ac:b4:00:17:01
  UDP Port: 1000 (0x03e8)
  DSCP    : 48 (0x30)
VM-1 Control Fabric:
  MAC Addr: fa:ac:a7:00:dc:01
  L2 Encap: Ethernet2
  IP Addr : 192.168.1.1/24
```


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```
  Def GW  : 192.168.1.254 @ fa:ac:b4:00:24:01
  OAM-A   : 192.168.0.21 @ fa:ac:b4:00:24:01
  OAM-B   : 192.168.0.22 @ fa:ac:b4:00:24:01
  UDP Port: 1000 (0x03e8)
  DSCP    : 48 (0x30)
VM-2 Control Fabric:
  MAC Addr: fa:ac:b3:00:d1:01
  L2 Encap: Ethernet2
  IP Addr : 192.168.1.2/24
  Def GW  : 192.168.1.254 @ fa:ac:b4:00:24:01
  OAM-A   : 192.168.0.21 @ fa:ac:b4:00:24:01
  OAM-B   : 192.168.0.22 @ fa:ac:b4:00:24:01
  UDP Port: 1000 (0x03e8)
  DSCP    : 48 (0x30)
VM-3 Control Fabric:
  MAC Addr: fa:ac:a9:00:25:01
  L2 Encap: Ethernet2
  IP Addr : 192.168.3.1/24
  Def GW  : 192.168.3.254 @ fa:ac:b4:00:17:01
  OAM-A   : 192.168.0.21 @ fa:ac:b4:00:17:01
  OAM-B   : 192.168.0.22 @ fa:ac:b4:00:17:01
  UDP Port: 1000 (0x03e8)
  DSCP    : 48 (0x30)
VM-4 Control Fabric:
  MAC Addr: fa:ac:b3:00:a0:01
  L2 Encap: Ethernet2
  IP Addr : 192.168.3.4/24
  Def GW  : 192.168.3.254 @ fa:ac:b4:00:17:01
  OAM-A   : 192.168.0.21 @ fa:ac:b4:00:17:01
  OAM-B   : 192.168.0.22 @ fa:ac:b4:00:17:01
  UDP Port: 1000 (0x03e8)
  DSCP    : 48 (0x30)
VM-A Control Fabric:
  MAC Addr: fa:ac:a7:00:5b:01
  L2 Encap: Ethernet2
  IP Addr : 192.168.0.21/24
  Def GW  : 192.168.0.254 @ fa:ac:b4:00:17:01
  OAM-A   : 192.168.0.21 @ fa:ac:a7:00:5b:01
  OAM-B   : 192.168.0.22 @ fa:ac:b3:00:d2:01
  UDP Port: 1000 (0x03e8)
  DSCP    : 48 (0x30)
VM-B Control Fabric:
  MAC Addr: fa:ac:b3:00:d2:01
  L2 Encap: Ethernet2
  IP Addr : 192.168.0.22/24
  Def GW  : 192.168.0.254 @ fa:ac:b4:00:17:01
  OAM-A   : 192.168.0.21 @ fa:ac:a7:00:5b:01
  OAM-B   : 192.168.0.22 @ fa:ac:b3:00:d2:01
  UDP Port: 1000 (0x03e8)
  DSCP    : 48 (0x30)
```

Output example: Virtual fabric detail VM information

```
A:MAG-c# show system virtual-fabric detail vm 3

VM-3 Data Fabric-1:
  MAC Addr: fa:ac:a9:00:25:02
  L2 Encap: 802.1Q
  VLAN ID : 12 (0x00c)
  IP Addr : 192.168.203.1/24
  Def GW  : 192.168.203.254 @ fa:ac:b4:00:24:01
  UDP Port: 1000 (0x03e8)
  DSCP    : 48 (0x30)
```


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```
VM-3 Control Fabric:
  MAC Addr: fa:ac:a9:00:25:01
  L2 Encap: Ethernet2
  IP Addr : 192.168.3.1/24
  Def GW  : 192.168.3.254 @ fa:ac:b4:00:17:01
  OAM-A   : 192.168.0.21 @ fa:ac:b4:00:17:01
  OAM-B   : 192.168.0.22 @ fa:ac:b4:00:17:01
  UDP Port: 1000 (0x03e8)
  DSCP    : 48 (0x30)
```

10.2.3 tools system command descriptions

10.2.3.1 virtual-fabric

Syntax

virtual-fabric [**control** | **data**] **detail** [**statistics**] [**vm** *vm-id*]]

virtual-fabric override-csf

Context

[Tree] tools dump system virtual-fabric

Description

This command displays virtual fabric health-related information.

Parameters

control

Keyword to display CSF information.

data

Keyword to display DSF information.

detail

Keyword to display more information for the specified VM.

Note: The **detail** keyword can be used with or without the **vm** parameter.

statistics

Keyword to display switch fabric statistics for the specified VM, or for all VMs.

Note: The **statistics** keyword must be used with the **detail** keyword.

vm-id

Specifies the ID of the VM for which information is to be displayed.

Values: 1 to 20 | A | B

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Note: The **vm** parameter can only be used in conjunction with the **detail** keyword.

override-csf

Keyword to display the CSF override status.

Output

The following output examples show virtual fabric health information.

- Virtual fabric health information
- Virtual fabric detail health information
- Virtual fabric detail VM health information (VM 1)
- Virtual fabric detail VM health information (VM B)
- Virtual fabric detail VM health information (statistics)
- Control fabric override status

Output example: Virtual fabric health information

```
A:MAG-c# tools dump system virtual-fabric

  Data Fabric-1
                          VM-ID TX
       0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 2
       1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 A B
       - - - - - - - - - - - - - - - - - - - - -
    01| - * 3 2 2 1 1 3 2 1 2 1 2 2 2 2 2 2 * * 2 2
    02| * - * * * * * * * * * * * * * * * * * * *
    03| 2 * - 2 2 1 1 2 2 1 2 1 2 2 2 2 1 2 * * 2 2
    04| 2 * 1 - 2 1 1 2 2 1 2 1 2 2 2 2 2 2 * * 2 2
    05| 2 * 1 2 - 1 1 2 2 1 2 1 2 2 2 1 1 2 * * 2 2
V   06| 2 * 1 2 2 - 1 2 2 1 2 1 2 2 2 2 1 2 * * 2 2
M   07| 2 * 1 2 2 1 - 2 2 1 2 3 2 2 2 1 1 2 * * 2 2
-   08| 2 * 1 2 2 1 1 - 2 1 2 1 2 2 2 1 2 2 * * 2 2
I   09| 2 * 1 2 2 1 1 2 - 1 2 1 2 2 2 2 2 2 * * 2 2
D   10| 2 * 1 2 2 2 1 2 2 - 2 1 2 2 2 1 2 2 * * 2 2
    11| 2 * 1 2 2 1 1 2 2 1 - 1 2 2 3 1 2 2 * * 2 2
R   12| 2 * 1 2 2 1 1 2 2 1 2 - 2 2 2 1 1 2 * * 2 2
X   13| 2 * 1 2 2 1 1 2 2 1 2 1 - 2 2 1 1 2 * * 2 2
    14| 2 * 1 2 2 2 1 2 2 1 2 1 2 - 2 1 1 2 * * 2 2
    15| 2 * 1 2 2 1 1 2 2 1 2 1 2 2 - 1 2 2 * * 2 2
    16| 2 * 1 2 2 2 1 2 2 1 2 1 2 2 2 - 1 2 * * 2 2
    17| 2 * 1 2 2 1 1 2 2 1 2 1 2 2 2 1 - 2 * * 2 2
    18| 2 * 1 2 2 1 1 2 2 1 2 1 2 2 2 1 2 - * * 2 2
    19| * * * * * * * * * * * * * * * * * * - * * *
    20| * * * * * * * * * * * * * * * * * * * - * *
     A| 2 * 2 2 2 1 1 2 2 1 2 1 2 2 2 1 2 2 * * - 2
     B| 2 * 1 2 2 1 1 2 2 2 2 1 2 2 2 2 2 2 * * 2 -
...

  Data Fabric-2
                         VM-ID
       0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 2
       1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0
       - - - - - - - - - - - - - - - - - - - -
    01| - * * * * * * * * * * * * * * * * * * *
    02| * - * * * * * * * * * * * * * * * * * *
    03| * * - * * * * * * * * * * * * * * * * *
    04| * * * - * * * * * * * * * * * * * * * *
```


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```
   05| * * * * - * * * * * * * * * * * * * * *
   06| * * * * * - * * * * * * * * * * * * * *
 V 07| * * * * * * - * * * * * * * * * * * * *
 M 08| * * * * * * * - * * * * * * * * * * * *
 - 09| * * * * * * * * - * * * * * * * * * * *
 I 10| * * * * * * * * * - * * * * * * * * * *
 D 11| * * * * * * * * * * - * * * * * * * * *
   12| * * * * * * * * * * * - * * * * * * * *
   13| * * * * * * * * * * * * - * * * * * * *
   14| * * * * * * * * * * * * * - * * * * * *
   15| * * * * * * * * * * * * * * - * * * * *
   16| * * * * * * * * * * * * * * * - * * * *
   17| * * * * * * * * * * * * * * * * - * * *
   18| * * * * * * * * * * * * * * * * * - * *
   19| * * * * * * * * * * * * * * * * * * - *
   20| * * * * * * * * * * * * * * * * * * * -

  Control Fabric
                          VM-ID
       0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 2
       1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 A B
       - - - - - - - - - - - - - - - - - - - - - -
   01| - 2 2 3 * * * * * * * * * * * * * * * * 1 2
   02| 2 - 2 3 * * * * * * * * * * * * * * * * 1 2
   03| 1 2 - 3 * * * * * * * * * * * * * * * * 2 2
   04| 1 2 2 - * * * * * * * * * * * * * * * * 2 2
   05| * * * * - * * * * * * * * * * * * * * * *
   06| * * * * * - * * * * * * * * * * * * * * *
   07| * * * * * * - * * * * * * * * * * * * * *
 V 08| * * * * * * * - * * * * * * * * * * * * *
 M 09| * * * * * * * * - * * * * * * * * * * * *
 - 10| * * * * * * * * * - * * * * * * * * * * *
 I 11| * * * * * * * * * * - * * * * * * * * * *
 D 12| * * * * * * * * * * * - * * * * * * * * *
   13| * * * * * * * * * * * * - * * * * * * * *
   14| * * * * * * * * * * * * * - * * * * * * *
   15| * * * * * * * * * * * * * * - * * * * * *
   16| * * * * * * * * * * * * * * * - * * * * *
   17| * * * * * * * * * * * * * * * * - * * * *
   18| * * * * * * * * * * * * * * * * * - * * *
   19| * * * * * * * * * * * * * * * * * * - * *
   20| * * * * * * * * * * * * * * * * * * * - *
    A| 1 2 1 3 * * * * * * * * * * * * * * * - 2
    B| 1 2 1 3 * * * * * * * * * * * * * * * 1 -

10 s discovery packet RX peak jitter.
  '-'  same vm-id    '*'  no data     '6'  >= 1 s
  '5'  >= 100 ms     '4'  >= 10 ms    '3'  >= 1 ms
  '2'  >= 100 us     '1'  >= 10 us    '0'  >= 1 us
```

Note:

- This example shows the virtual fabric connection status after a scale-in operation.
- Each row of the matrix represents the VM-specific view of the other VMs.
- An asterisk (*) means that data is not available, including when a card is not present or has failed.

Output example: Virtual fabric detail health information

```
A:MAG-c# tools dump system virtual-fabric detail
```


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```
  10 s discovery packet RX peak jitter, by VM-ID and source VM-ID, us

 Data Fabric-1
  01 <==  02----- 03----- 04-----
              292      86    1482
  02 <==  01----- 03----- 04-----
               85      83    1510
  03 <==  01----- 02----- 04-----
               71     279    1551
  04 <==  01----- 02----- 03-----
               51     282      81

  10 s discovery packet RX average jitter, by VM-ID and source VM-ID, us

 Data Fabric-1
  01 <==  02----- 03----- 04-----
               44      22      65
  02 <==  01----- 03----- 04-----
               19      27      64
  03 <==  01----- 02----- 04-----
               18      42      67
  04 <==  01----- 02----- 03-----
               18      44      25

  Time since the most recently lost discovery packets
  (as of Thu Apr 11 10:11:36 UTC 2019)

  Control Fabric
VM-ID
01 ->  B:   22:23:30  22:23:30  22:23:30  22:23:30  22:23:30  22:23:30
                       22:23:30  22:23:20  22:23:20  22:23:20
02 ->  B:   22:23:30  22:23:30  22:23:30  22:23:30  22:23:30  22:23:30
                       22:23:30  22:23:20  22:23:20  22:23:20
03 ->  B:   22:23:30  22:23:30  22:23:30  22:23:30  22:23:30  22:23:30
                       22:23:30  22:23:20  22:23:20  22:23:20
04 ->  B:   22:23:30  22:23:30  22:23:30  22:23:30  22:23:30  22:23:30
                       22:23:30  22:23:20  22:23:20  22:23:20
 A ->  B:   22:23:30  22:23:30  22:23:30  22:23:30  22:23:30  22:23:30
                       22:23:30  22:23:30  22:23:20  22:23:20

 10 s discovery packet RX peak jitter, by VM-ID and source VM-ID, us

  Control Fabric
  01 <==  02----- 03----- 04-----  A-----  B-----
              320      63    1497      89     146
  02 <==  01----- 03----- 04-----  A-----  B-----
               88      87    1524      90      98
  03 <==  01----- 02----- 04-----  A-----  B-----
               76     292    1498     121     108
  04 <==  01----- 02----- 03-----  A-----  B-----
               87     328      88      89     178
   A <==  01----- 02----- 03----- 04-----  B-----
              391     318      81    1466    1504
   B <==  01----- 02----- 03----- 04-----  A-----
               78     877      96    1461      78

 10 s discovery packet RX average jitter, by VM-ID and source VM-ID, us

  Control Fabric
  01 <==  02----- 03----- 04-----  A-----  B-----
               44      22      65      25      29
  02 <==  01----- 03----- 04-----  A-----  B-----
               22      27      70      29      32
  03 <==  01----- 02----- 04-----  A-----  B-----
```


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```
              26      51      67      28      30
  04 <==  01----- 02----- 03-----  A-----  B-----
              22      44      27      24      33
   A <==  01----- 02----- 03----- 04-----  B-----
              28      45      27      58     115
   B <==  01----- 02----- 03----- 04-----  A-----
              26      66      24      66      21
```

Output example: Virtual fabric detail VM health information (VM 1)

```
A:MAG-c# tools dump system virtual-fabric detail vm 1

  10 s discovery packet RX peak jitter, by VM-ID and source VM-ID, us

  Data Fabric-1
  01 <==  02----- 03----- 04-----
             349     211      76

  10 s discovery packet RX average jitter, by VM-ID and source VM-ID, us

  Data Fabric-1
  01 <==  02----- 03----- 04-----
              42      32      22

  10 s discovery packet RX peak jitter, by VM-ID and source VM-ID, us

  Control Fabric
  01 <==  02----- 03----- 04-----  A-----  B-----
             341     133      90      76     116

 10 s discovery packet RX average jitter, by VM-ID and source VM-ID, us

  Control Fabric
  01 <==  02----- 03----- 04-----  A-----  B-----
              45      35      28      23      28
```

Output example: Virtual fabric detail VM health information (VM B)

```
A:MAG-c# tools dump system virtual-fabric detail vm "B"

  10 s discovery packet RX peak jitter, by VM-ID and source VM-ID, us

  10 s discovery packet RX average jitter, by VM-ID and source VM-ID, us

  Control Fabric
VM-ID
01 ->  B:   22:24:20  22:24:20  22:24:20  22:24:20  22:24:20  22:24:20
                       22:24:20  22:24:20  22:24:20  22:24:20
02 ->  B:   22:24:20  22:24:20  22:24:20  22:24:20  22:24:20  22:24:20
                       22:24:20  22:24:20  22:24:20  22:24:20
03 ->  B:   22:24:20  22:24:20  22:24:20  22:24:20  22:24:20  22:24:20
                       22:24:20  22:24:20  22:24:20  22:24:20
04 ->  B:   22:24:20  22:24:20  22:24:20  22:24:20  22:24:20  22:24:20
                       22:24:20  22:24:20  22:24:20  22:24:20
 A ->  B:   22:24:20  22:24:20  22:24:20  22:24:20  22:24:20  22:24:20
                       22:24:20  22:24:20  22:24:20  22:24:20

  10 s discovery packet RX peak jitter, by VM-ID and source VM-ID, us

  Control Fabric
   B <==  01----- 02----- 03----- 04-----  A-----
              86     290      97     128      81
```


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```
  10 s discovery packet RX average jitter, by VM-ID and source VM-ID, us

  Control Fabric
   B <==  01----- 02----- 03----- 04-----  A-----
               23      41      24      30      25
```

Output example: Virtual fabric detail VM health information (statistics)

```
A:MAG-c# tools dump system virtual-fabric control detail statistics vm 3
...
  Statistics for Control Fabric-1 at VM-ID 03:
      RX error:          0
  RX discarded:        219
       RX ICMP:          0
      TX error:          0
  TX discarded:          0
       TX ICMP:          0
  Breakdown of RX discards by cause:
           0  The packet has an invalid/inconsistent length
           4  The packet has an invalid/unsupported Ethertype
           0  The packet has an invalid 802.1Q TPID
           0  The packet has an invalid 802.1Q VLAN ID
           0  The source slot (VM) in the swFab header is invalid
           0  The length of the swFab message is invalid/inconsistent
           0  The swFab message type is invalid
           0  The CF is down (seen on DF ports)
           0  This VM is not registered with the OAM VM's
           0  The next-hop MAC for the intended destination slot (VM) is unknown
           0  Some value in the IP header is not valid
           0  The destination address in the IP header is not valid
           0  The stated IP protocol is not valid
           0  The L3 swFab packet is an IP fragment
           0  Some value in the UDP header is not valid
         215  The VM is not fully up
           0  The VM has been locked out
           0  The stated destination tap is not valid
           0  Reassembly context not found
           0  Timeout during reassembly
  Discovery packet RX KPIs, current and previous periods
  Control Fabric-1
=============================================================
                    packets lost        peak jitter, us
  VM-ID           current  previous     current  previous
-------------------------------------------------------------
  03                    0         0       10857         0
=============================================================
```

Output example: Control fabric override status

```
A:MAG-c# tools dump system virtual-fabric override-csf
Control fabric override status
================================================
VM-ID   active fabric   duration, s   remains, s
------------------------------------------------
01                  2            10            5
02                  2            10            5
03                  2            10            5
04                  2            10            5
 A                  2            10            5
 B                  2            10            5
```


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11 vm command reference

11.1 vm hierarchy descriptions

This section provides the following vm hierarchy descriptions:

- clear vm command hierarchy
- show vm command hierarchy

11.1.1 clear vm command hierarchy

```
clear
  – vm
```

11.1.2 show vm command hierarchy

```
show
  – vm
      – virtual
          – cpu-scheduling
          – fp
```

11.2 vm command descriptions

This section provides the following vm command descriptions:

- clear vm command descriptions
- show vm command descriptions

11.2.1 clear vm command descriptions

11.2.1.1 vm

Syntax

vm *vm-id*

vm *vm-id* **fp** [*1..2*] **dist-cpu-protection**

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vm *vm-id* **fp** [*1..2*] **ingress mode** {**access** | **network**} **queue-group** *ref-point-name* **instance** *instance* **statistics**

vm *vm-id* **soft** [**hard-reset-unsupported-mdas**]

Context

[Tree] clear vm

Description

This command re-initializes the statistics for the specified VM.

Parameters

vm-id

Specifies the VM ID for which information is to be cleared.

Values: 1 to 20

soft

Keyword to issue a soft-reset of the I/O module.

{access | network}

access | network

ref-point-name

Specifies the reference point name, up to 32 characters.

instance

Specifies the instance.

Values: 1 to 65535

statistics

Keyword to clear statistics only.

11.2.2 show vm command descriptions

11.2.2.1 vm

Syntax

vm

vm *vm-id* [**detail**]

vm *vm-id* **memory-pools**

vm *vm-id* **cpu** [**sample-period** *seconds*]

vm *vm-id* **ht-pairs**

vm *vm-id* **virtual fp**

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Context

[Tree] show vm

Description

This command displays information for the specified VM.

In the output screens, the number of cores for the selected VM CPU is also included. The CPU Time and CPU Usage is displayed per CP Core in the VM CPU output example.

In the VM virtual FP output, the Utilization percentage is displayed per fast path Core.

Parameters

vm-id

Specifies the ID of the VM for which information is to be displayed.

Values: 1 to 20 | A | B

detail

Keyword to display more information for the specified VM.

memory-pools

Keyword to display memory pool details for the specified VM.

cpu

Keyword to display CPU usage details for the specified VM.

seconds

Specifies the sampling period in seconds.

Values: 1 to 300

Default: 1

virtual fp

Displays the virtual FP statistics for the specified VM.

Note:

- The Utilization value shows the current utilization of the specific core by this vFP task on the specified VM. It is the ratio of the useful versus the sum of the useful and busy-loop executions of a vFP task, all of which run in a busy-loop mode for performance reasons.
- When hyper-threading is enabled, some performance-critical tasks (for example, NIC and Scheduler) run only on one core of the hyper-thread pair, with the sibling core being idle (not used for any tasks).

ht-pairs

Displays hyper-threading vCPU pairs for the specified VM.

Note:

- When the reported HT state in the output is ON, hyper-threading optimization is enabled on the VM.
- When the HT state is N/A, either hyper-threading is not supported by the CPU or hyper-threading optimization support is not available on the VM.

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- When the HT state is OFF, hyper-threading optimization is disabled.

Output

The following output examples show virtual fabric information.

- VM statistics
- VM detail statistics
- VM memory pool statistics
- VM CPU statistics
- VM HT vCPU pairs statistics
- VM virtual forwarding plane statistics

Output example: VM statistics

```
A:MAG-c# show vm
===============================================================================
VM Summary
===============================================================================
VM     Provisioned Type                              Admin Operational   Comments
Id         Equipped Type (if different)              State State
-------------------------------------------------------------------------------
1      iom-v                                         up    up
2      iom-v                                         up    booting
3      iom-v-mg                                      up    up
4      iom-v-mg                                      up    up
A      cpm-v                                         up    up/active
B      cpm-v                                         up    up/standby
===============================================================================
```

Table 10: Admin and operational state values

Value	Description
Admin State	
noop	Indicates that a query is made for a slot/VM number that is invalid
up	Administrative state up
down	Administrative state down
Operational State	
unknown	Indicates that a query is made for a slot/VM number that is invalid
up	Operational state up
down	Operational state down
failed	Indicates that the object has failed to become operational
booting	Indicates that the object is in booting sequence

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Value	Description
empty	Indicates that the slot/VM number is empty
provisioned	Indicates that the slot/VM number is pre-provisioned, but the slot is empty or occupied by another type of card
unprovisioned	Indicates that the object is not configured

Output example: VM detail statistics

```
A:MAG-c# show vw 1 detail
===============================================================================
VM 1
===============================================================================
Slot      Provisioned Type                          Admin Operational   Comments
              Equipped Type (if different)          State State
-------------------------------------------------------------------------------
1         iom-v                                     up    up
Disk - cf1:
    Administrative State          : up
    Operational state             : up
    Size                          : 1,019 MB
    Free space                    : 942,056 KB
    Percent Used                  : 9 %
Disk - cf2:
    Administrative State          : up
    Operational state             : up
    Size                          : 1,019 MB
    Free space                    : 1,019 MB
    Percent Used                  : 0 %
Disk - cf3:
    Administrative State          : up
    Operational state             : up
    Size                          : 1,189 MB
    Free space                    : 788,788 KB
    Percent Used                  : 35 %
Virtual Machine Card Specific Data
    Hypervisor                    : (Not Specified)
    CPU                           : (Not Specified)
    Number of cores               : 0
Hardware Data
    Administrative state          : up
    Operational state             : up
    Software version              : TiMOS-MG-I-21.5.B1-25 iom/x86_64 Nokia
                                    7750 SR-MG Copyright (c) 2000-2021 Nokia.
                                    All rights reserved. All use subject to
                                    applicable license agreements.
                                    Built on Wed May 12 20:07:25 PDT 2021 by
                                    builder in /builds/c/MG215B/B1-25/panos/
                                    main/sros
    Time of last boot             : 2021/05/13 12:38:49
    Base MAC address              : 00:00:01:00:00:00
    Firmware revision status      : acceptable
    Memory capacity               : 8,192 MB
===============================================================================
```

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- When an OAM-VM switchover takes place, the Time of Last Boot field is updated for both OAM-VMs (active and standby).
- The Memory capacity fields indicate the total physical memory assigned to the card/VM.

Output example: VM memory pool statistics

```
A:MAG-c# show vm A memory-pools
===============================================================================
VM A Memory Pools
===============================================================================
Name                Max Allowed    Current Size      Max So Far          In Use
-------------------------------------------------------------------------------
ACCTMGR                No limit               0               0               0
BFD                    No limit       3,145,728       3,145,728       2,100,336
BGP                    No limit       5,242,880       5,242,880       4,122,168
CALLTRACE              No limit      26,214,400      26,214,400      22,739,176
CDBMGR                 No limit               0               0               0
CFLOWD                 No limit       1,048,576       1,048,576          26,384
Cards & Ports          No limit      11,534,336      12,582,912       6,661,536
DCM                    No limit       3,145,728       3,145,728       2,899,832
DHCP Server            No limit       1,048,576       1,048,576         126,720
DTH                    No limit       9,437,184       9,437,184       5,828,312
ETH-CFM                No limit       5,242,880       5,242,880       4,495,776
GTP                    No limit               0               0               0
GTP'                   No limit       4,194,304       4,194,304       3,731,288
GXCL                   No limit               0               0               0
GXL                    No limit               0               0               0
ICC                167,772,160       3,145,728       3,145,728       2,924,504
IMSI Db Appl           No limit      44,040,192      53,477,376      29,275,056
IOM                    No limit      10,485,760      10,485,760       9,695,816
IP Stack               No limit      26,214,400      31,457,280      24,133,304
IS-IS                  No limit       2,097,152       2,097,152       1,622,512
ISA                    No limit       4,194,304       4,194,304       2,963,368
LDP                    No limit      18,874,368      18,874,368      17,139,808
LTE AMS                No limit       4,194,304       4,194,304       3,562,760
LTE APM                No limit       6,291,456       6,291,456       5,467,176
LTE LDNSC              No limit               0               0               0
LTE OLC                No limit       1,048,576       1,048,576          40,968
LTE RADPROXY           No limit               0               0               0
LTE SD                 No limit               0               0               0
LTE SDLB               No limit       1,048,576       1,048,576         426,232
LTE SWM                No limit               0               0               0
LTE_DHCP               No limit       1,048,576       1,048,576             200
LTE_LI                 No limit       1,048,576       1,048,576           3,664
Logging            243,269,632      10,485,760      10,485,760       3,333,240
LteRADIUS Appl         No limit       1,048,576       1,048,576         113,744
MBUF               536,870,912      15,728,640      15,728,640      14,587,064
MCS                    No limit       1,048,576       1,048,576          97,200
MC_RED                 No limit       1,048,576       1,048,576         273,504
MIP                    No limit               0               0               0
MPLS/RSVP              No limit      32,505,856      32,505,856      24,496,200
MSCP_SVC               No limit               0               0               0
MSNGR                  No limit               0               0               0
Management             No limit      13,631,488      23,068,672      12,334,904
OAM                    No limit       1,048,576       1,048,576         298,800
OSPF                   No limit       3,145,728       3,145,728       1,218,656
OpenFlow               No limit       3,145,728       3,145,728       1,116,888
PFCP                   No limit               0               0               0
PKI                    No limit       2,097,152       2,097,152         715,432
PMIP                   No limit               0               0               0
RIP                    No limit       1,048,576       1,048,576          77,128
ROL                    No limit               0               0               0
```


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```
RTM/Policies           No limit      11,534,336      11,534,336       9,289,336
Redundancy             No limit      23,068,672      23,068,672       1,744,712
Rf                     No limit       5,242,880       5,242,880       2,136,736
S6B                    No limit               0               0               0
SCTP                   No limit       4,194,304       4,194,304       3,295,032
SESSMGR                No limit               0               0               0
SIM                    No limit       4,194,304       4,194,304       2,534,288
Security               No limit       1,048,576       1,048,576          32,616
Services               No limit      46,137,344      46,137,344      38,841,456
Signaling              No limit      18,874,368      18,874,368      16,722,248
Stats                  No limit       2,097,152       2,097,152       1,374,136
Subscriber Mgmt        No limit      17,825,792      17,825,792      11,752,760
System                 No limit     380,633,088     383,778,816     365,316,168
TUNMGR                 No limit               0               0               0
Traffic Eng            No limit       1,048,576       1,048,576         541,016
VRRP                   No limit       1,048,576       1,048,576         147,176
WEB Redirect          8,388,608       1,048,576       1,048,576         148,680
ZFS                    No limit     102,760,448     109,051,904      97,691,728
-------------------------------------------------------------------------------
Current Total Size :      900,726,784 bytes
Total In Use       :      760,217,744 bytes
Available Memory   :    6,855,589,888 bytes
===============================================================================
```

Table 11: Memory fields

Value	Description
Current Total Size	Indicates the current size of the allocated memory for a memory pool
Total In Use	Indicates how much out of the current size is being used
Available Memory	Indicates the amount of memory available for allocation to any memory pool when necessary

Output example: VM CPU statistics

```
A:MAG-c# show vm 3 cpu
===============================================================================
VM 3 CPU Utilization (Sample period: 1 second)
===============================================================================
Name                          Cores         CPU Time     CPU Usage      Capacity
                              (HT=ON)         (uSec)                      Usage
-------------------------------------------------------------------------------
IOM                              6           75,688         1.26%         0.58%
-------------------------------------------------------------------------------
Total                                     5,988,760       100.00%
   Idle                                   5,913,348        98.74%
   Usage                                     75,412         1.25%
Busiest Core Utilization                     16,423         1.64%
===============================================================================
===============================================================================
Per Core Statistics
===============================================================================
Core ID           CPU Time                CPU Usage
                                              (uSec)
-------------------------------------------------------------------------------
0                    16,422                    1.64%
1                    11,682                    1.17%
```


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```
2                   9,742                       0.97%
3                   14,326                      1.43%
4                   11,458                      1.14%
5                   11,782                      1.18%
===============================================================================
```

Output example: VM HT vCPU pairs statistics

```
A:MAG-c# show vm 3 ht-pairs
===============================================================================
VM 3 HT CPU pairs
Core id     Sibling Core id
-------------------------------------------------------------------------------
0           3
1           4
2           5
6           13
7           14
8           15
9           23
10          24
===============================================================================
```

Output example: VM virtual forwarding plane statistics

```
A:MAG-c# show vm 4 virtual fp
===============================================================================
VM 4 Virtual Forwarding Plane Statistics
===============================================================================
Task                  vCPUs     Average        Maximum
                      (HT=ON)  Utilization    Utilization
-------------------------------------------------------------------------------
NIC                   1         0.00 %         0.00 %
Worker                6         0.04 %         0.04 %
Scheduler             1         0.00 %         0.00 %
===============================================================================
===============================================================================
Per Task Statistics
===============================================================================
Task         Core id      Utilization
-------------------------------------------------------------------------------
Worker           3           0.04 %
Worker           4           0.04 %
Worker           5           0.03 %
Scheduler        6           0.00 %
NIC              7           0.00 %
Worker           11          0.04 %
Worker           12          0.04 %
Worker           13          0.04 %
===============================================================================
```

11.2.2.2 virtual

Syntax

virtual

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Context

[Tree] show vm virtual

Description

This command displays virtual VM information.

11.2.2.3 cpu-scheduling

Syntax

cpu-scheduling

Context

[Tree] show vm virtual cpu-scheduling

Description

This command displays virtual CPU scheduling information on the VM.

11.2.2.4 fp

Syntax

fp

Context

[Tree] show vm virtual fp

Description

This command displays virtual forwarding plane information on the VM.

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12 vm-function command reference

12.1 vm-function hierarchy descriptions

This section provides the following vm-function hierarchy descriptions:

- show vm-function command hierarchy

12.1.1 show vm-function command hierarchy

```
show
  – vm-function
      – qos
```

12.2 vm-function command descriptions

This section provides the following vm-function command descriptions:

- show vm-function command descriptions

12.2.1 show vm-function command descriptions

12.2.1.1 vm-function

Syntax

vm-function *vm-id*[/*vm-function-id*] [**detail**]

Context

[Tree] show vm-function

Description

This command displays information about the VM functions for the specified VM.

Parameters

vm-id

Specifies the ID of the VM for which information is to be displayed.

Values: 1 to 20

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vm-function-id

Specifies the MDA number of the VM for which information is to be displayed.

Values: 1 to 4

Output

The following output example shows the CPU load for all configured cards.

Output example

```
A:MAG-c# show vm-function 1/1
===============================================================================
VMF 1/1
===============================================================================
VM    Id    Provisioned Type                          Admin     Operational
Id              Equipped Type (if different)          State     State
-------------------------------------------------------------------------------
1     1     m20-v                                     up        up
===============================================================================
```

12.2.1.2 qos

Syntax

qos {**ingress** | **egress**} **buffer-allocation** [**detail**]

qos {**ingress** | **egress**} **orphaned-queues**

Context

[Tree] show vm-function qos

Description

This command displays MDA QoS information.

Parameters

ingress | egress

Keyword to show information for incoming or outgoing messages.

buffer-allocation

Keyword to display named pool buffer allocation information.

detail

Keyword to display more information.

orphaned-queues

Keyword to show configured but not defined queues.

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13 vnf-instance command reference

13.1 vnf-instance hierarchy descriptions

This section provides the following vnf-instance hierarchy descriptions:

- show vnf-instance command hierarchy

13.1.1 show vnf-instance command hierarchy

```
show
  – vnf-instance
```

13.2 vnf-instance command descriptions

This section provides the following vnf-instance command descriptions:

- show vnf-instance command descriptions

13.2.1 show vnf-instance command descriptions

13.2.1.1 vnf-instance

Syntax

vnf-instance [**environment**] [**power-supply**]

vnf-instance class *vnf-instance-class*

vnf-instance detail [**class** *vnf-instance-class*]

Context

[Tree] show vnf-instance

Description

This command displays general VNF instance information.

Parameters

environment

Keyword to display environment usage information for specialized configurations.

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power-supply

Keyword to display power-supply usage information for specialized configurations.

detail

Keyword to display more information for all vnf-instance in the system.

vnf-instance-class

Displays vnf-instance information for the specified class only.

Output

The following output example shows VNF instance statistics.

Output example: VNF instance statistics

```
A:MAG-c# show vnf-instance
===============================================================================
System Information
===============================================================================
  Name                              : Dut-A
  Type                              : MAG-c
  Chassis Topology                  : Standalone
  Number of VMs                     : 22
  Oper number of VMs                : 22
  Number of ports                   : 42
  Base MAC address                  : 60:77:ff:00:00:00
===============================================================================
Chassis Summary
===============================================================================
Chassis   Role                Status
-------------------------------------------------------------------------------
1         Standalone          up
===============================================================================
```


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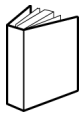

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