



Multi-Access Gateway – controller

Release 23.3.R1

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



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



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.



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 [Linking between trees and command descriptions](#) for more information.

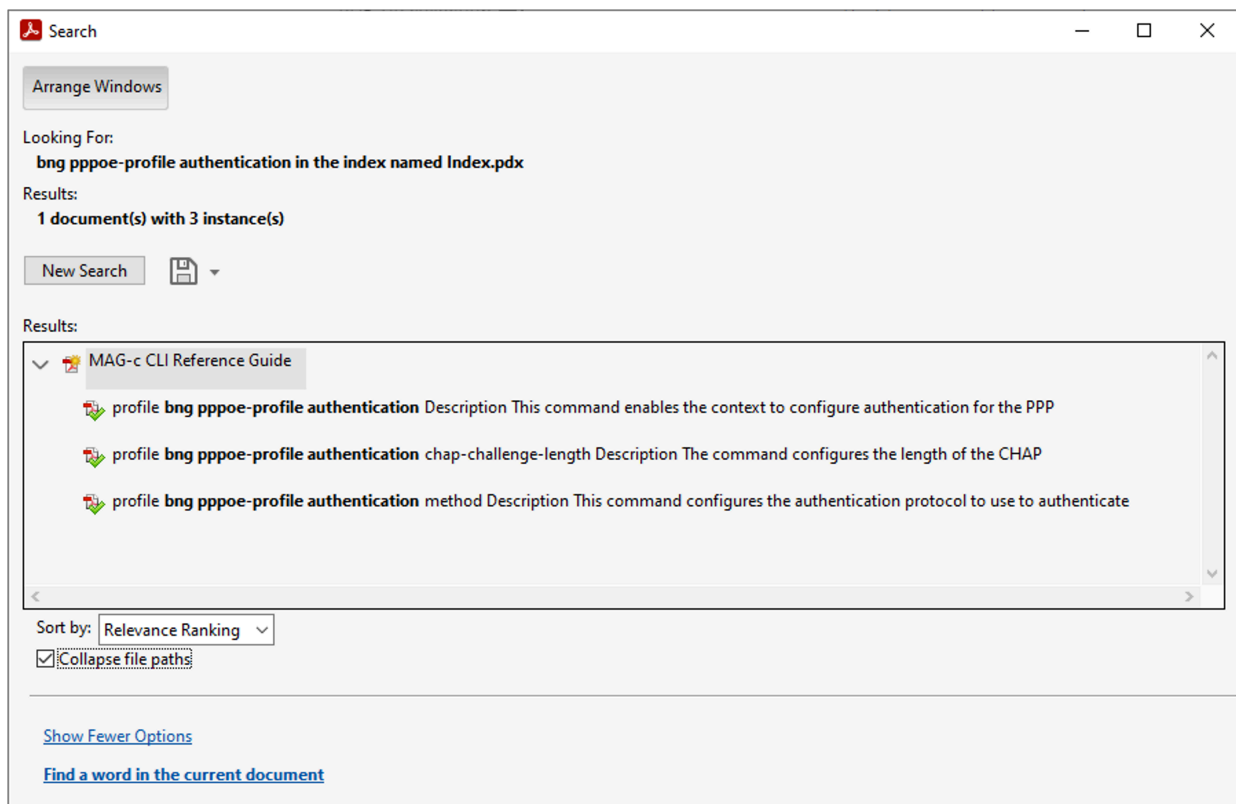
1.4 Navigation aids

Searching

The Context field in each command description shows the full path to the command.

To search this guide for a specific command using the Acrobat PDF search function, enter the command name in the search window. For more efficient searching, add the previous level of the contextual path before the command name. The search result does not return instances of the same command found elsewhere in the guide. The following figure shows an example of a search.

Figure 1: Search window



Linking between trees and command descriptions

As described in [Command tree](#), this guide provides hierarchically organized CLI command trees for configuring and managing the MAG-c. You can link between a command tree and the corresponding command description as follows:

- In the CLI command tree, click the link for a command to go to the corresponding description.
- In the CLI command description, click [Tree] in the command context to go to the tree.

The following figure shows the [Tree] element.

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.

Figure 3: Command description example

3.2.5.2 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

sw1383

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

Field	Description
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.
[]	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.
<i>Italic</i>	<i>Italic</i> 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:node-2# configure
A:node-2>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: Example: Method 1

```
A:node-2# configure mobile-gateway profile call-insight
A:node-2>config>mobile>profile>call-insight#
```

Example: Example: Method 2

```
A:node-2>config# mobile-gateway
A:node-2>config>mobile# profile
A:node-2>config>mobile>profile# call-insight
A:node-2>config>mobile>profile>call-insight#
```

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

```
config# mobile
Error: Bad command.
```

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

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]*

- *port-id* – ...
- *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]
- *context-val* – 1 to 31

port-id

Specifies the configured port ID.

Values:

- slot/mda/port
- lag-id – [:lag-<id>] (the configured lag-id)
- lag
- id – [1 to 200]

ipv4 | ipv6

Keyword to specify the IP address type.

3 mobile-gateway command reference

3.1 mobile-gateway hierarchy descriptions

This section provides the following mobile-gateway hierarchy descriptions:

- [admin mobile-gateway command hierarchy](#)
- [clear mobile-gateway command hierarchy](#)
- [configure mobile-gateway pdn 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 gtp command hierarchy](#)
- [configure mobile-gateway profile list command hierarchy](#)
- [configure mobile-gateway profile pfcf command hierarchy](#)
- [configure mobile-gateway profile radius-group command hierarchy](#)
- [configure mobile-gateway profile radius command hierarchy](#)
- [configure mobile-gateway system command hierarchy](#)
- [debug mobile-gateway command hierarchy](#)
- [show mobile-gateway command hierarchy](#)
- [tools mobile-gateway command hierarchy](#)

3.1.1 admin mobile-gateway command hierarchy

```
admin
  - mobile-gateway
    - group
    - max-suspend-duration
```

3.1.2 clear mobile-gateway command hierarchy

```
clear
  - mobile-gateway
    - bng
```

```

- error-history
- session
- session-lockout
- wpp
  - statistics
- pdn
  - bearer-context
    - apn
    - imei
    - imsi
    - msisdn
    - up-peer
  - call-flow-stats
  - path-mgmt-stats
  - ref-point-stats
  - statistics

```

3.1.3 configure mobile-gateway pdn command hierarchy

```

configure
- mobile-gateway
  - pdn
    - apn
      - address-assignment-defaults
        - local-dynamic
          - ipv4-pool
          - ipv6-na-pool
          - ipv6-pd-pool
          - ipv6-slaac-pool
        - unmanaged
          - ipv4-pool
          - ipv6-na-pool
          - ipv6-pd-pool
          - ipv6-slaac-pool
      - 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
      - pdn-type
      - pdn-type-preferred-ipv6
      - shutdown
    - bng
      - radius-coa
        - ignore-unknown-attributes
        - interface
        - python-policy
        - secret
      - up-group
        - c-tag-range
        - description
        - fsg-profile

```

```

    - l2-access-id
    - s-tag-range
    - shutdown
    - up
      - c-tag-range
      - drain
      - l2-access-id
      - preferred
      - s-tag-range
  - wpp
    - interface
- cdbx
  - cloud-db-profile
  - interface
  - mss
- epc-node
- instance-type
- local-address-assignment
  - network-realm
    - description
    - pool
      - dedicated
      - description
      - hold-time
      - ipv4
        - default-gateway
        - dns
          - primary-dns
          - secondary-dns
        - 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
- pfc-p-node-id-type
- s11
  - interface
    - gtp-c
  - signaling

```

```

    - gtp-c
      - ddn-throttling-arp-threshold
  - s5
    - interface
      - gtp-c
  - shutdown
  - signaling
    - gtp-c
      - profile
  - sx-n4
    - enforced-pfcp-association-list
    - interface
      - ibcp
      - pfcp
    - pfcp-association-list
    - signaling
      - ibcp
        - bng-entry-point
        - ip-dscp
        - ip-ttl
        - triggers
      - pfcp
        - profile

```

3.1.4 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
          - lifetimes
            - dhcpv6-rebind
            - dhcpv6-renew
            - preferred
            - valid
        - local-dynamic
          - ipv4-pool
          - ipv6-na-pool
          - ipv6-pd-pool
          - ipv6-slaac-pool
        - 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
- fixed-wireless-access
  - address-hold-time
  - ipv4-signaling-method
  - qos-profile
- http-redirect
  - url
- interface
  - group-interface-template
  - link-local-address
  - sap-template
- ip-anti-spoof
- l2tp
  - group
- match
  - apn
  - circuit-id
  - client-id
  - imei-tac
  - imsi-mcc
  - imsi-mnc
  - l2-access-id
  - mac
  - remote-id
  - up-group
  - up-ip
  - up-node-id
  - username
  - username-domain
  - vendor-class
  - vlan
    - c-vlan
    - s-vlan
- pfc
  - include-attributes
  - acct-session-id
- pppoe
  - pado-delay
- ra-profile
- resiliency
  - standby-mode
- 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

3.1.5 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
      - dhcpv6-profile
        - description
        - options
          - option
      - entry-point
        - description
        - entry
          - description
          - ipoe
            - 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
    - session-limits
      - per-l2-access-id
      - per-l2-circuit
    - 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
      - 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
        - 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
- 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
- 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

```

3.1.6 configure mobile-gateway profile call-insight command hierarchy

```

configure
- mobile-gateway
  - profile
    - call-insight
      - ue
        - debug-output
        - description

```

- events
- format
- live-output
- ref-point
- size-limit
- time-limit

3.1.7 configure mobile-gateway profile charging command hierarchy

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

3.1.8 configure mobile-gateway profile cloud-db command hierarchy

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

3.1.9 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
```

3.1.10 configure mobile-gateway profile list command hierarchy

```
configure
– mobile-gateway
  – profile
    – list
      – plmn
        – mcc
      – prioritized-ip-address-list
        – address
```

3.1.11 configure mobile-gateway profile pfcf command hierarchy

```
configure
– mobile-gateway
  – profile
    – pfcf
      – pfcf-association-peer-list
      – description
```

- node-id
 - bfd-enable
 - pfc-p-peer
 - bfd-enable
- pfc-p-profile
 - association-retry-timer
 - audit-ip-dscp
 - description
 - heart-beat
 - ip-dscp
 - ip-ttl
 - message-retransmit
 - path-restoration-time
- up-peer-list
 - description
 - peer
 - apn
 - upf-selection

3.1.12 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
      - python-policy
      - radius-profile
      - secret
      - server-type
      - transaction-based-load-balancing

```

3.1.13 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

3.1.14 configure mobile-gateway system command hierarchy

```

configure
- mobile-gateway
  - system
    - bng
      - queries
        - session
          - acct-multi-session-id
          - acct-session-id
          - apn
          - c-vlan
          - circuit-id
          - client-user-name
          - client-user-name-domain
          - description
          - fate-sharing-group-id
          - imei
          - imsi
          - ip
            - address-stacks
              - ipv4
              - ipv6-na
              - ipv6-pd
              - ipv6-slaac
            - prefix
          - l2-access-id
          - mac-address
          - msisdn
          - nat-profile
          - network-realm
          - output-options
            - charging
            - count
            - nat
          - pfc
            - local-seid
            - remote-seid
          - remote-id
          - s-vlan
          - 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
```

3.1.15 debug mobile-gateway command hierarchy

```
debug
- mobile-gateway
  - call-insight
    - bng
    - ue
    - ue-mask
```

3.1.16 show mobile-gateway command hierarchy

```
show
- mobile-gateway
  - bng
    - charging
      - radius
      - buffering
    - nat
    - session
      - charging
        - aggregate-stats
        - detailed-stats
      - nat
        - port-forwarding-entries
      - summary
    - session-lockout
    - subscriber
    - wpp
      - statistics
  - call-insight
    - bng
    - files
    - ue
```

```
- ue-mask
- connections
- mg-vm
  - cpu
  - memory-pools
- pdn
  - apn
  - bng
    - fsg
    - up
    - up-group
  - call-flow-stats
  - clear-status
  - path-mgmt-stats
  - pdn-context
    - cp-seid
    - def-pfcp-u-sessions
    - ue-ip
    - up-seid
  - pdu-session
  - qos-flow
  - ref-point-peers
  - ref-point-stats
  - statistics
  - ue-context
    - def-pfcp-u-sessions
- profile
  - authentication-database
  - bng
    - cp-nat-profile
    - entry-point
  - call-insight
    - ue
  - charging
    - bng-charging
  - cloud-db
  - gtp
    - pgw-selection-candidate-list
  - pfcp
    - pfcp-association-peer-list
    - pfcp-profile
    - up-peer-list
  - qos-profile
  - radius
  - radius-group
  - tai-lai-list
- system
```

3.1.17 tools mobile-gateway command hierarchy

```
tools
- dump
  - mobile-gateway
    - bng
      - error-history
    - pfcp-audit
```

3.2 mobile-gateway command descriptions

This section provides the following mobile-gateway command descriptions:

- [admin mobile-gateway command descriptions](#)
- [clear mobile-gateway command descriptions](#)
- [configure mobile-gateway pdn 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 gtp command descriptions](#)
- [configure mobile-gateway profile list command descriptions](#)
- [configure mobile-gateway profile pfcf command descriptions](#)
- [configure mobile-gateway profile radius-group command descriptions](#)
- [configure mobile-gateway profile radius command descriptions](#)
- [configure mobile-gateway system command descriptions](#)
- [debug mobile-gateway command descriptions](#)
- [show mobile-gateway command descriptions](#)
- [tools mobile-gateway command descriptions](#)

3.2.1 admin mobile-gateway command descriptions

3.2.1.1 mobile-gateway

Syntax

mobile-gateway

Context

[\[Tree\]](#) admin mobile-gateway

Description

Commands in this context configure group suspension.

3.2.1.2 group

Syntax

group *group-number* **suspend** [**now**]

Context

[\[Tree\]](#) admin mobile-gateway group

Description

This command suspends the specified group.

Parameters

group-number

Specifies the mobile gateway group filter.

Values: 1 to 15

suspend

Keyword to administratively suspend this group for mobile gateway.

now

Keyword to force the suspend of this group with an active card.

3.2.1.3 max-suspend-duration

Syntax

max-suspend-duration *max-suspend-duration*

Context

[\[Tree\]](#) admin mobile-gateway max-suspend-duration

Description

This command configures the maximal duration for suspended groups.

Default

max-suspend-duration 30

Parameters

max-suspend-duration

Specifies the duration in minutes.

Values: 0 | 10 to 120, where 0 disables the duration

Default: 30

3.2.2 clear mobile-gateway command descriptions

3.2.2.1 mobile-gateway

Syntax

mobile-gateway

Context

[\[Tree\]](#) clear mobile-gateway

Description

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

3.2.2.2 bng

Syntax

bng

Context

[\[Tree\]](#) clear mobile-gateway bng

Description

Commands in this context clear BNG-related information.

3.2.2.3 error-history

Syntax

error-history

Context

[\[Tree\]](#) clear mobile-gateway bng error-history

Description

This command clears the BNG error history.

3.2.2.4 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*]

Context

[\[Tree\]](#) clear mobile-gateway bng session

Description

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

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 the deletion of sessions without synchronization with any external server or the client.



Note: The number of sessions that can be deleted gracefully, that is, without the **force** keyword, 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.

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: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.

3.2.2.5 session-lockout

Syntax

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

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.

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

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 (eight 16-bit pieces) or x:x:x:x:x:d.d.d.d where
x – [0..FFFF]H
d – [0..255]D

3.2.2.6 wpp

Syntax

wpp

Context

[\[Tree\]](#) clear mobile-gateway bng wpp

Description

Commands in this context clear WPP statistics.

3.2.2.7 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.

3.2.2.8 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

3.2.2.9 bearer-context

Syntax

bearer-context {*msisdn msisdn* | *imei imei* | *imsi imsi*} [**local-only**] [**apn** *name*] [**bearer** *bearer-id*]

bearer-context {*msisdn msisdn* | *imei imei* | *imsi imsi*} [**apn** *name*] [**cause-reactivation-req**]

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

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

Context

[Tree] clear mobile-gateway pdn bearer-context

Description

This command clears FWA bearers and sessions.



Note: The optional and mandatory parameters must be configured at the exact location indicated in the syntax.

When the command is given:

- bearer and session deletion is initiated for all APNs if the APN is not specified
- the parameters used with the command to filter the sessions 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:

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

Parameters

msisdn

Specifies the MSISDN, up to 15 characters.

imei

Specifies an IMEI, up to 16 characters.

imsi

Specifies the IMSI, up to 15 characters.

local-only

Specifies an internal cleanup without signaling to peers.

name

Specifies the APN name, up to 80 characters.

bearer-id

Specifies the EPS Bearer Identifier 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 5G deployment, this keyword sets that SMF sends the 5GSM cause value #39 "reactivation requested" in the PDU SESSION RELEASE COMMAND message.

cancel

This option cancels an ongoing command. It is supported and can be used only in the commands shown in the syntax. The ongoing deletion instance to be canceled is identified by using the same set of parameters and their values that were used initially when the **clear** command was initiated.

ip-address

Specifies the IPv4 or IPv6 address of the peer server (an FWA-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:d.d.d.d where
 - x – [0..FFFF]H
 - d – [0..255]D

ipv4-address

Specifies the IPv4 address, up to 64 characters.

Values: a.b.c.d

mask

Specifies the IPv4 address mask.

Values: 9 to 30

prefix-length

Specifies the IPv6 prefix length.

Values: 41 to 56

3.2.2.10 apn

Syntax

```
apn name [local-only]  
apn name pdn-type pdn-type  
apn name pdn-type pdn-type cancel
```

Context

[\[Tree\]](#) clear mobile-gateway pdn bearer-context apn

Description

This command clears FWA bearers and sessions within the specified APN.

Parameters

name

Specifies the APN name, up to 80 characters.

pdn-type

Specifies the PDN type of the sessions to be deleted.

Values:

- **ipv4** – clears the sessions with an IPv4 address
- **ipv6** – clears the sessions with an IPv6 address
- **ipv4ipv6** – clears the sessions with an IPv4, IPv6, or both types of addresses

cancel

Keyword to cancel an ongoing command. It can be used only in the command as shown in the syntax. To identify the ongoing command, use the same set of parameters and values that were used to initiate the **clear** command.

local-only

Keyword for an internal cleanup.

3.2.2.11 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 clears FWA bearers and sessions with the specified IMEI.

Parameters

imei

Specifies an IMEI, up to 16 characters.

name

Specifies the APN name, up to 80 characters.

local-only

Keyword for an internal cleanup.

bearer-id

Specifies the EPS Bearer Identifier 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 5G deployment, this keyword sets the SMF to send the 5GSM cause value #39 "reactivation requested" in the PDU SESSION RELEASE COMMAND message.

3.2.2.12 imsi

Syntax

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

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

Context

[\[Tree\]](#) clear mobile-gateway pdn bearer-context imsi

Description

This command clears FWA bearers and sessions with the specified IMSI.

Parameters

imsi

Specifies the IMSI, up to 15 characters; supported in PGW, SGW, and ePDG.

name

Specifies the APN name, up to 80 characters.

local-only

Keyword for an internal cleanup.

bearer-id

Specifies the EPS Bearer Identifier 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 5G deployment, this keyword sets the SMF to send the 5GSM cause value #39 "reactivation requested" in the PDU SESSION RELEASE COMMAND message.

3.2.2.13 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 clears FWA bearers and sessions with the specified MSISDN.

Parameters

msisdn

Specifies the MSISDN, up to 15 characters.

name

Specifies the APN name, up to 80 characters.

local-only

Keyword for an internal cleanup.

bearer-id

Specifies the EPS Bearer Identifier 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 5G deployment, this keyword sets the SMF to send the 5GSM cause value #39 "reactivation requested" in the PDU SESSION RELEASE COMMAND message.

3.2.2.14 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 clears FWA bearers and 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 (eight 16-bit pieces) or x:x:x:x:x:d.d.d.d where
x – [0..FFFF]H
d – [0..255]D

mask

Specifies the IPv4 address mask.

Values: 9 to 30

prefix-length

Specifies the IPv6 prefix length.

Values: 41 to 56

cancel

Keyword to cancel an ongoing command. It can be used only in the command as shown in the syntax. To identify the ongoing command, use the same set of parameters and values that were used to initiate the **clear** command.

3.2.2.15 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 8

slot-number

Specifies the card slot number.

Values: 1 to 10 | A | B

local-only

Specifies an internal cleanup.

3.2.2.16 path-mgmt-stats

Syntax

path-mgmt-stats { **s11** | **sx-n4** | **n9** } [**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 (eight 16-bit pieces) or 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 a port ID.

Values: 1 to 65535

3.2.2.17 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 { **n9** } [**ref-point** *ref-point-name*] [**peer** *ip-address* [**port** *port*]] [**group** *group-number* | **card** *slot-number*]

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

Context

[\[Tree\]](#) clear mobile-gateway pdn ref-point-stats

Description

This command clears reference point statistics.

Parameters

s11 sx-n4 n9

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 (eight 16-bit pieces) or 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

Specifies the RADIUS reference point.

radius-group

Specifies the RADIUS group.

ibcp

Specifies to clear the BNG IBCP statistics.

3.2.2.18 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

Clears the attach failure statistics.

ga-buffered-cdrs

Clears the counter for Ga buffered CDR files.

3.2.3 configure mobile-gateway pdn command descriptions

3.2.3.1 mobile-gateway

Syntax

mobile-gateway

Context

[\[Tree\]](#) configure mobile-gateway

Description

Commands in this context configure a gateway instance.

3.2.3.2 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

3.2.3.3 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.



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.

3.2.3.4 address-assignment-defaults

Syntax

address-assignment-defaults

Context

[\[Tree\]](#) configure mobile-gateway pdn apn address-assignment-defaults

Description

This command enables the context to configure defaults for the APN when using ODSA as configured under the following context.

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

3.2.3.5 local-dynamic

Syntax

local-dynamic

Context

[\[Tree\]](#) configure mobile-gateway pdn apn address-assignment-defaults local-dynamic

Description

This command enables the context to configure the default pool for locally assigned IP addresses.

Default

local

3.2.3.6 ipv4-pool

Syntax

ipv4-pool *pool-name*

no ipv4-pool

Context

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

Description

This command specifies the name of a 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.

3.2.3.7 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.

3.2.3.8 ipv6-pd-pool

Syntax

ipv6-pd-pool *pool-name*

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.

3.2.3.9 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.

3.2.3.10 unmanaged

Syntax

unmanaged

Context

[\[Tree\]](#) configure mobile-gateway pdn apn address-assignment-defaults unmanaged

Description

This command enables the context to configure the default pool for AAA assigned IP addresses.

Default

unmanaged

3.2.3.11 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 a 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.

3.2.3.12 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

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.

3.2.3.13 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.

3.2.3.14 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

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.

3.2.3.15 description

Syntax

description *description-string*
no description

Context

[\[Tree\]](#) configure mobile-gateway pdn apn 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.

3.2.3.16 dhcp-profile

Syntax

dhcp-profile *name*
no dhcp-profile

Context

[\[Tree\]](#) configure mobile-gateway pdn apn dhcp-profile

Description

This command configures the DHCP profile for the session.

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

Parameters

name

Specifies the DHCP profile name, up to 32 characters.

3.2.3.17 dhcpv4-server-ip

Syntax

dhcpv4-server-ip *ip-address*
no dhcpv4-server-ip

Context

[\[Tree\]](#) configure mobile-gateway pdn apn dhcpv4-server-ip

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

3.2.3.18 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 profile name, up to 32 characters.

3.2.3.19 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

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

Specifies to use the system name.

link-local

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

3.2.3.20 fixed-wireless-access

Syntax

fixed-wireless-access

Context

[\[Tree\]](#) configure mobile-gateway pdn apn fixed-wireless-access

Description

Commands in this context configure the FWA functionality.

3.2.3.21 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.

3.2.3.22 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 session setup time, up to 32 characters.

3.2.3.23 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

3.2.3.24 shutdown

Syntax

shutdown

[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.

3.2.3.25 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

Specifies sending an alarm even when max-pdn-connections has been reached.

Default: alarm

enforce

Specifies sending an alarm and not accept any new FWA connections when max-pdn-connections has been reached.

3.2.3.26 max-session-attach

Syntax

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

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

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

Default: disabled

3.2.3.27 network-realm

Syntax

network-realm *name*

no network-realm

Context

[\[Tree\]](#) configure mobile-gateway pdn apn network-realm

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 (.)

3.2.3.28 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. If the MAG-c receives a Create Session Request for a PDN type **ipv4** or **ipv6** and this is not in this list, it rejects the session. If the MAG-c receives a Create Session request with PDN type **ipv4v6** and this is not in the list, it downgrades 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

Parameters

ipv4

Specifies that IPv4 FWA sessions are supported by this APN.

ipv6

Specifies that IPv6 FWA sessions are supported by this APN.

ipv4v6

Specifies that IPv4v6 FWA sessions are supported by this APN.

Default: ipv4

3.2.3.29 pdn-type-preferred-ipv6

Syntax

[no] pdn-type-preferred-ipv6

Context

[\[Tree\]](#) configure mobile-gateway pdn apn pdn-type-preferred-ipv6

Description

This command forces the use of an IPv6 address for session when the PDN type is converted from **ipv4v6** to either **ipv4** or **ipv6**. See the **configure mobile-gateway pdn apn pdn-type** command for more details.

The **no** form of this command forces the use of an IPv4 address.

3.2.3.30 shutdown

Syntax

[no] shutdown

Context

[\[Tree\]](#) configure mobile-gateway pdn apn 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.



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.

3.2.3.31 bng

Syntax

bng

Context

[\[Tree\]](#) configure mobile-gateway pdn bng

Description

This command enables the context to configure BNG PDN parameters.

3.2.3.32 radius-coa

Syntax

radius-coa

Context

[\[Tree\]](#) configure mobile-gateway pdn bng radius-coa

Description

This command enables the context to configure RADIUS COA parameters for BNG.

3.2.3.33 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.

3.2.3.34 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.

3.2.3.35 python-policy

Syntax

python-policy *name*

no python-policy

Context

[\[Tree\]](#) configure mobile-gateway pdn bng radius-coa python-policy

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.

3.2.3.36 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.

3.2.3.37 up-group

Syntax

[**no**] **up-group** *name*

Context

[\[Tree\]](#) configure mobile-gateway pdn bng up-group

Description

This commands 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

Parameters

name

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

3.2.3.38 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

3.2.3.39 description

Syntax

description *description-string*
no description

Context

[\[Tree\]](#) configure mobile-gateway pdn bng up-group 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 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.

3.2.3.40 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.

3.2.3.41 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, only 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-is

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.

3.2.3.42 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

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

3.2.3.43 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

3.2.3.44 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 (eight 16-bit pieces) or 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.

3.2.3.45 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 which 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

to

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

Values: 1 to 4094

3.2.3.46 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

3.2.3.47 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.

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

Default

no l2-access-is

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.

3.2.3.48 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

3.2.3.49 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.



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

3.2.3.50 wpp

Syntax

wpp

Context

[\[Tree\]](#) configure mobile-gateway pdn bng wpp

Description

Commands in this context configure WPP parameters.

3.2.3.51 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

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.

3.2.3.52 cdbx

Syntax

cdbx

Context

[\[Tree\]](#) configure mobile-gateway pdn cdbx

Description

This command enables the context to configure cloud database profile parameters.

3.2.3.53 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.

3.2.3.54 interface

Syntax

interface [**router** *router-instance*] *interface-name*

no interface

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.

3.2.3.55 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)

3.2.3.56 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.

Parameters

name

Specifies the EPC node name, up to 31 characters.

Syntax: <MCC>.<MNC>.<SGW|PGW|ePDG|TWAG>.<Region tring>.<Group Id>.<Node Id>

3.2.3.57 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:

- control – Enables MAG-c as control plane.
- user – Not supported for MAG-c.

3.2.3.58 local-address-assignment

Syntax

local-address-assignment

Context

[\[Tree\]](#) configure mobile-gateway pdn local-address-assignment

Description

This command enables the context to configure local address assignment parameters.

Default

local-address-assignment

3.2.3.59 network-realm

Syntax

[no] network-realm *realm-name*

Context

[\[Tree\]](#) configure mobile-gateway pdn local-address-assignment network-realm

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 (.)

3.2.3.60 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.

3.2.3.61 pool

Syntax

pool *name* [**tracking** *application*]

no pool *name*

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

dhcp-relay

3.2.3.62 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 micronetting over multiple user plane devices.

3.2.3.63 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.

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.

3.2.3.64 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.

Parameters

minutes

Specifies the hold time, in minutes.

Values: 0 to 5

seconds

Specifies the hold time, in seconds.

Values: 0 to 59

3.2.3.65 ipv4

Syntax

ipv4

Context

[\[Tree\]](#) configure mobile-gateway pdn local-address-assignment network-realm pool ipv4

Description

This command enables the context to configure IPv4 parameters for the address pool.

Default

ipv4

3.2.3.66 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.

Parameters

choice

Specifies the default gateway choice.

Values: first-address | last-address

3.2.3.67 dns

Syntax

dns

Context

[\[Tree\]](#) configure mobile-gateway pdn local-address-assignment network-realm pool ipv4 dns

Description

This command enables the context to configure the IPv4 DNS server addresses associated with the pool.

Default

dns

3.2.3.68 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.

Parameters*ip-address*

Specifies the address of the primary DNS for the IPv4 network-realm pool.

Values: a.b.c.d

3.2.3.69 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

3.2.3.70 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

3.2.3.71 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

length

Specifies the IP address length.

Values: 9 to 28

3.2.3.72 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.

3.2.3.73 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

3.2.3.74 subnet-allocation

Syntax

[no] subnet-allocation

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

3.2.3.75 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

Parameters

bits

Specifies the length of the subnet to be allocated.

Values: 16 to 32

3.2.3.76 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

3.2.3.77 ipv6

Syntax

ipv6

Context

[\[Tree\]](#) configure mobile-gateway pdn local-address-assignment network-realm pool ipv6

Description

This command enables the context to configure IPv6 address pools.

3.2.3.78 dns

Syntax

dns

Context

[\[Tree\]](#) configure mobile-gateway pdn local-address-assignment network-realm pool ipv6 dns

Description

This command enables the context to configure the IPv6 DNS server addresses associated with the pool.

3.2.3.79 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.

Parameters

ipv6-address
A unicast IPv6 address, up to 64 characters.

3.2.3.80 secondary-dns

Syntax

secondary-dns *ipv6-address*
no secondary-dns

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.

3.2.3.81 na

Syntax

na

Context

[\[Tree\]](#) configure mobile-gateway pdn local-address-assignment network-realm pool ipv6 na

Description

This command enables the context to configure NA parameters for the address pool.

3.2.3.82 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.

Parameters

length

Specifies the micro-net length.

Values: 105 to 124

3.2.3.83 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 IP address prefix, host bits must be zero.

prefix-length

Specifies the IP address length.

Values: 105 to 124

3.2.3.84 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

3.2.3.85 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 IP addresses to exclude, up to 64 characters.

3.2.3.86 pd

Syntax

pd

Context

[\[Tree\]](#) configure mobile-gateway pdn local-address-assignment network-realm pool ipv6 pd

Description

This command enables the context to configure IPv6 PD parameters for the address pool.

3.2.3.87 delegated-prefix

Syntax

delegated-prefix

Context

[\[Tree\]](#) configure mobile-gateway pdn local-address-assignment network-realm pool ipv6 pd delegated-prefix

Description

This command enables the context to configure IPv6 PD DPL parameters for the address pool.

3.2.3.88 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.

Parameters

bits

Specifies the DPL.

Values: 48 to 64

Default: 56

3.2.3.89 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

Parameters

bits

Specifies the minimum or maximum DPL.

Values: 48 to 64

3.2.3.90 micro-net

Syntax

micro-net *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

3.2.3.91 prefix

Syntax

[no] prefix *ip-address/prefix-length*

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 IP address prefix, host bits must be zero.

prefix-length

Specifies the prefix length.

Values: 37 to 60

3.2.3.92 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

3.2.3.93 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.

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).

3.2.3.94 slaac

Syntax

slaac

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool ipv6 slaac

Description

This command enables the context to configure IPv6 SLAAC parameters for the address pool.

3.2.3.95 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

3.2.3.96 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 IP address prefix, host bits must be zero.

prefix-length

Specifies the prefix length.

Values: 41 to 60

3.2.3.97 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.

3.2.3.98 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 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.

3.2.3.99 minimum-free

Syntax

minimum-free *number* [percent]

no minimum-free

Context

[Tree] configure mobile-gateway pdn local-address-assignment network-realm pool minimum-free

Description

This command specifies a number or percentage of free micro-nets within the prefix, which when met, a trap is generated.

Parameters

number

Specifies the minimum free number.

Values: 1 to 255

percent

Specifies the minimum free as a percentage.

3.2.3.100 pfcf-node-id-type

Syntax

```
pfcf-node-id-type {fqdn | ip} [ip-type {ipv4 | ipv6}]  
no pfcf-node-id-type
```

Context

[\[Tree\]](#) configure mobile-gateway pdn pfcf-node-id-type

Description

This command configures the PFCF 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 PFCF interface.



Note: This command requires a PDN shutdown.

Parameters

fqdn

Specifies the PFCF 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 PFCF 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 PFCF node ID when dual stack is configured on the Sx-N4 reference point interface.

ipv6

Specifies to use the IPv6 address for the PFCF node ID when dual stack is configured on the Sx-N4 reference point interface.

Default: ipv4



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.

3.2.3.101 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.

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.

Default: default

3.2.3.102 interface

Syntax

interface

Context

[\[Tree\]](#) configure mobile-gateway pdn s11 interface

Description

This command enables the context to configure the s11 interface.



Note: This command requires a PDN shutdown.

3.2.3.103 gtp-c

Syntax

gtp-c [**router** *router-instance*] *interface-name* [**interface-realm** *s1-u-realm-name*]
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.

3.2.3.104 signaling

Syntax

signaling

Context

[\[Tree\]](#) configure mobile-gateway pdn s11 signaling

Description

This command enables the context to configure signaling for the S11 interface.



Note: This command requires a PDN shutdown.

3.2.3.105 gtp-c

Syntax

gtp-c

Context

[\[Tree\]](#) configure mobile-gateway pdn s11 signaling gtp-c

Description

This command enables the context to configure GTP-C signaling for the S11 signaling interface.



Note: This command requires a PDN shutdown.

3.2.3.106 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 Downlink Data Notification (DDN) ARP threshold.

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



Note: This command requires a PDN shutdown.

Parameters

ddn-throttling-arp-threshold

Specifies a DDN ARP threshold.

Values: 0 to 15

3.2.3.107 s5

Syntax

s5 [*sig-ref-point-name*]

no s5 [*sig-ref-point-name*]

Context

[\[Tree\]](#) configure mobile-gateway pdn s5

Description

This command enables the context to 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.

3.2.3.108 interface

Syntax

interface

Context

[\[Tree\]](#) configure mobile-gateway pdn s5 interface

Description

The command enables the context to configure interface parameters.



Note: This command requires a PDN shutdown.

3.2.3.109 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.



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.

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:

3.2.3.110 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.



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.

3.2.3.111 signaling

Syntax

signaling

Context

[\[Tree\]](#) configure mobile-gateway pdn signaling

Description

This command enables the context to configure signaling.

3.2.3.112 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.

3.2.3.113 profile

Syntax

profile *profile-name*

no profile

Context

[\[Tree\]](#) configure mobile-gateway pdn signaling gtp-c profile

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.

3.2.3.114 sx-n4

Syntax

[no] sx-n4 [*ref-point-name*]

Context

[\[Tree\]](#) configure mobile-gateway pdn sx-n4

Description

This command enables the context to configure the Sx/N4 interface parameters.



Note: This command requires a PDN shutdown.

Parameters

ref-point-name

Specifies a name to associate with this reference point, up to 32 characters.

3.2.3.115 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.

3.2.3.116 interface

Syntax

interface

Context

[\[Tree\]](#) configure mobile-gateway pdn sx-n4 interface

Description

This command enables the context to configure GTP-U and Packet Forwarding Control Protocol (PFCP) parameters for the Sx/N4 interface.



Note: This command requires a PDN shutdown.

3.2.3.117 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-instance

Specifies the router instance, up to 32 characters.

interface-name

Specifies the interface name, up to 32 characters.

3.2.3.118 pfcf

Syntax

pfcf [**router** *router-instance*] *interface-name*

no pfcf

Context

[\[Tree\]](#) configure mobile-gateway pdn sx-n4 interface pfcf

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.

3.2.3.119 pfcf-association-list

Syntax

pfcf-association-list *list-name*
no pfcf-association-list

Context

[\[Tree\]](#) configure mobile-gateway pdn sx-n4 pfcf-association-list

Description

This command links the PFCF association peer list to the PDN, that is configured as CP or UP function using the command.

```
configure mobile-gateway pdn instance-type
```

If the gateway is configured as a CP function, the command links the PFCF 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 PFCF 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 PFCF association peer list, you must shutdown the PDN before removing or replacing the list.
- You can modify an existing PFCF 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 PFCF association peer list defined in the **configure mobile-gateway profile pfcf** context, up to 32 characters.

3.2.3.120 signaling

Syntax

signaling

Context

[\[Tree\]](#) configure mobile-gateway pdn sx-n4 signaling

Description

This command enables the context to configure the signaling parameters of the Sx/N4 interface.



Note: This command requires a PDN shutdown.

3.2.3.121 ibcp

Syntax

ibcp

Context

[\[Tree\]](#) configure mobile-gateway pdn sx-n4 signaling ibcp

Description

This command enables the context to configure IBCP signaling parameters.



Note: This command requires a PDN shutdown.

3.2.3.122 bng-entry-point

Syntax

bng-entry-point *name*

no bng-entry-point

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.

3.2.3.123 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.

Parameters

ip-dscp-value

Specifies the value of the IPv4 DSCP or IPv6 Traffic Class DS.

Values: 0 to 63

Default: 56

3.2.3.124 ip-ttl

Syntax

ip-ttl *ip-ttl-value*

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.

Parameters

ip-ttl-value

Specifies the value of the TTL used in the outer IP header.

Values: 0 to 255

Default: 255

3.2.3.125 triggers

Syntax

triggers [pppoe-discover] [ipoe-dhcp] [ipoe-dhcpv6] [ipoe-router-solicit]

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.

ipoe-router-solicit

Enables the RS IPoE trigger.

3.2.3.126 pfcp

Syntax

pfcp

Context

[\[Tree\]](#) configure mobile-gateway pdn sx-n4 signaling pfcp

Description

This command enables the context to configure PFCP signaling parameters.



Note: This command requires a PDN shutdown.

3.2.3.127 profile

Syntax

profile *profile-name*

no profile

Context

[\[Tree\]](#) configure mobile-gateway pdn sx-n4 signaling pfcf profile

Description

This command configures the PFCF 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.

3.2.4 configure mobile-gateway profile authentication-database command descriptions

3.2.4.1 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.

3.2.4.2 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.

3.2.4.3 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.

3.2.4.4 access-loop-encapsulation

Syntax

access-loop-encapsulation

Context

[\[Tree\]](#) configure mobile-gateway profile authentication-database entry access-loop-encapsulation

Description

This command enables the context to configure parameters for access loop encapsulation.

3.2.4.5 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

Specifies that the actual downstream rates from previous ADB lookups are discarded.

rate

Specifies the actual downstream rate.

Values: 1 to 2147483647

3.2.4.6 action

Syntax

action *action-type* [**radius-authentication-profile** *profile-name*]
no action

Context

[\[Tree\]](#) configure mobile-gateway profile authentication-database entry action

Description

This command enables the context to configure the action to apply to a match of the authentication database entry.

The **no** form of this command disables the context.

Default

no action

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
- 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, and if RADIUS authentication fails, the system fails the session authentication

profile-name

Specifies the RADIUS authentication profile name, up to 32 characters (required if *action-type* is **radius**).

3.2.4.7 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

3.2.4.8 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

Parameters

length

Specifies the length.

Values: 44 to 64

3.2.4.9 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.

3.2.4.10 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.

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

3.2.4.11 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.

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

3.2.4.12 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.

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

3.2.4.13 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

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

3.2.4.14 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.

3.2.4.15 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

Parameters

discard

Specifies that the previous pool is discarded.

pool-name

Specifies the pool name for the local IPv4 address, up to 32 characters.

3.2.4.16 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**

Specifies that the previous pool is discarded.

pool-name

Specifies the pool name, up to 32 characters.

3.2.4.17 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 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**

Specifies that the previous pool is discarded.

pool-name

Specifies the pool name, up to 32 characters.

3.2.4.18 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

Specifies that the previous pool is discarded.

pool-name

Specifies the pool name, up to 32 characters.

3.2.4.19 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

Parameters

boolean-value

Specifies whether to enable (true) or disable (false) the sending of a PD prefix as framed route.

Values: false | true

3.2.4.20 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.

3.2.4.21 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

discard

Keyword to discard the previous IPv4 address.

3.2.4.22 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.

3.2.4.23 ipv6-na-address

Syntax

ipv6-na-address discard
ipv6-na-address *ip-address*
no ipv6-na-address

Context

[Tree] configure mobile-gateway profile authentication-database entry address-assignment unmanaged
ipv6-na-address

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 (eight 16-bit pieces) or 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.

3.2.4.24 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.

3.2.4.25 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.

3.2.4.26 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.

Default

no ipv6-pd-prefix

Parameters

ipv6-prefix/length

Specifies the IPv6 prefix length.

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

3.2.4.27 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.

3.2.4.28 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 (eight 16-bit pieces) or 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.

3.2.4.29 unmatching-prefix

Syntax

unmatching-prefix allow [ipv4] [ipv6-na] [ipv6-pd] [ipv6-slaac]
unmatching-prefix disallow
unmatching-prefix discard
no unmatching-prefix

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 BNG CPF or 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]

Enables the support for unmatching prefixes with one or multiple allowed address types.

disallow

Disables the support for unmatching prefixes.

discard

Specifies that the configuration that is returned by the previous ADB is discarded.

3.2.4.30 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

Parameters

discard

Specifies that the previous APN is discarded.

apn-name

Specifies the APN name, up to 80 characters.

3.2.4.31 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

3.2.4.32 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

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

Specifies that the previously returned BNG charging profile in the authentication flow is discarded; for more information, see *Authentication database* section, in the *CMG BNG CUPS Control Plane Function Guide*.

3.2.4.33 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

3.2.4.34 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

Parameters

discard

Specifies a force removal of volume tracking.

megabytes

Specifies the downstream traffic volume limit, in megabytes.

Values: 1 to 1000000000

3.2.4.35 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

Specifies a force removal of volume tracking.

megabytes

Specifies the total traffic volume limit, in megabytes.

Values: 1 to 1000000000

3.2.4.36 upstream

Syntax

upstream **discard**

upstream *megabytes*

no upstream

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

Specifies a force removal of volume tracking.

megabytes

Specifies the upstream traffic volume limit, in megabytes.

Values: 1 to 1000000000

3.2.4.37 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

Parameters

boolean-value

Specifies to enable or disable the detailed statistics collection.

Values: false | true

3.2.4.38 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

3.2.4.39 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

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.

3.2.4.40 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.

3.2.4.41 dhcp-profile

Syntax

dhcp-profile **discard**

dhcp-profile *name*

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

Specifies that the previous DHCP profile is discarded.

name

Specifies the DHCP profile name, up to 32 characters.

3.2.4.42 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

Specifies that the DHCPv6 profile from previous ADB lookups is discarded.

name

Specifies the DHCPv6 profile name, up to 32 characters.

3.2.4.43 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.

3.2.4.44 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

3.2.4.45 ipv4-signaling-method

Syntax

ipv4-signaling-method *signaling-method*

no ipv4-signaling-method

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

3.2.4.46 qos-profile

Syntax

qos-profile discard

qos-profile *name*

no qos-profile

Context

[\[Tree\]](#) configure mobile-gateway profile authentication-database entry fixed-wireless-access qos-profile

Description

This command specifies the 4G/5G NSA QoS profile for this session. The QoS profiles are configured in the following context.

```
configure mobile-gateway profile qos-profile
```

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

Default

no qos-profile

Parameters**discard**

Keyword to discard the QoS profile from the previous ADB lookups.

name

Specifies the QoS profile name, up to 32 characters.

3.2.4.47 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

3.2.4.48 url

Syntax

url *url-string*

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.

3.2.4.49 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

3.2.4.50 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

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.

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

x – [0..FFFF]H

d – [0..255]D

3.2.4.52 sap-template

Syntax

sap-template *name*

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.

3.2.4.53 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

3.2.4.54 l2tp

Syntax

l2tp

Context

[\[Tree\]](#) configure mobile-gateway profile authentication-database entry l2tp

Description

This command enables the context to configure L2TP parameters.

3.2.4.55 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

Specifies that the L2TP groups from the previous ADB lookups are discarded.

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
```

3.2.4.56 match

Syntax

match

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

3.2.4.57 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.

3.2.4.58 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)

3.2.4.59 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.

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)

3.2.4.60 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

3.2.4.61 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)

3.2.4.62 imsi-mnc**Syntax**

imsi-mnc *mnc value*

no imsi-mnc

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)

3.2.4.63 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

string-mask no

Default

no l2-access-id

Parameters

string

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

3.2.4.64 mac

Syntax

mac *ieee-address*

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

3.2.4.65 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)

3.2.4.66 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 commands removes the configuration.

Default

no up-group

Parameters

name

Specifies the UP group name, up to 32 characters.

3.2.4.67 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:d.d.d.d where

x – [0..FFFF]H

d – [0..255]D

3.2.4.68 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

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.

3.2.4.69 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.

3.2.4.70 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.

3.2.4.71 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.

Values: 0x0 to 0xFFFFFFFF...(max 510 hex nibbles)

3.2.4.72 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

3.2.4.73 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.

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

3.2.4.74 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

3.2.4.75 pfc

Syntax

pfc

Context

[\[Tree\]](#) configure mobile-gateway profile authentication-database entry pfc

Description

Commands in this context configure PFCP parameters.

3.2.4.76 include-attributes

Syntax

include-attributes

no include-attributes

Context

[\[Tree\]](#) configure mobile-gateway profile authentication-database entry pfc 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

3.2.4.77 acct-session-id**Syntax**

acct-session-id *origin*

no acct-session-id

Context

[\[Tree\]](#) configure mobile-gateway profile authentication-database entry pfcpl 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

Parameters

origin

Specifies the origin.

Values: session | subscriber

3.2.4.78 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

3.2.4.79 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.

Values: 0 to 30

3.2.4.80 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**

Specifies that the RA profile from previous ADB lookups is discarded.

name

Specifies the RA profile name, up to 32 characters.

3.2.4.81 resiliency

Syntax

resiliency

Context

[\[Tree\]](#) configure mobile-gateway profile authentication-database entry resiliency

Description

Commands in this context configure resiliency parameters for the session.

3.2.4.82 standby-mode

Syntax

standby-mode {warm | hot}

no standby-mode

Context

[\[Tree\]](#) configure mobile-gateway profile authentication-database entry resiliency standby-mode

Description

This command configures the standby mode for the session. The MAG-c ignores this configuration if the session is not part of an FSG.

If no ADB or other AAA resource provides a per-session override, the session uses the value configured with the following command.

```
configure mobile-gateway profile bng fsg-profile default-standby-mode
```

See "Warm and hot standby" in the *MAG-c Control Plane Function Guide* for more information.

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

Default

no standby-mode

Parameters

warm | hot

Specifies the standby mode.

Values:

- warm – specifies that the MAG-c creates the sessions on the standby BNG-UP only after a switchover occurs
- hot – specifies that the MAG-c precreates the sessions on the standby BNG-UP

3.2.4.83 session-timeout

Syntax

session-timeout *seconds*

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

3.2.4.84 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.

3.2.4.85 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

3.2.4.86 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.

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

Default

no sla-profile

Parameters

name

Specifies the SLA profile name, up to 32 characters.

3.2.4.87 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.

3.2.4.88 wpp

Syntax

wpp

Context

[\[Tree\]](#) configure mobile-gateway profile authentication-database entry wpp

Description

This command enables the context to configure WPP.

3.2.4.89 initial-profiles

Syntax

initial-profiles

Context

[\[Tree\]](#) configure mobile-gateway profile authentication-database entry wpp initial-profiles

Description

This command enables the context to configure the initial profiles. The initial profiles are used for a WPP session before WPP authentication.

3.2.4.90 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.

3.2.4.91 sub-profile

Syntax

sub-profile *name*

no sub-profile

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.

3.2.4.92 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.

3.2.4.93 restore-disconnected

Syntax

[no] restore-disconnected

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

3.2.4.94 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.

3.2.4.95 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.

Default

no wpp-radius-authentication

Parameters

name

Specifies the RADIUS authentication profile name, up to 32 characters.

3.2.4.96 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"

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

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

- 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
- 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 SD as a match attribute
- s-nssai-sst – specifies the S-NSSAI 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
- 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

3.2.4.97 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
- **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

3.2.4.98 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

3.2.4.99 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

3.2.4.100 prefix**Syntax**

prefix length *mask-length*

prefix string *mask-string*

no prefix

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.

3.2.4.101 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

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.

3.2.4.102 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.

3.2.5 configure mobile-gateway profile bng command descriptions

3.2.5.1 bng

Syntax

bng

Context

[\[Tree\]](#) configure mobile-gateway profile bng

Description

This command enables the context for configuring BNG parameters.

Default

bng

3.2.5.2 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.

3.2.5.3 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

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.

3.2.5.4 nat-access-mode

Syntax

nat-access-mode *access-mode*

Context

[\[Tree\]](#) configure mobile-gateway profile bng cp-nat-profile nat-access-mode

Description

This commands configures the NAT access mode.

Parameters

access-mode

Specifies the NAT access mode.

Values: auto | bridged

3.2.5.5 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.

3.2.5.6 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.

3.2.5.7 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.

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
```

3.2.5.8 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

3.2.5.9 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

Description

This command configures the end port of the shared port forwarding range.

Parameters

range-end

Specifies the end port of the port forwarding range.

Values: 1023 to 65535

3.2.5.10 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.

3.2.5.11 forwarding

Syntax

forwarding *limit*

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.

Parameters

limit

Specifies the maximum number of ports that can be forwarded for a NAT session.

Values: 1 to 64

3.2.5.12 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.

Default

port-reservation ports 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

3.2.5.13 subscriber-limit

Syntax

subscriber-limit *subscriber-limit*

Context

[\[Tree\]](#) configure mobile-gateway profile bng cp-nat-profile nat-pool mode subscriber-limit

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 as follows:

1. First is the well-known port range.
2. Following the well-known port range is the static port forwarding range, which is enabled by configuration.
3. Next is the 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. The final section of the port space is reserved for extended port blocks based on 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 until the end of the ports space (port 65535).

Default

no subscriber-limit

Parameters

subscriber-limit

Specifies the maximum number of subscribers per outside IP address.

Values: 2 to 2000

3.2.5.14 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.

Default

no up-nat-policy

Parameters

name

Specifies the name of the up-nat-policy defined on the BNG-UP; up to 32 characters.

3.2.5.15 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.

3.2.5.16 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

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.

3.2.5.17 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

3.2.5.18 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.

Parameters

option-number

Specifies the action that is applied to a match.

Values: 1 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)

3.2.5.19 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.

3.2.5.20 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.

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.

3.2.5.21 options

Syntax

options

Context

[\[Tree\]](#) configure mobile-gateway profile bng dhcpv6-profile options

Description

This command enables the context to configure the options to be included in the DHCPv6 messages that are sent to a DHCPv6 client.

Default

options

3.2.5.22 option

Syntax

[no] option *option-number*

option *option-number* **address** *ipv6-address* [*ipv6-address...*]

option *option-number* **hex** *hex-string*

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.

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)

3.2.5.23 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.

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

Parameters

name

Specifies the BNG entry point name, up to 32 characters.

3.2.5.24 description

Syntax

description *description-string*
no description

Context

[\[Tree\]](#) configure mobile-gateway profile bng entry-point 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.

3.2.5.25 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
- 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.

3.2.5.26 description

Syntax

description *description-string*

no description

Context

[\[Tree\]](#) configure mobile-gateway profile bng entry-point 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 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.

3.2.5.27 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.

Default

ipoe

3.2.5.28 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

3.2.5.29 adb

Syntax

adb *adb-name* [*adb-name*]

no adb

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.

3.2.5.30 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.

3.2.5.31 match

Syntax

match

Context

[\[Tree\]](#) configure mobile-gateway profile bng entry-point entry match

Description

Commands in this context configure the match attribute values for the entry.

3.2.5.32 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.

3.2.5.33 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
```

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.

3.2.5.34 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 (eight 16-bit pieces) or x:x:x:x:x:d.d.d.d where
x – [0..FFFF]H
d – [0..255]D

3.2.5.35 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.

3.2.5.36 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.

Default

vlan

3.2.5.37 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

3.2.5.38 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.

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

3.2.5.39 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

3.2.5.40 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

3.2.5.41 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

3.2.5.42 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.

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.

3.2.5.43 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.

3.2.5.44 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.

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

Default

no pppoe-profile

Parameters

name

Specifies the PPPOE profile name, up to 32 characters.

3.2.5.45 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

3.2.5.46 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

Parameters

scope

Specifies the PPPoE session ID allocation scope type.

Values: l2-circuit | l2-circuit-mac

3.2.5.47 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

3.2.5.48 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.

3.2.5.49 session-limits**Syntax**

session-limits

Context

[\[Tree\]](#) configure mobile-gateway profile bng entry-point entry session-limits

Description

This command enables the context to 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.

3.2.5.50 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

Specifies that there is no limit for the number of sessions.

3.2.5.51 per-l2-circuit

Syntax

per-l2-circuit *number*

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

Specifies that there is no limit for the number of sessions.

3.2.5.52 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.

3.2.5.53 shutdown

Syntax

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.

3.2.5.54 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

Specifies that every session is a different subscriber.

multi-session

Specifies that a subscriber could contain multiple sessions, according to the **multi-session-key** configuration.

3.2.5.55 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

3.2.5.56 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

3.2.5.57 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

3.2.5.58 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

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

3.2.5.59 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.

3.2.5.60 suffix**Syntax**

suffix length *mask-length*

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.

3.2.5.61 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

3.2.5.62 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

3.2.5.63 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

3.2.5.64 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

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

3.2.5.65 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.

3.2.5.66 suffix

Syntax

suffix length *mask-length*

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.

3.2.5.67 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

3.2.5.68 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

3.2.5.69 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.

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

3.2.5.70 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

3.2.5.71 string-mask

Syntax

[no] string-mask

Context

[\[Tree\]](#) configure mobile-gateway profile bng entry-point match string-mask

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

3.2.5.72 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.

3.2.5.73 suffix

Syntax

suffix length *mask-length*

suffix string *mask-string*

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.

3.2.5.74 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.

3.2.5.75 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.

3.2.5.76 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.

3.2.5.77 active-change-without-failure

Syntax

active-change-without-failure

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

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

Specifies 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]

Specifies a time 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

Specifies that the current active BNG-UP remains active until it fails. This is known as the non-revertive mode.

3.2.5.78 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 commands 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.

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 commands reverts to the default.

Default

failure-lockout 60

Parameters

seconds

Specifies the lockout timer in seconds.

Values: 30 to 3600

Default: 60

3.2.5.79 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 commands 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 commands reverts to the default.

Default

hold-off-on-degradation 0

Parameters

milliseconds

Specifies the hold timer for degradation events in milliseconds.

Values: 0 to 100000

Default: 0 (disabled)

3.2.5.80 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 commands 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

Default: 5000

3.2.5.81 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 commands reverts to the default.

Default

default-standby-mode hot

Parameters

warm | hot

Specifies 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

3.2.5.82 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.

3.2.5.83 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.

3.2.5.84 aggregation-mode

Syntax

aggregation-mode *mode*

no aggregation-mode

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 commands 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

Default: lowest

3.2.5.85 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 commands reverts to the default.

Default

failure-threshold 1

Parameters

[1..100]

Specifies the minimal health value to consider a BNG-UP not failed.

Values: 1 to 100

Default: 1

3.2.5.86 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

3.2.5.87 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.

3.2.5.88 mac-prefix

Syntax

mac-prefix *mac-prefix*

no mac-prefix

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)

Default: 02:00:5e:00

3.2.5.89 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.

3.2.5.90 ipoe-profile**Syntax**

[no] ipoe-profile *name*

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.

3.2.5.91 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.

3.2.5.92 dot1p**Syntax**

dot1p *dot1p-priority*

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

3.2.5.93 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

3.2.5.94 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

3.2.5.95 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.

3.2.5.96 avp-hiding

Syntax

avp-hiding {never | sensitive | always}

no avp-hiding

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

Specifies to never set the H bit.

sensitive

Specifies to set the H bit only for AVPs that contain sensitive information.

always

Specifies to set the H bit for all AVPs.

3.2.5.97 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

Specifies to never perform tunnel authentication.

always

Specifies to always perform tunnel authentication.

3.2.5.98 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.

3.2.5.99 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.

Parameters

seconds

Specifies the timeout in seconds.

Values: 60 to 86400

3.2.5.100 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

Specifies an infinite interval, that is, Hello messages are not sent.

seconds

Specifies the interval in seconds.

Values: 10 to 3600

3.2.5.101 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.

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

Parameters

infinite

Specifies an infinite timeout, that is, an established tunnel is held up and never disconnected.

seconds

Specifies the timeout in seconds.

Values: 0 to 3600

3.2.5.102 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.

3.2.5.103 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.

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

Parameters

max

Specifies the number of retries.

Values: 2 to 7

3.2.5.104 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

3.2.5.105 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.

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).

3.2.5.106 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

3.2.5.107 selection-algorithm

Syntax

selection-algorithm *type*
no selection-algorithm

Context

[\[Tree\]](#) configure mobile-gateway profile bng l2tp-group selection-algorithm

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 — specifies to first attempt using an existing tunnel
- weighted — specifies 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 — specifies to equally distribute sessions in a random fashion, that is, when two tunnels have an equal number of sessions, a random tunnel is chosen

3.2.5.108 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

Specifies 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

3.2.5.109 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.

3.2.5.110 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

Specifies to never set the H bit.

sensitive

Specifies to set the H bit only for AVPs that contain sensitive information.

always

Specifies to set the H bit for all AVPs.

3.2.5.111 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

Specifies to never perform tunnel authentication.

always

Specifies to always perform tunnel authentication.

3.2.5.112 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

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.

3.2.5.113 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

3.2.5.114 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.

Parameters

infinite

Specifies an infinite interval, that is, Hello messages are not sent.

seconds

Specifies the interval in seconds.

Values: 10 to 3600

3.2.5.115 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

Specifies an infinite timeout, that is, an established tunnel is held up and never disconnected.

seconds

Specifies the timeout in seconds.

Values: 0 to 3600

3.2.5.116 local-address

Syntax

local-address *ip-address*

no local-address

Context

[\[Tree\]](#) configure mobile-gateway profile bng l2tp-group tunnel local-address

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

3.2.5.117 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.

3.2.5.118 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.

Parameters

max

Specifies the number of retries.

Values: 2 to 7

3.2.5.119 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

3.2.5.120 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.

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).

3.2.5.121 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

3.2.5.122 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

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

3.2.5.123 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

3.2.5.124 remote-name

Syntax

remote-name *name*

no remote-name

Context

[\[Tree\]](#) configure mobile-gateway profile bng l2tp-group tunnel remote-name

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.

3.2.5.125 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

Specifies 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

3.2.5.126 shutdown

Syntax

shutdown
no shutdown

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.

3.2.5.127 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** – specifies that the DF bit is set
- **false** – specifies that the DF bit is not set

3.2.5.128 use-df-bit

Syntax

use-df-bit *set*

no use-df-bit

Context

[\[Tree\]](#) configure mobile-gateway profile bng l2tp-group 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* – specifies that the DF bit is set
- *false* – specifies that the DF bit is not set

3.2.5.129 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.

3.2.5.130 authentication

Syntax

authentication

Context

[\[Tree\]](#) configure mobile-gateway profile bng pppoe-profile authentication

Description

This command enables the context to configure authentication for the PPP profile.

3.2.5.131 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

3.2.5.132 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.

Default

method pref-chap

Parameters

pap

Specifies to only attempt authentication with PAP.

chap

Specifies to only attempt authentication with CHAP.

pref-chap

Specifies that the first CHAP is negotiated followed by PAP upon failure.

pref-pap

Specifies that the first PAP is negotiated followed by CHAP upon failure.

3.2.5.133 description

Syntax

description *description-string*

no description

Context

[\[Tree\]](#) configure mobile-gateway profile bng pppoe-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.

3.2.5.134 discovery

Syntax

discovery

Context

[\[Tree\]](#) configure mobile-gateway profile bng pppoe-profile discovery

Description

This command enables the context to configure PPPoE discovery signaling.

Default

discovery

3.2.5.135 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.

3.2.5.136 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.

The **no** form of this command disables the generation of AC-Cookie tags.

Default

generate-ac-cookie

3.2.5.137 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

3.2.5.138 lcp

Syntax

lcp

Context

[\[Tree\]](#) configure mobile-gateway profile bng pppoe-profile lcp

Description

This command enables the context to configure PPPoE LCP signaling.

3.2.5.139 keep-alive**Syntax**

keep-alive

Context

[\[Tree\]](#) configure mobile-gateway profile bng pppoe-profile lcp keep-alive

Description

This command enables the context to handle LCP keepalive parameters. These parameters are sent to the UP in case LCP Keepalive Offload is enabled.

3.2.5.140 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

3.2.5.141 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.

Default

interval 30

Parameters

seconds

Specifies the time interval, in seconds, at which keepalives are transmitted.

Values: 4 to 300

3.2.5.142 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

3.2.5.143 max-mtu

Syntax

max-mtu *mtu-bytes*

no max-mtu

Context

[\[Tree\]](#) configure mobile-gateway profile bng pppoe-profile lcp max-mtu

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 bytes 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

3.2.5.144 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

3.2.5.145 renegotiation

Syntax

renegotiation {**ignore** | **terminate-pppoe-session**}
no renegotiation

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

Specifies that LCP renegotiation messages are ignored.

terminate-pppoe-session

Specifies that LCP renegotiation messages terminate the PPPoE session.

3.2.5.146 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

3.2.5.147 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.

The **no** form of this command does not remove the existing session.

Default

padi-removes-existing-session

3.2.5.148 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.

3.2.5.149 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.

3.2.5.150 max

Syntax

max *seconds*

Context

[\[Tree\]](#) configure mobile-gateway profile bng ra-profile advertisement-interval max

Description

This command sets the maximum advertisement interval.

Parameters

seconds

Specifies the interval in seconds.

Values: 4 to 1800

Default: 600

3.2.5.151 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

Sets the minimum interval to 33% of the maximum interval.

seconds

Specifies the interval in seconds.

Values: 4 to 1800

3.2.5.152 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.

3.2.5.153 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-multicast-mac

3.2.5.154 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.

3.2.5.155 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.

Parameters

limit

Specifies the value of the hop limit.

Values: 1 to 255

Default: 255

3.2.5.156 mtu**Syntax**

mtu *bytes*

mtu not-included

Context

[\[Tree\]](#) configure mobile-gateway profile bng ra-profile options mtu

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

3.2.5.157 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

no on-link

3.2.5.158 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

3.2.5.159 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.

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

Default: 0

3.2.5.160 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.

Parameters

milliseconds

Retransmission time between NS messages.

Values: 0 to 1800000

Default: 0

3.2.5.161 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

3.2.5.162 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.

3.2.5.163 apn-format

Syntax

apn-format *form*

no apn-format

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.

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
- **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

3.2.5.164 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.

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.

3.2.5.165 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

ignore-unknown-attributes

3.2.5.166 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

3.2.5.167 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

3.2.5.168 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

3.2.5.169 acct-session-id

Syntax

[no] acct-session-id

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

3.2.5.170 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

3.2.5.171 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.

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

3.2.5.172 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

3.2.5.173 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

3.2.5.174 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

3.2.5.175 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

3.2.5.176 gprs-negotiated-qos-profile**Syntax**

[no] gprs-negotiated-qos-profile

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

3.2.5.177 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

3.2.5.178 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.

Default

no imsi

3.2.5.179 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

3.2.5.180 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

3.2.5.181 nas-identifier

Syntax

[no] nas-identifier

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

3.2.5.182 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.

3.2.5.183 nas-port-type**Syntax**

nas-port-type [*value*]

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

type

Specifies the integer value for the Nas-Port-Type AVP.

Values: 0 to 255

3.2.5.184 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

3.2.5.185 rat-type**Syntax**

[no] rat-type

Context

[\[Tree\]](#) configure mobile-gateway profile bng radius-authentication-profile include-attribute rat-type

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

3.2.5.186 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

3.2.5.187 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

3.2.5.188 up-info

Syntax

[no] up-info

Context

[Tree] configure mobile-gateway profile bng radius-authentication-profile include-attribute up-info

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

3.2.5.189 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

3.2.5.190 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

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.

3.2.5.191 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.

3.2.5.192 user-name-format

Syntax

user-name-format

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.

3.2.5.193 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

3.2.5.194 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

Parameters

operation

Specifies a domain name.

Values:

- **append** – appends the specified domain name to the User-Name
- **default** – appends the specified domain name to the User-Name if there is no existing one
- **replace** – replaces the existing domain name in User-Name with the specified one
- **strip** – removes the existing domain-name in User-Name

domain-string

Specifies the domain string, up to 128 characters.

3.2.5.195 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.

3.2.5.196 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

Parameters

form

Specifies the username format for FWA users.

Values:

- imsi – specifies to use a text representation of the IMSI as username
- imsi-apn – specifies to use a text representation of the IMSI and APN as username, separated by an @ character
- msisdn – specifies to use a text representation of the MSISDN as username
- msisdn-apn – specifies to use a text representation of the MSISDN and APN as username, separated by an @ character

Default: imsi-apn

3.2.5.197 ipoe**Syntax**

ipoe

Context

[\[Tree\]](#) configure mobile-gateway profile bng radius-authentication-profile user-name-format ipoe

Description

This command enables the context to configure username formatting for IPE users.

3.2.5.198 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 IPE session.

Default

format mac-address

Parameters

form

Specifies the username format for IPoE users.

Values:

- circuit-id – Circuit-Id as User-Name
- client-vendor-options – <Client-Id option>@<Vendor-Class option> as User-Name
- mac-address – session MAC address as User-Name
- mac-circuit-id – <MAC-Address>::<Circuit-id> as User-Name
- remote-id – Remote-Id as User-Name

3.2.5.199 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
- or XY- for 00-0C-F1-99-85-B8
- or mmmm. for 0002.03aa.abff
- or xx for 000cf19985b8

3.2.5.200 pppoe

Syntax

pppoe

Context

[\[Tree\]](#) configure mobile-gateway profile bng radius-authentication-profile user-name-format pppoe

Description

This command enables the context to configure username formatting for PPPoE users.

3.2.5.201 padi**Syntax**

padi

Context

[\[Tree\]](#) configure mobile-gateway profile bng radius-authentication-profile user-name-format pppoe padi

Description

This command enables the context to configure PPPoE PADI authentication User-Name formats.

3.2.5.202 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 – Circuit-Id as User-Name
- mac-address – session MAC address as User-Name
- remote-id – Remote-Id as User-Name

3.2.5.203 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
- or XY- for 00-0C-F1-99-85-B8
- or mmmm. for 0002.03aa.abff
- or xx for 000cf19985b8

3.2.5.204 session-lockout-profile

Syntax

session-lockout-profile *profile-name*

[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.

Parameters

profile-name

Specifies the profile name, up to 32 characters.

3.2.5.205 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

3.2.5.206 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

Parameters

seconds

Specifies the time in seconds.

Values: 60 to 86400

3.2.5.207 description

Syntax

description *description-string*

no description

Context

[\[Tree\]](#) configure mobile-gateway profile bng session-lockout-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.

3.2.5.208 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.

Default

failed-attempts 3

Parameters

number

Specifies the number of session setup failures.

Values: 2 to 16

3.2.5.209 wpp**Syntax**

wpp

Context

[\[Tree\]](#) configure mobile-gateway profile bng wpp

Description

This command enables the context to configure interface-related WPP parameters.

3.2.5.210 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.

3.2.5.211 ack-auth-retry-count**Syntax**

ack-auth-retry-count *number*

no ack-auth-retry-count

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

no ack-auth-retry-count

Parameters

number

Specifies the number of ACK_AUTH retransmissions.

Values: 0 to 5

Default: 5

3.2.5.212 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 (eight 16-bit pieces) or x:x:x:x:x.d.d.d.d where
x – [0..FFFF]H

d – [0..255]D

3.2.5.213 description

Syntax

description *description-string*
no description

Context

[\[Tree\]](#) configure mobile-gateway profile bng wpp portal 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.

3.2.5.214 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

no ntf-logout-retry-count

Parameters

number

Specifies the number of NTF_LOGOUT retransmissions.

Values: 0 to 5

Default: 5

3.2.5.215 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

no retry-interval

Parameters

seconds

Specifies the time interval in seconds.

Values: 1 to 20

Default: 2

3.2.5.216 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.

Default

no router

Parameters

router-instance

Specifies the routing instance, up to 32 characters.

3.2.5.217 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.

3.2.5.218 shutdown

Syntax

shutdown

Context

[\[Tree\]](#) configure mobile-gateway profile bng wpp portal 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.

3.2.5.219 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 (eight 16-bit pieces) or x:x:x:x:x:d.d.d.d where
 - x – [0..FFFF]H
 - d – [0..255]D

3.2.5.220 version

Syntax

version *version*

no version

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

no version

Parameters

version

Specifies the WPP protocol version.

Values: 1 to 2

Default: 2

3.2.5.221 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.

3.2.5.222 description

Syntax

description *description-string*
no description

Context

[\[Tree\]](#) configure mobile-gateway profile bng wpp portal-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.

3.2.5.223 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.

3.2.5.224 realm

Syntax

portal *realm*

no realm

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 32 characters.

3.2.5.225 shutdown

Syntax

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.

3.2.6 configure mobile-gateway profile call-insight command descriptions

3.2.6.1 call-insight

Syntax

[no] call-insight

Context

[\[Tree\]](#) configure mobile-gateway profile call-insight

Description

This command enables the context to configure call trace profile parameters.

3.2.6.2 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

no ue

Parameters

profile-name

Specifies a profile name, up to 32 characters.

3.2.6.3 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.

Default

no debug-output

3.2.6.4 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.

3.2.6.5 events

Syntax

[no] events {**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**}

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.

Parameters

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**

Specifies the events.

3.2.6.6 format**Syntax**

[no] **format** [**pcap** | **simulated-pcap**]

Context

[\[Tree\]](#) configure mobile-gateway profile call-insight ue format

Description

This command configures output file format.

Parameters

pcap

Specifies a pcap requiring plugin.

simulated-pcap

Specifies a pcap without plugin.

Default: simulated-pcap

3.2.6.7 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

Description

This command configures where to resend each captured message/event.

Parameters

ip-address

Specifies the address.

Values:

- *ipv4-address* – a.b.c.d

- **ipv6-address** – x:x:x:x:x:x:x (eight 16-bit pieces) or 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

3.2.6.8 ref-point

Syntax

[no] **ref-point** {all | dhcp | ga | gn | gp | gx | gxc | l2tp | pi | radius | rf | ro | s1 | s11 | s12 | s2a | s2b | s4 | s5 | s6b | s8 | sd | swm | swu | swu-cleartext | sww | sta | dns | swu-esp-drop | sx-n4}

Context

[\[Tree\]](#) configure mobile-gateway profile call-insight ue ref-point

Description

This command configures interfaces to capture control messages related to the traced UE or for **all-ues**. The call trace debug commands can be used to enable tracing for the configured reference points; see the *Call Trace Debug Commands* section, in *7750 SR MG and CMG Configuration Guide*.

Parameters

all | dhcp | ga | gn | gp | gx | gxc | l2tp | pi | radius | rf | ro | s1 | s11 | s12 | s2a | s2b | s4 | s5 | s6b | s8 | sd | swm | swu | swu-cleartext | sww | sta | dns | swu-esp-drop | sx-n4 | n7 | n10 | n11

Specifies the reference point type.



Note: L2TP capturing and swu-esp-drop parameters apply only to an all-ues profile. Capturing includes all L2TP control packets from the tunnel establish to the tunnel tear down. For ZLB, HELLO and all the messages

after CDN and before ICRQ, the GW-id and UE-Id attributes are not filled in the custom header.

Default: all-ues: none | ue: all

3.2.6.9 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.

Parameters

size-limit

Specifies the size limit in MB.

Values:

- all-ues – [0..1000]; 0 means unlimited
- ue – [1..1000]

Default:

- all-ues – 1000
- ue – 10

3.2.6.10 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.

Parameters

time-limit

Specifies the size limit in seconds.

Values: 0 to 604800; 0 means unlimited

Default: 86400

3.2.7 configure mobile-gateway profile charging command descriptions

3.2.7.1 charging

Syntax

charging

Context

[\[Tree\]](#) configure mobile-gateway profile charging

Description

This command enables the context to configure the charging profile for the mobile gateway.

3.2.7.2 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 profile name, up to 32 characters.

3.2.7.3 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.

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.

3.2.7.4 radius

Syntax

radius

Context

[\[Tree\]](#) configure mobile-gateway profile charging bng-charging radius

Description

This command enables the context to configure RADIUS-based charging for BNG.

3.2.7.5 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

3.2.7.6 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.

3.2.7.7 session

Syntax

session

Context

[\[Tree\]](#) configure mobile-gateway profile charging bng-charging radius session

Description

This command enables the context to configure RADIUS-based charging per session.

3.2.7.8 apn-format

Syntax

[no] apn-format

Context

[\[Tree\]](#) configure mobile-gateway profile charging bng-charging radius session 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.

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
- **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

Default: selected

3.2.7.9 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. For more information, see *CMG BNG CUPS RADIUS Attributes*.

Default

include-attribute

3.2.7.10 access-loop-options

Syntax

[no] access-loop-options

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

3.2.7.11 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).

Default

no acct-authentic

3.2.7.12 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

3.2.7.13 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

3.2.7.14 address-information**Syntax**

[no] address-information

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

3.2.7.15 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

3.2.7.16 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

3.2.7.17 calling-station-id

Syntax

[no] calling-station-id [type]

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

Default: l2-circuit

3.2.7.18 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

3.2.7.19 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

3.2.7.20 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

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

3.2.7.21 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

3.2.7.22 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

3.2.7.23 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

3.2.7.24 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

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

3.2.7.25 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

3.2.7.26 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).

Default

no nas-identifier

3.2.7.27 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

3.2.7.28 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

suffix-string

Specifies the suffix string, up to 64 characters.

3.2.7.29 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

3.2.7.30 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).

Default

no nat-port-range

3.2.7.31 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

3.2.7.32 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

3.2.7.33 service-type

Syntax

[no] service-type

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

3.2.7.34 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).

Default

no sla-profile

3.2.7.35 static-port-forward**Syntax**

static-port-forward

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

3.2.7.36 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

3.2.7.37 subscriber-profile

Syntax

[no] subscriber-profile

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

3.2.7.38 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

3.2.7.39 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).

Default

no up-info

3.2.7.40 up-subscriber-id**Syntax**

[no] up-info

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-info

3.2.7.41 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

3.2.7.42 user-name

Syntax

[no] user-name

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

3.2.7.43 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.

3.2.7.44 update-triggers

Syntax

[no] update-triggers

Context

[\[Tree\]](#) configure mobile-gateway profile charging bng-charging radius session update-triggers

Description

This command enables the context to configure whether automatic triggers generate an Interim Update message. When possible, simultaneous triggers are combined in a single message.

Default

update triggers

3.2.7.45 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

3.2.7.46 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

3.2.7.47 periodic

Syntax

[no] periodic

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

3.2.7.48 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

3.2.8 configure mobile-gateway profile cloud-db command descriptions

3.2.8.1 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.

3.2.8.2 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 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.

3.2.8.3 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 (eight 16-bit pieces) or 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

3.2.8.4 shutdown**Syntax**

[no] **shutdown**

Context

[\[Tree\]](#) configure mobile-gateway profile cloud-db server 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.

3.2.9 configure mobile-gateway profile gtp command descriptions

3.2.9.1 gtp

Syntax

[no] gtp *profile-name*

Context

[\[Tree\]](#) configure mobile-gateway profile gtp

Description

This command enables the context to configure GTP parameters.

Parameters

profile-name

Specifies the name of the GTP profile, up to 32 characters.

3.2.9.2 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 help 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.

3.2.9.3 gtpv2-session-rejection-cause

Syntax

gtpv2-session-rejection-cause

Context

[\[Tree\]](#) configure mobile-gateway profile gtp gtpv2-session-rejection-cause

Description

This command enables the context to configure the supported features for the GTPv2 session rejection cause.

3.2.9.4 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)

3.2.9.5 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)

3.2.9.6 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.

Parameters

cause-code-value
Specifies the value for the Cause IE.

Values: 64 to 239

Default: 94 (Request message rejected — reason not specified)

3.2.9.7 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.

Default

no ip-dscp

Parameters

value

Specifies Differentiated Services Code Point (DSCP) value.

Values: 0 to 63

Default: 56

3.2.9.8 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.

Parameters

value

Specifies IP Time-To-Live (TTL) value.

Values: 1 to 255

Default: 255

3.2.9.9 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.

Parameters

interval

Specifies the keep alive message interval, in seconds.

Values: 0 | 60 to 600

Default: 60

retry-count

Specifies the number of retries.

Values: 1 to 15

Default: 4

timeout

Specifies the timeout interval, in seconds.

Values: 1 to 30

Default: 5

3.2.9.10 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*.

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

3.2.10 configure mobile-gateway profile list command descriptions

3.2.10.1 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.

3.2.10.2 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.

Values: 000 to 999

mnc-value

Specifies the MNC of this PLMN.

Values: 00 to 999

3.2.10.3 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.

3.2.10.4 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 (eight 16-bit pieces) or x:x:x:x:x:d.d.d.d where
x – [0..FFFF]H
d – [0..255]D

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

3.2.11 configure mobile-gateway profile pfcp command descriptions

3.2.11.1 pfcf

Syntax

pfcf

Context

[\[Tree\]](#) configure mobile-gateway profile pfcf

Description

This command enables the context to configure a PFCP profile.

3.2.11.2 pfcf-association-peer-list

Syntax

[no] pfcf-association-peer-list *profile-name*

Context

[\[Tree\]](#) configure mobile-gateway profile pfcf pfcf-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.

3.2.11.3 description

Syntax

description *long-description-string*

no description

Context

[\[Tree\]](#) configure mobile-gateway profile pfcf pfcf-association-peer-list 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

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.

3.2.11.4 node-id

Syntax

[no] **node-id** *node-id*

Context

[\[Tree\]](#) configure mobile-gateway profile pfcf pfcf-association-peer-list node-id

Description

This multi-entry command configures a node ID string of the remote PFCF peer.

The **no** form of this command removes the specified node ID of the remote PFCF peer from the configuration.

Parameters

node-id

Specifies the node ID of the remote PFCF peer, up to 31 characters.

3.2.11.5 bfd-enable

Syntax

[no] **bfd-enable**

Context

[\[Tree\]](#) configure mobile-gateway profile pfcf pfcf-association-peer-list node-id bfd-enable

Description

This command enables the BFD association with the PFCF peer. The MAG-c uses the BFD state to determine the route convergence toward itself, before triggering a PFCF Association Setup Request toward the PFCF peers.

The **no** form of this command disables the BFD association with the PFCF 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
```

Default

no bfd-enable

3.2.11.6 pfc-peer

Syntax

[no] pfc-peer *ipv4* | *ipv6*

Context

[\[Tree\]](#) configure mobile-gateway profile pfc pfc-association-peer-list pfc-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 (eight 16-bit pieces) or x:x:x:x:x:d.d.d.d where
x – [0..FFFF]H
d – [0..255]D

3.2.11.7 bfd-enable

Syntax

[no] bfd-enable

Context

[\[Tree\]](#) configure mobile-gateway profile pfc pfc-association-peer-list pfc-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.
- To monitor the BFD status for PFCP interfaces, use the following command with the appropriate router ID.

```
show router bfd session
```

Default

no bfd-enable

3.2.11.8 pfcpc-profile

Syntax

[no] **pfcpc-profile** *profile-name*

Context

[\[Tree\]](#) configure mobile-gateway profile pfcpc pfcpc-profile

Description

This command creates a PFCP 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.

3.2.11.9 association-retry-timer

Syntax

association-retry-timer *retry-time*

no association-retry-timer

Context

[\[Tree\]](#) configure mobile-gateway profile pfcpc pfcpc-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.

Parameters

retry-time

Specifies the time between retries for sending an association request, in seconds.

Values: 1 to 36000

Default: 10

3.2.11.10 audit-ip-dscp

Syntax

audit-ip-dscp *audit-ip-dscp-value*

no audit-ip-dscp

Context

[\[Tree\]](#) configure mobile-gateway profile pfc pfc-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

3.2.11.11 description

Syntax

description *long-description-string*

no description

Context

[\[Tree\]](#) configure mobile-gateway profile pfc pfc-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.

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.

3.2.11.12 heart-beat

Syntax

heart-beat [**interval** *seconds*] [**retry-count** *retry-count-value*] [**timeout** *timeout-value*]

no heart-beat

Context

[\[Tree\]](#) configure mobile-gateway profile pfcf pfcf-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. If the gateway hears a PFCP Heartbeat Response from the remote end, it aborts the retry procedure and restarts the heartbeat interval timer for this peer. If no response is received before the end of the retry-timeout sequence, the PFCP peer is declared to be down.

The **no** form of this command turns off heartbeats and only responds to heartbeat requests received from the remote peer.

Parameters

seconds

Specifies the heartbeat message interval.

Values: 60 to 180

Default: 60

retry-count-value

Specifies the number of retries.

Values: 1 to 15

Default: 4

timeout-value

Specifies the timeout interval, in seconds.

Values: 1 to 20

Default: 5

3.2.11.13 ip-dscp

Syntax

ip-dscp *ip-dscp-value*

no ip-dscp

Context

[\[Tree\]](#) configure mobile-gateway profile pfcf pfcf-profile ip-dscp

Description

This command configures the DSCP value in the IP Header used for PFCP signaling messages.

Parameters

ip-dscp-value

Specifies the DSCP value.

Values: 0 to 63

Default: 56

3.2.11.14 ip-ttl

Syntax

ip-ttl *ip-ttl-value*

no ip-ttl

Context

[\[Tree\]](#) configure mobile-gateway profile pfcf pfcf-profile ip-ttl

Description

This command configures the IP TTL value used for PFCP signaling messages.

Parameters

ip-ttl-value

Specifies the IP TTL value.

Values: 0 to 255

Default: 255

3.2.11.15 message-retransmit

Syntax

message-retransmit [**timeout** *timeout*] [**timeout-msec** *timeout-msec*] [**retry-count** *retry-count-value*]
no message-retransmit

Context

[\[Tree\]](#) configure mobile-gateway profile pfcf pfcf-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 PFCP attempts to send a message. N1 can be configured by specifying the value of the **retry-count** keyword.

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

Default: 5

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)

Default: 5000



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

Default: 3

3.2.11.16 path-restoration-time

Syntax

path-restoration-time *minutes*
no path-restoration-time

Context

[\[Tree\]](#) configure mobile-gateway profile pfcf pfcf-profile path-restoration-time

Description

This command configures the path restoration time for the PFCF profile. A PFCF 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: 5 to 1440

Default: 0

3.2.11.17 up-peer-list

Syntax

[no] up-peer-list *list-name*

Context

[\[Tree\]](#) configure mobile-gateway profile pfcf 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.

3.2.11.18 description

Syntax

description *long-description-string*

no description

Context

[\[Tree\]](#) configure mobile-gateway profile pfc up-peer-list 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

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.

3.2.11.19 peer

Syntax

[no] peer *ipv4* | *ipv6*

Context

[\[Tree\]](#) configure mobile-gateway profile pfc 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 (eight 16-bit pieces) or x:x:x:x:x:d.d.d.d where
 - x – [0..FFFF]H
 - d – [0..255]D

3.2.11.20 apn

Syntax

[no] apn *apn-name*

Context

[\[Tree\]](#) configure mobile-gateway profile pfc 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 32 characters.

3.2.11.21 upf-selection

Syntax

upf-selection {true | false}

no upf-selection

Context

[\[Tree\]](#) configure mobile-gateway profile pfc 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

3.2.12 configure mobile-gateway profile radius-group command descriptions

3.2.12.1 radius-group

Syntax

[no] **radius-group** *radius-group*

Context

[\[Tree\]](#) configure mobile-gateway profile radius-group

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.

3.2.12.2 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

3.2.12.3 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.

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

3.2.12.4 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

Default: 24

3.2.12.5 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.



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

3.2.12.6 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.

Parameters

port

Specifies the destination UDP port.

Values: 1 to 65535

Default: 1813

3.2.12.7 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.

Parameters

port
Specifies the destination UDP port.
Values: 1 to 65535
Default: 1812

3.2.12.8 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 help 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.

3.2.12.9 interface

Syntax

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

Context

[\[Tree\]](#) configure mobile-gateway profile radius-group interface

Description

This command names the interface that will be used to send and receive RADIUS messages. Therefore this command indirectly determines the source IP address. In case this interface belongs to a VPRN other than the master instance, this command must include the VPRN name. (Interface names have VPRN scope.)

The **no** form of this command removes the parameter values from 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; must start with a letter.

3.2.12.10 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.

Parameters

value

Specifies the time interval, in minutes, for sending interim-update messages to the accounting server.

Values: 15 to 1440 (1 day)

Default: 0

3.2.12.11 peer

Syntax

[no] peer {*ipv4-address* | *ipv6-address*}

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

Specifies the IPv4 address of a RADIUS server.

ipv6-address

Specifies the IPv6 address of a RADIUS server.

3.2.12.12 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.

Parameters

port

Specifies the destination UDP port.

Values: 1 to 65535

Default: 1813

3.2.12.13 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.

Parameters

port

Specifies the destination UDP port.

Values: 1 to 65535

Default: 1813

3.2.12.14 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.

Parameters

count

Specifies the number of re-selection attempts.

Values: 0 to 255

Default: 0

3.2.12.15 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 will wait 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.

Parameters

value

Specifies the failure detection timer, in seconds.

Values: 1 to 60

Default: 10

3.2.12.16 priority

Syntax

priority *value*

no priority

Context

[\[Tree\]](#) configure mobile-gateway profile radius-group peer priority

Description

This command specifies the priority value. This is a number from 1 to 3 with 3 considered the highest priority. The system will attempt to use the highest priority server available at the time. The system will automatically use round-robin load-balancing among servers configured with the same priority.

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

Parameters

value

Specifies the priority of the server.

Values: 1 to 3

Default: 1

3.2.12.17 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.

3.2.12.18 secret

Syntax

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

no secret

Context

[\[Tree\]](#) configure mobile-gateway profile radius-group peer 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 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.

3.2.12.19 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.

3.2.12.20 python-policy

Syntax

python-policy *policy-name*

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
```

3.2.12.21 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 *name* parameter from the configuration.

Parameters

profile-name

Specifies the group name.

3.2.12.22 secret

Syntax

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

no secret

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.

3.2.12.23 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.

Parameters

server-type

Specifies the type of the RADIUS server group.

Values:

- none – the servers cannot be used for authentication or accounting
- auth – all servers can be used for authentication
- acct – all servers can be used for accounting

- both – all servers can be used for both authentication and accounting

Default: none

3.2.12.24 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

3.2.13 configure mobile-gateway profile radius command descriptions

3.2.13.1 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.

Parameters

profile-name

Specifies the profile name, up to 32 characters.

3.2.13.2 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.



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.

Parameters

value

The number of times the system attempts to send a RADIUS accounting message to the server.

Values: 0 to 10

Default: 3

3.2.13.3 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.

Parameters

seconds

Specifies the interval, in seconds, between retries.

Values: 1 to 255

Default: 4

3.2.13.4 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 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.

Parameters

seconds

Specifies the time interval, in seconds, at which the system sends authentication probe messages to an authentication server.

Values: 20 to 600

Default: 0

3.2.13.5 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.

Parameters

value

Specifies the number of times the system attempts to send a RADIUS authentication message to the server.

Values: 0 to 10

Default: 3

3.2.13.6 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.

Parameters

seconds

Specifies the interval, in seconds, between retries.

Values: 1 to 255

Default: 4

3.2.13.7 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.

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.

Parameters

deadtime

Specifies the time interval that a server is considered dead, in seconds.

Values: 0 to 7200

Default: 300

drop-acct-messages

Specifies to drop accounting messages, if no servers are currently reachable.

send-auth-messages

Specifies 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).

3.2.13.8 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 help 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.

3.2.13.9 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.

Parameters

count

Specifies the number of times a peer can be reselected.

Values: 0 to 250

Default: 3

wrap

Specifies if the system tries the configured count, wrapping around back to the original selected server, when all other available servers are tried.

Default: disabled

3.2.14 configure mobile-gateway system command descriptions

3.2.14.1 system

Syntax

system *number*

Context

[\[Tree\]](#) configure mobile-gateway system

Description

This command enables the context to configure mobile gateway profiles.

Parameters

number

Specifies a profile number identifier.

Values: 0 to 255

3.2.14.2 bng

Syntax

bng

Context

[\[Tree\]](#) configure mobile-gateway system bng

Description

Commands in this context configure BNG system parameters.

3.2.14.3 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.

3.2.14.4 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.

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

Parameters

name

Specifies the name of the session query, up to 32 characters.

3.2.14.5 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.

3.2.14.6 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

Parameters

identifier

Specifies the accounting session ID, up to 25 characters.

3.2.14.7 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.

3.2.14.8 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

3.2.14.9 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.

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)

3.2.14.10 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.

3.2.14.11 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

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.

3.2.14.12 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.

Default

no description

Parameters

description-string

Specifies the description of the session query, up to 80 characters.

3.2.14.13 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.

Default

no fate-sharing-group-id

Parameters

fsg-id
Specifies the ID.
Values: 1 to 65535

3.2.14.14 imei

Syntax

imei *number*
no imei

Context

[\[Tree\]](#) configure mobile-gateway system bng queries session imei

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.

3.2.14.15 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.

3.2.14.16 ip

Syntax

ip

Context

[\[Tree\]](#) configure mobile-gateway system bng queries session ip

Description

Commands in this context configure the IP match criteria.

3.2.14.17 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.

3.2.14.18 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

3.2.14.19 ipv6-na

Syntax

```
ipv6-na {false | true}  
no ipv6-na
```

Context

[\[Tree\]](#) configure mobile-gateway system bng queries session ip address-stacks ipv6-na

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

3.2.14.20 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

3.2.14.21 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.

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

3.2.14.22 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 (eight 16-bit pieces) or 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

3.2.14.23 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.

3.2.14.24 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

3.2.14.25 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.

3.2.14.26 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.

3.2.14.27 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.

3.2.14.28 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 what information to include in the output.

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

Default

no output-options

3.2.14.29 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.

3.2.14.30 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

3.2.14.31 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

3.2.14.32 pfcf

Syntax

pfcf

Context

[\[Tree\]](#) configure mobile-gateway system bng queries session pfcf

Description

Commands in this context configure the PFCF match criteria.

3.2.14.33 local-seid

Syntax

local-seid *binary seid*

no local-seid

Context

[\[Tree\]](#) configure mobile-gateway system bng queries session pfcf local-seid

Description

This command configures the PFCF 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)

3.2.14.34 remote-seid

Syntax

remote-seid *binary reid*

no remote-seid

Context

[\[Tree\]](#) configure mobile-gateway system bng queries session pfcf remote-seid

Description

This command configures the PFCP remote session ID.
The **no** form of this command removes the configuration.

Default

no remote-seid

Parameters

binary reid

Specifies the remote session ID.

Values: 0xFFFF... (exact 16 hex nibbles)

3.2.14.35 remote-id**Syntax**

remote-id string *rid-string*

remote-id hex *binary rid*

no remote-id

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.

Values: 0xFFFF... (exact 16 hex nibbles)

binary rid

Specifies the binary value for the remote ID.

Values: 0x0 to 0xFFFFFFFF... (maximum 510 hex nibbles)]

3.2.14.36 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).
The **no** form of this command removes the configuration.

Default

no s-vlan

Parameters

tag
Specifies the service VLAN tag.
Values: 0 to 4094

3.2.14.37 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.

3.2.14.38 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

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:d.d.d.d
where

x – [0..FFFF]H

d – [0..255]D

3.2.14.39 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

3.2.14.40 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.

Default

no wpp-portal-group

Parameters

name

Specifies the portal group name, up to 32 characters.

3.2.14.41 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.

3.2.14.42 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.

Default

no acct-session-id

Parameters

identifier

Specifies the accounting session ID, up to 25 characters.

3.2.14.43 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.

3.2.14.44 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.

Default

no description

Parameters

description-string

Specifies the description, up to 80 characters.

3.2.14.45 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

3.2.14.46 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.

Default

no l2-access-id

Parameters

string

Specifies the L2 access ID, up to 64 characters.

3.2.14.47 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.

3.2.14.48 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.

Default

no output-options

3.2.14.49 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 what 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.

3.2.14.50 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

3.2.14.51 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

3.2.14.52 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

3.2.14.53 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.

3.2.14.54 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

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:d.d.d.d
where

x – [0..FFFF]H

d – [0..255]D

3.2.14.55 call-insight

Syntax

call-insight

Context

[\[Tree\]](#) configure mobile-gateway system call-insight

Description

This command enables the context to configure global call trace settings.

3.2.14.56 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

3.2.14.57 disable

Syntax

[no] disable

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

3.2.14.58 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.

Parameters

limit

Specifies the total captured call trace files size in megabytes.

Values: 0 to 65536 (0 means unlimited)

Default: 1000

3.2.14.59 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.

3.2.14.60 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.

Parameters

max-files-number

Specifies the maximum call trace files.

Values: 0 to 1024

Default: 200

3.2.14.61 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.



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 4



Note: Configure the resource pool before the mobile-gateway system group; see the **resource-pool** command.

3.2.14.62 protect-active-delay

Syntax

protect-active-delay *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.

Parameters

protect-active-delay

Specifies the wait time in seconds.

Values: 1 to 30

Default: 10

3.2.14.63 shutdown

Syntax

[no] shutdown

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.

3.2.14.64 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) to be 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 4
<i>type</i>	Specifies the redundancy method. Values: many-to-many
<i>gw-id</i>	Specifies the ID of the mobile gateway to which the resource pool belongs. Values: 1 to 8

3.2.14.65 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.



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

3.2.14.66 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.

Parameters

protect-active-delay

Specifies the wait time in seconds.

Values: 1 to 30, in seconds.

Default: 10 secs

3.2.14.67 thresholds

Syntax

thresholds

Context

[\[Tree\]](#) configure mobile-gateway system thresholds

Description

This command enables the context to configure monitoring thresholds.

3.2.14.68 system-mg-ism

Syntax

system-mg-ism *group-number*

no system-mg-ism

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 configuration of the profile.

Parameters

group-number

Specifies group number.

Values: 1 to 8

3.2.14.69 interval

Syntax

interval *minutes*

Context

[\[Tree\]](#) configure mobile-gateway system thresholds system-mg-ism interval

Description

This command configures the interval values for ISM-MG.

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

Parameters

minutes

Specifies group number.

Values: 5 to 60

Default: 5

3.2.14.70 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. 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.

3.2.15 debug mobile-gateway command descriptions

3.2.15.1 mobile-gateway

Syntax

mobile-gateway

Context

[Tree] debug mobile-gateway

Description

Commands in this context enable and configure call trace debugging.

3.2.15.2 call-insight

Syntax

call-insight

Context

[Tree] debug mobile-gateway call-insight

Description

This command enables the context for debugging call trace.

3.2.15.3 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

Specifies 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.

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 (eight 16-bit pieces) or 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

3.2.15.4 ue

Syntax

ue {imei | imsi | msisdn} *value* [**profile** *profile-name*]

no ue {imei | imsi | msisdn} *value*

no ue all

no ue {imei | imsi | msisdn} mask *pattern*
no ue mask-name *mask-name*
ue {imei | imsi | msisdn} *value*

Context

[\[Tree\]](#) debug mobile-gateway call-insight ue

Description

This command enables adding and removing of specified call trace jobs.

Parameters

all

Removes all call trace jobs.

imei

Adds or removes an imei call trace job, up to 16 digits.

imsi

Adds or removes an imsi call trace job. up to 15 digits.

msisdn

Adds or removes 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. The default mask name is "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.



Note:

The parameters of the following commands are not supported with metadata for call trace:

- **no ue {imei | imsi | msisdn} mask *pattern***
- **no ue mac-address *mac-address***
- **no ue mask-name *mask-name***
- **ue mac-address *mac-address* [profile *profile-name*]**

3.2.15.5 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
```

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

Removes all mask templates.

imei

Adds or removes an IMEI mask template.

imsi

Adds or removes an IMSI mask template.

msisdn

Adds or removes 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.

3.2.16 show mobile-gateway command descriptions

3.2.16.1 mobile-gateway

Syntax

mobile-gateway

Context

[\[Tree\]](#) show mobile-gateway

Description

The commands in this context display gateway information.

3.2.16.2 bng

Syntax

bng

Context

[\[Tree\]](#) show mobile-gateway bng

Description

The commands in this context display BNG information.

3.2.16.3 charging

Syntax

charging

Context

[\[Tree\]](#) show mobile-gateway bng charging

Description

The commands in this context display charging information.

3.2.16.4 radius

Syntax

radius

Context

[\[Tree\]](#) show mobile-gateway bng charging radius

Description

This command displays RADIUS charging information.

3.2.16.5 buffering**Syntax**

buffering

Context

[\[Tree\]](#) show mobile-gateway bng charging radius buffering

Description

This command displays buffering statistics of the RADIUS charging messages.

3.2.16.6 nat**Syntax**

nat

Context

[\[Tree\]](#) show mobile-gateway bng nat

Description

This command displays NAT information.

3.2.16.7 session**Syntax**

session [**c-vlan** *tag*] [**s-vlan** *tag*] [**subscriber-name** *name*] [**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*] [**pfcpl-local-session-id** *hex-num*] [**pfcpl-remote-session-id** *hex-num*] [**apn** *apn*] [**network-realm** *realm-name*] [**cp-nat-profile** *profile-name*] [**ip-prefix** *ip-prefix*[/*prefix-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*)]]

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

name

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 (eight 16-bit pieces) or 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

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.

Values: ipoe | pppoe

hex-num

Specifies the PFCP local session ID filter.

Values: 0x0..0xFFFFFFFF (max 16 hex nibbles)

pfc-remote-session-id *hex-num*

Specifies the PFCP remote session ID filter.

Values: 0x0..0xFFFFFFFF (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 (eight 16-bit pieces)
x:x:x:x:x:x.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

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`

Output

The following output example displays all information for the filtered BNG session.

Output example: Information for BNG sessions

```
# show>mobile>bng# session mac 02:de:14:00:01:fa all
=====
BNG Sessions
=====
[IPoE] MAC                : 02:de:14:00:01:fa
-----
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:fa
Up Time                   : 0d 03:16:13
Circuit Id                : N/A
Remote Id                 : N/A
Provisioned Addresses     : IPv4, IPv6_PD, IPv6_NA
Signaled Addresses       : IPv4
APN                       : mybngvrf
Network Realm             : mybngvrf
IPv4 Pool                 : p1
IPv4 Address              : 20.20.1.242
IPv4 Address Origin       : Local pool
IPv4 Prefix Len           : 24
IPv4 Gateway              : 20.20.1.254
IPv4 Primary DNS          : 0.0.0.0
IPv4 Secondary DNS        : 0.0.0.0
```

```

IPv4 Primary NBNS           : 0.0.0.0
IPv4 Secondary NBNS        : 0.0.0.0
DHCPv4 Server IP           : 20.20.1.254
DHCPv4 Lease Time          : 7d 00:00:00
DHCPv4 Renew Time          : 3d 12:00:00
DHCPv4 Rebind Time         : 6d 03:00:00
DHCPv4 Lease End           : 04/29/2021 19:53:47
DHCPv4 Remaining Lease Time : 6d 20:43:47
IPv6 Delegated Prefix      : 2002:0:6:4b00::/56
IPv6 Delegated Prefix Origin : Local pool
IPv6 PD Subnet Length       : 50
IPv6 PD as Framed Route    : No
IPv6 Delegated Prefix Pool  : p1
IPv6 NA                     : 2001:dead:1::6e0
IPv6 NA Origin              : Local pool
IPv6 NA Subnet Length       : 110
IPv6 NA Pool                : p1
IPv6 Link-local             : fe80::58c7:ffff:fe00:0
IPv6 Preferred Lifetime    : 7d 00:00:00
IPv6 Valid Lifetime        : 30d 00:00:00
IPv6 Primary DNS            : ::
IPv6 Secondary DNS          : ::
DHCPv6 Server DUID         : (hex) 00 02 00 00 19 7f 42 4e 47 2d 53 4d 46
DHCPv6 IA_PD id            : N/A
DHCPv6 IA_NA id            : N/A
DHCPv6 T1                   : 3d 12:00:00
DHCPv6 T2                   : 5d 14:24:00
Subscriber                  : auto_sub_1767 (1767)
Acct-Session-Id             : X00060F80C8C74843000006E7
Acct-Multi-Session-Id      : Y000006E7C8C74843000006E6
State Id                    : 0x6081d44b000001b8
Sub Profile                  : base
Sla Profile                  : base
SAP-Template                 : defaultsap
Group-itf-template          : defaultgrp
NAT Profile                  : 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 Local SE Id            : 0x00000000000060f80
PFCP Remote SE Id           : 0x1000000000000039d
UE Id                        : 0x00060f80
Group/VM                     : 1/1
Call-Insight                 : disabled
Charging Profile 1           : mybngcharging
    Charging enabled         : Yes
-----
Charging
Acct-Session-Id             : X00060F80C8C74843000006E7
Acct-Multi-Session-Id      : Y000006E7C8C74843000006E6
Mode                         : Session level
Charging Profile 1           : mybngcharging
    Charging enabled         : Yes
    Operational interim interval : N/A
Charging Profile 2           : N/A
    Charging enabled         : No
    Operational interim interval : N/A
Charging Profile 3           : N/A
    Charging enabled         : No
    Operational interim interval : N/A
Charging Profile 4           : N/A

```

```

Charging enabled           : No
Operational interim interval : N/A
Charging Profile 5        : N/A
Charging enabled           : No
Operational interim interval : N/A
Radius user name           : N/A
Radius class 1             : N/A
CP Total Volume Limit      : Disabled
CP UP Volume Limit         : Disabled
CP DOWN Volume Limit       : Disabled
-----
IBCP
IBCP Local MAC             : ea:ac:33:01:02:44
IBCP Local IP              : 45.45.45.45 (Base)
IBCP Remote IP             : 172.16.10.51 (Base)
IBCP Local TE Id           : 0x40060f81
IBCP Remote TE Id         : 0x801200e7
IBCP DSCP                  : 56
IBCP TTL                   : 255
-----
Number of sessions shown : 1
=====

```

3.2.16.8 charging

Syntax

charging

Context

[\[Tree\]](#) show mobile-gateway bng session charging

Description

This command shows the charging information for the BNG sessions.

3.2.16.9 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

Specifies to fetch the latest statistics from the BNG UPF.

3.2.16.10 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

Specifies to fetch the latest statistics from the BNG UPF.

Output

The following output example shows detailed statistics for the filtered BNG session.

Output example: Detailed statistics for BNG sessions

```
# show mobile-gateway bng session acct-session-
id X00011140F00EE5FD00000000A 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
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
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
--	---------	--------

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
=====

```

3.2.16.11 nat

Syntax

nat

Context

[\[Tree\]](#) show mobile-gateway bng session nat

Description

This command displays the information about the NAT pool of the CP NAT profile and the outside routing context for BNG sessions.

Output

The following output example shows the NAT information for the BNG sessions.

Output example: NAT pool information for BNG sessions

```

# show mobile-gateway bng session nat
=====
BNG Sessions NAT
=====
[IPoE] MAC                : 00:ff:07:00:00:02
-----
UP NAT policy              : policy_l2a_1_2
Outside network realm      : 11
Outside IP address         : 116.0.0.6
Outside ports              : 1024-5119

```


3.2.16.12 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.

3.2.16.13 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   001010000000001   F00010130E153ABFC01300032
 hsi                192.0.2.17
-----
No. of sessions shown: 2
=====
```

3.2.16.14 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]
session-lockout count
```

Context

[\[Tree\]](#) show mobile-gateway bng session-lockout

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

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.

Values: ipoe | pppoe

lockout-state

Specifies the session lockout state filter.

Values: locked-out | monitored

count

Specifies 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

```
# 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)
=====

#show mobile-gateway bng session-lockout count
=====
BNG session lockout information
=====
Sessions locked-out          : 1
Sessions monitored           : 0
=====
```

3.2.16.15 subscriber

Syntax

subscriber [**name** *subscriber-name*] [**id** *subscriber-id*] [**count**] [**acct-session-id** *id*] [**fsg** *fsg-id*] [**l2-access-id** *string-64*] [**up-id** *ip-address* | *ipv6-address*] [**apn** *apn*] [**group** *group-number*] [**network-realm** *realm-name*] [**summary**]

Context

[\[Tree\]](#) show mobile-gateway bng subscriber

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

Specifies 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 (eight 16-bit pieces) or 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.

Output

The following output example shows the subscriber information for the BNG sessions.

Output example: Subscriber information for BNG sessions

```
# 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
=====
```

3.2.16.16 wpp**Syntax**

wpp

Context

[\[Tree\]](#) show mobile-gateway bng wpp

Description

The commands under this context display WPP related information.

3.2.16.17 statistics

Syntax

statistics portal *name*

statistics portal-group *name*

Context

[\[Tree\]](#) show mobile-gateway bng wpp statistics

Description

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

Parameters

portal *name*

Specifies the WPP portal name.

portal-group *name*

Specifies the WPP portal group name.

Output

The following output example shows the statistics information for the specified WPP portal.

Output example: Statistics information for a WPP portal

```
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	-

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	

=====		

3.2.16.18 call-insight

Syntax

call-insight

Context

[Tree] show mobile-gateway call-insight

Description

The commands in this context display call trace information.

3.2.16.19 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 (eight 16-bit pieces) or 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.



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

```
# 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

```
# 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,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
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.
```

3.2.16.20 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

```
# 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
```

```

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
=====

```

3.2.16.21 ue

Syntax

ue [[*detail*] | [*imei imei* [*detail*]] | [*imsi imsi* [*detail*]] | [*mask-name mask-name* [*detail*]] | [*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.

- [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

```
# 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

```
# 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   packets: 40      size: 9440      B
|--VMId:1 LB-VM ingress Downlink packets: 40      size: 9440      B
|--VMId:1 LB-VM egress Uplink   packets: 40      size: 9440      B
|--VMId:1 LB-VM egress Downlink packets: 40      size: 9440      B
|--VMId:3 MG-VM   - Uplink   packets: 30      size: 6000      B
|--VMId:3 MG-VM   - Downlink packets: 30      size: 6000      B
|--VMId:4 MG-VM   - Uplink   packets: 10      size: 2000      B
|--VMId:4 MG-VM   - Downlink packets: 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.
=====
```

Output example: Call trace UE IMSI detail statistics

```
# 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.

```

3.2.16.22 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

```

# show mobile-gateway call-insight ue-mask
=====
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
=====
```

3.2.16.23 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: ip-int-name | ipv4-address | ipv6-address

- ip-int-name – the name of the IP interface, up to 32 alphanumeric characters; if the string contains special characters (#, \$, space, and so on), the entire string must be enclosed within double quotes.
- 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: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

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

3.2.16.24 mg-vm

Syntax

mg-vm

Context

[Tree] show mobile-gateway mg-vm

Description

This command displays information about the SM-VM.

3.2.16.25 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.
- 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

```
# 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

```
# 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%
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%
=====	

3.2.16.26 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.

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 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

Label	Description
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

```
# 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

```
# 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
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
=====

```

3.2.16.27 pdn

Syntax

pdn

Context

[\[Tree\]](#) show mobile-gateway pdn

Description

This command enables the context to display configured PDN gateway profiles.

3.2.16.28 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 dns-redirect-statistics [gateway gw-id | group group-number] [summary]
apn apn-name fqdn-group name
apn apn-name gy-ap-statistics
apn apn-name [detail]
apn apn-name apn-override-statistics [gateway gw-id | group group-number] [summary]
apn apn-name pcscf-statistics
apn apn-name gx-ap-statistics
apn apn-name call-flow-stats [gateway gw-id | group group-number] [summary]
apn apn-name l2tp
apn apn-name transport-statistics [imsi imsi | msisdn msisdn]

```

Context

[\[Tree\]](#) show mobile-gateway pdn apn

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 from the one received via GTP-C (the "real" APN) to one that is 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.

statistics

Specifies aggregated statistics.

summary

Specifies summarized aggregated statistics.

group-number

Specifies the group number.

Values: 1 to 8

delete-session-statistics

Specifies delete session statistics.

gw-id

Specifies the gateway identifier number.

Values: 1 to 8

attach-failure-statistics

Specifies attach failure statistics.

dns-redirect-statistics

Specifies DNS redirect statistics.

fqdn-group

Specifies resolved IP addresses and expiry information.

gy-ap-statistics

Specifies Gy AP statistics.

gx-ap-statistics

Specifies Gx Assume Positive (AP) statistics.

call-flow-stats

Specifies the call flow statistics per APN.

group-number

Specifies the group number.

Values: 1 to 8

gw-id

Specifies the gateway identifier number.

Values: 1 to 8

summary

Specifies summarized aggregated statistics.

detail

Specifies detailed APN configuration.

pcscf-statistics

Specifies P-CSCF statistics.

override-statistics

Specifies APN override statistics.

l2tp

Specifies L2TP statistics.

transport-statistics

Specifies transport-byte-collection statistics per APN.

imsi

Specifies the IMSI, up to 15 digits.

msisdn

Specifies the MSISDN, up to 15 digits.

3.2.16.29 bng

Syntax

bng

Context

[\[Tree\]](#) show mobile-gateway pdn bng

Description

The commands in this context display information for BNG sessions.

3.2.16.30 fsg

Syntax

fsg

fsg fsg-id [detail]

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:BNG-CPF>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
  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
=====
```

3.2.16.31 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 (eight 16-bit pieces) or 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 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 example displays an overview of all BNG-UPs and their UP group participation.

Output example: Participation of the BNG-UPs in the UP groups

```
A:BNG-CPF>show>mobile-gateway>pdn>bng# up
=====
Up Table
=====
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						

3.2.16.32 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 (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 UP fully qualified domain name 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:BNG-CPF>show>mobile-gateway>pdn>bng# up-group
=====
Up-Group Table
=====
```

Gw Up-Group	Admin State	No. Of Sessions	No. Of 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:BNG-CPF>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
-----
```

```
-----
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
=====
```

3.2.16.33 call-flow-stats

Syntax

```
call-flow-stats [gateway gw-id | group group-number | vm vm-id] [gw-type gw-type] [summary]
[suppress-zero]
call-flow-stats oi-override-mapping [gateway gw-id] [plmn-mcc mcc-value plmn-mnc mnc-value]
```

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

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.

mcc-value

Specifies an MCC value.

mnc value

Specifies an MNC value.

3.2.16.34 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

3.2.16.35 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 | gnu | gp | gpu} [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 | s5u | s8 | s8u | n9} [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.

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 | sww | sta | sx-n4 | n3 | n9 | s4u | s5u | s8u | gnu | gpu

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: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-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

keyword

Specifies the interface type.

Values: s5 | s5u | s8 | s8u | n9 | gn | gnu | gp | gpu

ref-point-name

Specifies the reference point name, up to 32 characters.

instance

Shows routing instance statistics.

aggregate

Shows aggregated global statistics.

active

Shows active peer statistics.

3.2.16.36 pdn-context

Syntax

pdn-context [*imsi* | *imei* | *msisdn string detail*] [*apn name*] [*epdg*] [*gateway gw-id* | *group group-number* | *card slot-number*] [*nemo*]

pdn-context *imsi* | *imei* | *msisdn string* [*apn name*] [*gateway gw-id*] **acct** {*rf* | *gy* | *radius*} [*detail*]

pdn-context *imsi* | *imei* | *msisdn string* **gx-usage-monitoring** [*gateway gw-id*] [*apn name*] [*monitoring-key key-name*]

pdn-context *imsi* | *imei* | *msisdn string* **gx-time-of-day-info** [*gateway gw-id*] [*apn name*]

pdn-context *imsi string detail* {*epdg* | *epdg-decrypt*}

pdn-context *mac ieee-address* [*apn name*] [*gateway gw-id* | *group group-number* | *card slot-number*] [*detail*]

pdn-context **default-session** [*def-session-pgw-ip pgw-ip-address* [*apn name*] *detail*] [*gateway gw-id* | *group group-number* | *card slot-number*] [*nemo*]

pdn-context **default-session** **acct** {*rf* | *gy*} [*def-session-pgw-ip pgw-ip-address*] [*apn name*] [*gateway gw-id*] [*detail*]

pdn-context **ipsec-lockout** [*summary*]

pdn-context **ipsec-lockout** *idi IDi* **source-ip** *source-ip-address*

pdn-context **subscriber-id** *subscriber-id* [*apn name*] [*gateway gw-id* | *group group-number* | *card slot-number*] [*access-type access-type*] [*nemo*]

pdn-context **subscriber-id** *subscriber-id detail* **acct** {*rf* | *gy* | *radius*} [*apn name*] [*gateway gw-id*]

pdn-context **default-session** [*apn name*] [*gateway gw-id* | *group group-number* | *card slot-number*] [*def-session-pgw-ip pgw-ip-address*] [*session-type {transit-pass-through | transit-capture}*] [*detail*]

pdn-context *imsi* | *subscriber-id string* [*gateway gw-id*] [*apn name*] **acct** {*stats*}

pdn-context **ue-ip** *ue-ip* **network-instance** *network-inst* *detail*

pdn-context **up-seid** *string* *detail*

pdn-context **cp-seid** *string* [*cp-ipv4 ipv4-address* *cp-ipv6 ipv6-address*] *detail*

pdn-context **def-pfcp-u-sessions** [*network-realm realm-name*] [*pfcp-u-peer-ip ip-address*] [*gateway gw-id* | *group group-number* | *vm vm-id*] [*apn name*]

pdn-context wrap [gateway *gw-id* | group *group-number* | vm *vm-id*] [apn *name*]
pdn-context field-name [gateway *gw-id* | group *group-number* | vm *vm-id*] [apn *name*]

Context

[\[Tree\]](#) show mobile-gateway pdn pdn-context

Description

This command displays the current PDN contexts for each card.

Parameters

gw-id

Specifies the gateway ID.

Values: 1 to 8

name

Specifies the APN name for the context, up to 80 characters.

slot-number

Specifies the card slot number.

group-number

Specifies the group number.

Values: 1 to 8

Idi

Specifies the initiator ID for the IPsec authentication lockout list.

ieee-address

Specifies the UE MAC.

source-ip-address

Specifies the source IP address for the IPsec authentication lockout list.

Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:d.d.d.d where
 - x – [0..FFFF]H
 - d – [0..255]D

imsi | imei | msisdn *string*

Specifies the UE's IMSI or IMEI or MSISDN.

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.

acct rf

Displays the RF context statistics.

acct radius

Displays the RADIUS accounting statistics.

detail

Displays the detailed summary information for the PDN context.

epdg-decrypt

Displays the decryption keys for both IKE and ESP SAs.

gx-usage-monitoring

Displays 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.

ipsec-lockout

Displays IPsec lockout statistics for the PDN context.

monitoring-key

Displays more information for the 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.

gx-time-of-day-info

Displays 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.

up-seid *string*

Specifies the Session Endpoint Identifier for the UE session context, up to 40 characters.

cp-seid *string*

Specifies the Session Endpoint Identifier for the CP session context, up to 40 characters.

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 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.

summary

Displays summary information for IPsec lockout statistics.

field-name

Sets for printing the list of UEs together with the selected field.

wrap

Specifies that the UE IP address column is not truncated and the full IP address is visible by wrapping the output in the next line displays.

3.2.16.37 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

Displays additional details.

3.2.16.38 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

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 (eight 16-bit pieces) or 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

3.2.16.39 ue-ip

Syntax

ue-ip *ip-address* **network-instance** *network-instance* [**access-type** {*utran* | *geran* | *wlan* | *gan* | *hspa* | *eutran* | *ehrpdp* | *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* | *ehrpdp* | *hrpd* | *1xrtt* | *umb* | *virtual* | *eutran-nb-iot*}]

ue-ip *ip-address* **network-instance** *network-instance* **detail** [**access-type** {*utran* | *geran* | *wlan* | *gan* | *hspa* | *eutran* | *ehrpdp* | *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 (eight 16-bit pieces) or 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.

urr-id

Specifies a unique identity for the usage rule report for this session.

Values: 0 to 4294967295

detail

Displays additional details.

access-type

Specifies access type.

3.2.16.40 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: 0 to 4294967295

detail

Displays additional details.

3.2.16.41 pdu-session

Syntax

pdu-session supi *imsi-msisdn* [detail] acct nchf

pdu-session

pdu-session supi *imsi-msisdn*

pdu-session supi *imsi-msisdn* detail

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-msisdn

Specifies the SUPI identifier, up to 15 characters.

detail

Displays additional details.

nchf

Displays Nchf information.

3.2.16.42 qos-flow

Syntax

qos-flow [dnn *dnn*]

qos-flow supi *supi* [dnn *dnn*]

qos-flow supi *supi* detail [qfi *qfi*] [dnn *dnn*]

Context

[\[Tree\]](#) show mobile-gateway pdn qos-flow

Description

This command displays QoS flow information for the specified SUPI for 5G sessions.

Parameters

<i>dnn</i>	Specifies the DNN, up to 80 characters.
<i>supi</i>	Specifies the SUPI identifier, up to 15 characters.
detail	Specifies detail information.
<i>qfi</i>	Specifies the QFI identifier. Values: 0 to 63

3.2.16.43 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} [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 [port port-number]]
[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 [port <port-
number>]] [gateway gw-id]

ref-point-peers {dhcp} [dhcp-group dhcp-group [peer ip-address]] [gateway gw-id]

ref-point-peers {sww} sww-type [peer ip-address] [gateway gw-id] [ref-point ref-point-name]

ref-point-peers {cdbx} [peer ip-address]

ref-point-peers [gateway gw-id] {swm | gy} {dia-routing-table}

ref-point-peers {swm} swm-type {dia-routing-table} [peer ip-address] [gateway gw-id] [ref-point ref-
point-name]

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

Specifies the reference point type.

ip-address

Specifies the IP address of the peer.

Values: a.b.c.d or x:x:x:x:x:x

port-number

Specifies the port number.

Values: 1 to 65535

gw-id

Specifies the gateway ID.

Values: 1 to 8

peer-type

Specifies the peer type.

group-name

Specifies the RADIUS group name.

ref-point-name

Specifies the reference point name.

sww-type

Specifies the SWw type.

active

Specifies the active peers.

radius

Specifies the RADIUS as the peer.

dhcp

Specifies the DHCP peers.

group-name

Specifies the DHCP group name.

dia-routing-table

Specifies the configuration of the Diameter routing table.

cdbx

Specifies the cloud database peers.

doic

Specifies the realms and hosts with valid Diameter Overload Indication Conveyance (DOIC) parameters.

vm-id

Specifies the VM ID.

Values: 1 to 22

3.2.16.44 ref-point-stats

Syntax

```

ref-point-stats peer ip-address [port port-number] [gateway gw-id | group group-number | card slot-number] [instance | aggregate] [peer-type {sgw | pgw | epdg}]

ref-point-stats {s11 | s11u | s12 | s1u | s4 | s4u | s5 | s5u | s8 | s8u | gx | rf | gn | gnu | ga | gp | gpu | gy | s2a | s2a-gtp | s2b | s2bu | s6b | swm | sww | sta | sd | sx-n4 | n3 | n9} [peer ip-address [port port-number]] [gateway gw-id | group group-number | card slot-number] [instance | aggregate] {failure-codes}

ref-point-stats {gn | gnu | gp | gpu} [ref-point ref-point-name] [peer ip-address [port port-number]] [gateway gw-id | group group-number | card slot-number] [instance | aggregate] [active]

ref-point-stats {s5 | s5u | s8 | s8u | gn | gnu | gp | gpu | n9} [ref-point ref-point-name] [peer ip-address [port port-number]] [gateway gw-id | group group-number | card slot-number] [instance | aggregate]

ref-point-stats {dhcp} [dhcp-group dhcp-group [peer ip-address]] [gateway gw-id | group group-number | card slot-number] [instance | aggregate]

ref-point-stats {pi} [pi-peer ipv4 [port port-number]] [gateway gw-id | group group-number | card slot-number] [instance | aggregate]

ref-point-stats {radius} [radius-group radius-group [peer ip-address]] [gateway gw-id | group group-number | card slot-number] [instance | aggregate]

ref-point-stats {swu} [throttling | plmn-black-white-list] [card slot-number] [aggregate] [failure-codes]

ref-point-stats {sww} sww-type [peer ip-address] [gateway gw-id | group group-number | card slot-number] [instance | aggregate] [ref-point ref-point-name]

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

ref-point-stats {sx-n4} [ref-point ref-point-name] [peer ip-address] [gateway gw-id | group group-number | card slot-number] [instance | aggregate]

ref-point-stats {t6c} [ref-point ref-point-name] [peer ip-address [port port-number]] [peer-type scef] [gateway gw-id | group group-number | card slot-number] [instance | aggregate] [failure-codes]

ref-point-stats {ibcp} [gateway gw-id | card slot-number] [aggregate]

```

Context

[\[Tree\]](#) show mobile-gateway pdn ref-point-stats

Description

This command displays reference point statistics.

Parameters

s11 | **s11u** | **s12** | **s1u** | **s4** | **s4u** | **s5** | **s5u** | **s8** | **s8u** | **gx** | **rf** | **gn** | **gnu** | **ga** | **gp** | **gpu** | **gy** | **s2a** | **s2a-gtp** | **s2b** | **s2bu** | **s6b** | **swm** | **sww** | **sta** | **sd** | **sx-n4** | **n3** | **n9**

specifies the reference point type



Note: In the show outputs, the *Number of Bearers* of the gnu/gpu/s1u/s8u/s12 reference point types, is shown only, where the peer filter is used. For the s4u/s5u/s11u reference point types, the *Number of Bearers* is shown even without the peer filter.

ip-address

Specifies an existing peer IP address.

Values:

- ipv4-address – a.b.c.d
- ipv6-address – x:x:x:x:x:x:x (eight 16-bit pieces) or 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, up to 255 characters.

port

Specifies a port ID.

Values: 1 to 65535

slot-number

Specifies the card slot number.

Values: 1 to 10 | A | B

gw-id

Specifies the gateway ID.

Values: 1 to 8

group-number

Specifies the group number.

Values: 1 to 8

instance

Keyword to show statistics per-peer per-card.

aggregate

Shows aggregated statistics globally.

failure-codes

Keyword to show failure-code statistics.

active

Specifies the active peers.

radius

Specifies the RADIUS reference point.

dhcp

Specifies the DHCP reference point.

radius-group

	Specifies the RADIUS group.
<i>dhcp-group</i>	Specifies the DHCP group.
<i>peer-type</i>	Specifies the peer type.
<i>sww-type</i>	Specifies the SWw type.
<i>vm-id</i>	Specifies the VM ID. Values: 1 to 22
cdbx	Specifies the cloud database reference point.
pi	Keyword to specify PI reference point.
<i>ipv4</i>	Specifies the PI peer IP address. Values: ipv4-address — a.b.c.d
swu	Specifies the SWu reference point.
throttling	Shows the relevant statistics related to IKE overload control state.
plmn-black-white-list	Specifies the statistics of the PLMN denylist/allowlist.
t6c	Specifies the reference point between PGW (PCEF) and SCEF.
ibcp	Keyword to display the BNG IBCP statistics for both the default tunnel and the per-session tunnel.
<i>scef</i>	Specifies the peer type, <i>scef</i> is the only applicable peer type for t6c.

3.2.16.45 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**]

Context

[\[Tree\]](#) show mobile-gateway pdn statistics

Description

This command displays statistics for each card.

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.

3.2.16.46 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*] [nemo]

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*] [nemo]

ue-context {gpsi *gpsi* | pei *pei* | supi *supi*} [detail]

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's 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

nemo

Keyword.

3.2.16.47 def-pfcp-u-sessions

Syntax

def-pfcp-u-sessions [**network-realm** *realm-name*] [**pfcp-u-peer-ip** *ip-address*] [**gateway** *gw-id*] [**card** *slot-number*] [**vm** *vm-id*] [**group** *group-number*]

Context

[\[Tree\]](#) show mobile-gateway pdn ue-context def-pfcp-u-sessions

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 **pfcu-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:d.d.d.d where
 - x – [0..FFFF]H
 - d – [0..255]D

gw-id

Specifies the gateway ID.

Values: 1 to 8

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

3.2.16.48 profile

Syntax

profile

Context

[\[Tree\]](#) show mobile-gateway profile

Description

This command enables the context to display configured mobile gateway profiles.

3.2.16.49 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

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
Specifies to display the references to entry points.

Output

The following output example shows ADB information.

Output example: ADB information

```
A:BNG-SMF# 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
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
=====
```

3.2.16.50 bng

Syntax
bng

Context
[\[Tree\]](#) show mobile-gateway profile bng

Description
This command enables the context to display the configured BNG profiles.

3.2.16.51 cp-nat-profile

Syntax
cp-nat-profile *profile-name*

Context
[\[Tree\]](#) show mobile-gateway profile bng cp-nat-profile

Description
This command displays the specified CP NAT profile information.

Parameters
profile-name
The name of the CP NAT profile.

Output
The following output example shows information for the specified CP NAT profile.

Output example: CP NAT profile

```
*A:Dut-V# show mobile-gateway profile bng cp-nat-profile "Dut-C_pol_NATPolicy1"
=====
CP NAT profile
=====
Description                  : Converted old nat-pool of dut Dut-C into CUPS →
nat-cp-profile
Access mode                  : auto
Last management change       : 10/23/2020 13:18:00
-----
Pool                          : NATPool1
Description                  : nat-policy Dut-C_pol_NATPolicy1 with →
nat-pool NATPool1
Mode                         : napt
Port forwarding range        : 1 - 1023
Port reservation             : 512 ports
Forwarding port limit        : (Not Specified)
Local address assignment pool
Name                         : NATPool1
Network realm                : 123321
Gateway                      : 1
UP NAT policy                : NATPolicy1
Last management change       : 10/23/2020 13:18:01
```

3.2.16.52 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

Specifies 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:BNG-SMF# 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#
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
=====
```


3.2.16.53 call-insight

Syntax

call-insight

Context

[\[Tree\]](#) show mobile-gateway profile call-insight

Description

This command displays call-insight profiles.

3.2.16.54 ue

Syntax

ue *profile-name*

Context

[\[Tree\]](#) show mobile-gateway profile call-insight ue

Description

This command displays information for the call trace profile specified by the profile name or all profiles when no name is specified.

Parameters

profile-name

Displays information about the specified profile.

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

Label	Description
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

```
# 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
-----
Number of profiles : 1
=====
```

3.2.16.55 charging

Syntax

charging

Context

[\[Tree\]](#) show mobile-gateway profile charging

Description

This command enables the context to display charging profile information.

3.2.16.56 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 name, up to 32 characters.

3.2.16.57 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 a profile name, up to 32 characters.

3.2.16.58 gtp**Syntax**

gtp [*profile-name*]

Context

[\[Tree\]](#) show mobile-gateway profile gtp

Description

This command enables the context to display PGW and SGW charging profile information.

Parameters

profile-name

Displays information about the specified existing profile name.

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: <ul style="list-style-type: none"> 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
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

Label	Description
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
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

Label	Description
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

```
# 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

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
=====

```

3.2.16.59 pgw-selection-candidate-list

Syntax

pgw-selection-candidate-list [*list-name*]

Context

[\[Tree\]](#) show mobile-gateway profile list pgw-selection-candidate-list

Description

This command displays PGW selection candidate list information.

Parameters

list-name

Displays information about the specified existing list.

3.2.16.60 pfcp

Syntax

pfcp

Context

[\[Tree\]](#) show mobile-gateway profile pfcp

Description

This command enables the context to display PFCP profile information.

3.2.16.61 pfcf-association-peer-list

Syntax

`pfcf-association-peer-list [profile-name]`

Context

[\[Tree\]](#) show mobile-gateway profile pfcf pfcf-association-peer-list

Description

This command displays PFCF association peer list profile information.

Parameters

profile-name
Displays information about the specified existing profile.

Output

The following output example shows PFCF association peer list profile information.

Output example: PFCF association peer list profile

```
# show mobile-gateway profile pfcf pfcf-association-peer-list
=====
PFCF association peer list profile
=====
Profile name      : pfcfAPList1
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 PFCF-peers : 4
-----
Number of profiles   : 1
=====
```

3.2.16.62 pfcf-profile

Syntax

`pfcf-profile [profile-name]`

Context

[\[Tree\]](#) show mobile-gateway profile pfcf pfcf-profile

Description

This command displays PFCF profile information.

Parameters

profile-name

Displays information about the specified existing profile.

Output

[PFCF profile](#) shows an example of PFCF profile information and [Table 7: Show mobile profile PFCF output fields](#) describes the output fields.

Table 7: Show mobile profile PFCF output fields

Label	Description
Profile name	The name of the PFCF profile
Description	The description of the PFCF profile
Msg retransmit timeout	The time, in seconds, that the PFCF waits before resending a message if there is no response to an initial message
Msg retransmit retry count	The number of times the PFCF 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 PFCF signaling messages
IP DSCP	The DSCP value in the IP Header used for PFCF signaling messages
Association Retry Time	The association retry time
PDI Optimization	The PDI optimization status
PFCF-u Shared Tunnel Re-attempt Timer	The configured value of the re-attempt timer for failed PFCF-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

```
# show mobile-gateway profile pfcf pfcf-profile
=====
PFCF profile
=====
Profile name      : pfcf_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

PFCF Configurable IEs
LCI IE              :Included/Excluded      OCI IE: Included/Excluded
PFCF-u Shared Tunnel
Re-attempt timer    : 600 secs
-----
Number of profiles : 1
=====
```

3.2.16.63 up-peer-list

Syntax

up-peer-list [profile-name]

Context

[\[Tree\]](#) show mobile-gateway profile pfcf up-peer-list

Description

This command displays user plane peer list profile information.

Parameters

profile-name
Displays information about the specified existing profile.

Output

[UP peer list profile](#) shows an example of UP peer list profile information and [Table 8: Show mobile profile PFCF UP peer list output fields](#) describes the output fields.

Table 8: Show mobile profile PFCF UP peer list output fields

Label	Description
UP peer list profile	
Profile name	The name of the UP peer list

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
Suspend-peer	The peer suspend status is enabled or disabled
Group-label profile	The group-label profile name associated with the group for the UP instance; the group association creates a logical grouping of target nodes with selection criteria based on different parameters (APN, TAI, LAI, serving node, IP address, and so on)
APN	The APN name associated with the UP peer
PCO option	The UE PCO options
DNS Addr IPv4	The IPv4 address of the primary DNS server used by a UE to resolve domain names to IP addresses
DNS Sec Addr IPv4	The IPv4 address of the secondary DNS server used by a UE to resolve domain names to IP addresses
DNS Addr IPv6	The IPv6 address of the primary DNS server used by a UE to resolve domain names to IP addresses
DNS Sec Addr IPv6	The IPv6 address of the secondary DNS server used by a UE to resolve domain names to IP addresses
Network Realm	The network realm of the APN
ip-pool-distribution	Indicates if the CP function distributes the allocation of the UE IP addresses across the configured IP address pools and the prefixes configured under these IP address pools for the network realm
pool-Name	The IP pool name
IPv4/IPv6 Prefix pool	The IPv4/IPv6 prefix pool
Remote	Indicates a remote IP pool allocation
supp-dotzero-broadcast-add	The IP address pool to suppress allocation of 0 and x.x.x.255 IP addresses from the local IP address pool to mobile customers

Label	Description
Hold-timer	The value configured for the IP address pool hold-timer, after which the PDN session is released and the gateway assigns the IP address to another PDN session
Hold-for-pdn	Indicates if the hold for PDN option is enabled, in which case the gateway reassigns the held IP address to the PDN connection that released it, if the PDN connection reattaches before the timer expires
Round-Robin	Indicates if the round robin selection mechanism to allocate the IP address is enabled
Priority	Indicates the priority value of an IP address pool

Output example: UP peer list profile

```
# show mobile-gateway profile pfc 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
```

```
=====
```

```
# show mobile-gateway profile pfc up-peer-list "upf_peers"
```

```
=====
```

```
UP peer list profile
```

```
=====
```

```
-----
```

```
Profile name : upf_peers
```

```
Description : N/A
```

```
-----
```

```
Peer : 33.34.1.1
```

```
UPF Selection : True
```

```
upf-id : 69010000-eb45-418e-9694-40000eb4518e
```

```
Disable EPS interworking : Enabled
```

```
Slice : (Not Specified)
```

```
APN : apn.interntSgiRedirect.1.1.com
```

```
Network Realm : realmForinterntSgi
```

```
pool-Name : pool1Grp1
```

```
APN : apn.interntSgiEntpRedirect.1.1.com
```

```
PCO option
```

```
DNS Addr IPv4 : 20.20.20.20
```

```
DNS Sec Addr IPv6 : 3ffe:567::
```

```
Network Realm : realmForinterntSgi
```

```
pool-Name : pool2Grp1
```

```

APN : apn.imsSgiRedirect.1.1.com
PCO option
DNS Addr IPv4 : 20.20.20.20
DNS Sec Addr IPv6 : 3ffe:567::
Network Realm : realmForimsSgi
pool-Name : pool1Grp1
pool-Name : pool2Grp1
pool-Name : pool3Grp1
Network Realm : realmForinternetSgi
ip-pool-distribution : enabled
pool-Name : pool1Grp1
IPv4/IPv6 Prefix pool : 6.0.0.0/9
3ffe:60::/48
Remote : No supp-dotzero-broadcast-add : No
Hold-timer : 3 Hold-for-pdn : No
Round-Robin : No
Priority : none
pool-Name : pool2Grp1
IPv4/IPv6 Prefix pool : 6.128.0.0/9
3ffe:188::/48
Remote : No supp-dotzero-broadcast-add : No
Hold-timer : 3 Hold-for-pdn : No
Round-Robin : No
Priority : none
Network Realm : realmForimsSgi
ip-pool-distribution : enabled
pool-Name : pool1Grp1
IPv4/IPv6 Prefix pool : 6.0.0.0/23
3ffe:60::/55
Remote : No supp-dotzero-broadcast-add : No
Hold-timer : 0 Hold-for-pdn : No
Round-Robin : No
Priority : none
pool-Name : pool2Grp1
IPv4/IPv6 Prefix pool : 6.1.0.0/23
3ffe:60:1000::/55
Remote : No supp-dotzero-broadcast-add : No
Hold-timer : 0 Hold-for-pdn : No
Round-Robin : No
Priority : low
pool-Name : pool3Grp1
IPv4/IPv6 Prefix pool : 6.2.0.0/23
3ffe:60:2000::/55
Remote : No supp-dotzero-broadcast-add : No
Hold-timer : 0 Hold-for-pdn : No
Round-Robin : No
Priority : high
-----

```

Number of profiles : 1

=====

3.2.16.64 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.

Output

The following output example shows QoS profile information.

Output example: QoS profile

```
# 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
=====
```

3.2.16.65 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.

Output

The following output example shows RADIUS profile information.

Output example: RADIUS profile

```
# 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
=====

```

3.2.16.66 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.

Output

The following output example shows RADIUS group information.

Output example: RADIUS group profile

```

# 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
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
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.

```

3.2.16.67 tai-lai-list

Syntax

tai-lai-list [*tai-lai-list-name*]

Context

[\[Tree\]](#) show mobile-gateway profile tai-lai-list

Description

This command displays TAI LAI list profile information.

Parameters

tai-lai-list-name

Displays information about the specified existing TAI LAI list profile, up to 32 characters.

Output

[TAI LAI list profile](#) shows an example of TAI LAI list profile information, and [Table 9: Show mobile profile TAI LAI list output fields](#) describes the output fields.

Table 9: Show mobile profile TAI LAI list output fields

Label	Description
List Name	The TAI LAI list name
MCC	The MCC value
MNC	The MNC value
TAC/LAI	The TAC/LAI value
TAC-RANGE START	The TAC range start value
TAC-RANGE END	The TAC range end value

Label	Description
Number of TAI-LAI entries	The number of TAI LAI entries for the list
Number of TAI-LAI lists	The number of TAI LAI lists displayed

Output example: TAI LAI list profile

```
# show mobile-gateway profile tai-lai-list nokia-smf-tai-list
=====
TAI LAI List
=====
-----
List Name : Nokia-smf-tai-list
-----
MCC          MNC          TAC/LAI          TAC-RANGE        TAC-RANGE
                START          END
-----
202          010          0x02ae          0x03ae
202          010          0x01ae          0x01ae

Number of TAI-LAI entries : 2
-----
Number of TAI-LAI lists   : 1
=====
```

3.2.16.68 system

Syntax

```
system [gateway gw-id | group group-number | vm vm-id] [summary]
system [call-insight]
```

Context

```
[Tree] show mobile-gateway system
```

Description

This command displays mobile gateway system information.

Parameters

- gw-id*
Specifies the gateway ID.
Values: 1
- group-number*
Specifies the group number.
Values: 1 to 15
- vm-id*
Specifies the VM ID.

Values: 1 to 20 | A | B

summary

Shows aggregated statistics per-peer level.

Output

The following output examples show system information and [Table 10: Show mobile gateway system information](#) describes the output fields.

- [System information \(one-to-one redundancy\)](#)
- [System information \(many-to-many redundancy\)](#)

Table 10: Show mobile gateway system information

Label	Description
Use-fixed-udp-src-port	Indicates if a fixed UDP source port is used Enabled or disabled (default)
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 (1 to 8)
Instance type	User-plane node (UPF/SGW-U/PGW-U, combined SGW-U/PGW-U) Control-plane node (SMF/SGW-C/PGW-C, combined SGW-C/PGW-C)
Admin State	The administratively applied state of the gateway (Up or Down)
Oper State	The operational state of the gateway (Up or Down)
Suspend	Indicates if the gateway is in a suspended state, in which case it does not accept new session, but continues to support call-flow on existing sessions
Suspend since	The time at which the gateway was suspended
Restart counter	Restart counter value
EPC Node	EPC node name; can be 31 characters maximum composed of the following: <MCC>.<MNC>.<SGW PGW ePDG TWAG>.<Region String>.<Group Id>.<Node Id>
AA-grp/Part-id	The AA group/partition ID assigned to the mobile-gateway system
Def app profile	The default AA application profile assigned to the mobile-gateway system

Label	Description
parent-ctl-cc-na	The optional parental control ASO charging characteristic name, when the AA group and default application profile are configured
Admin Uptime	Time at which the gateway was administratively up
Gateway Uptime	Time the gateway was operationally up
PFCP Recover Time	Time of the PFCP recovery Note: It is displayed only in case CUPS is set up.
Group	Mobile-gateway system group number (1 to 8)
Admin State	The administratively applied state of the group (up or down)
Oper state	Operational state of the group (up, down, in transition, and scale-in in progress)
Override profile	Indicates if an override profile is configured, or not, for each group for GTP-U redirection
Group Uptime	Time at which the group was operationally up
Red State	Redundancy state (hot or cold)
Switch over count	Indicates for the group, the number of switchovers for each {active to standby} transition of the VM/Card
Switch over time	Time of the last switchover
Switch over state	The state of the switchover
Resource pool	The resource pool assigned to the group defines the VM resources (cards) and the redundancy method used for the group
Redundancy	Many-to-many ("M" active VMs are configured to have "N" standby/spares to provide HOT redundancy) One-to-one (each group is configured to provide HOT redundancy per VM/Card)
PCMD Profile	Indicates if the group inherits the PCMD profile: inherit — the PCMD profile configured in the configure mobile-gateway 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/VM slot number
Role/Red state	Indicates the working/active or protect/standby state of the VM/Card

Output example: System information (one-to-one redundancy)

```
# show mobile-gateway system
```

```

Mobile gateway system
=====
Use-fixed-udp-src-port : Disabled
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)

```

# show mobile-gateway system

=====
Mobile gateway system
=====
=====
Use-fixed-udp-src-port : Disabled
Ue-fragmented-packets-handling : Disabled
ttc-accuracy : false
GTP-U Source Port Dist : Disabled
-----
Gateway : 1 Instance-type : control
Admin State : Up Oper state : Up
Suspended : No Suspended Since : N/A
Restart counter : 1 EPC Node : 310.150.PGW.1.1.1
Aa-grp/Part-id : 0/0 Def app profile :
parent-ctl-cc-na*:
Admin Uptime : 03/14/2022 11:09:41 Gateway Uptime : 03/14/2022 11:09:41
PCFP Recover Time: 03/14/2022 11:09:41 UTC 3856244981#
Group : 1
Admin State : Up Oper state : Up
Override profile : N/A
Group Uptime : 03/14/2022 11:09:41
Redundancy : one-to-one Red State : Hot
Switch over count: 0 Switch over time : N/A
Switch over state: N/A
PCMD Profile : inherit PCMD oper. state : down
VM : 1/3 Role/Red State : working/active
VM : 1/4 Role/Red State : protect/standby
-----
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.

```

3.2.17 tools mobile-gateway command descriptions

3.2.17.1 mobile-gateway

Syntax

mobile-gateway *gw-id*

Context

[\[Tree\]](#) tools dump mobile-gateway

Description

This command enables the context to execute mobile gateway performance commands.

Parameters

gw-id

Specifies a mobile gateway identifier.

Values: 1 to 8

3.2.17.2 bng

Syntax

bng

Context

[\[Tree\]](#) tools dump mobile-gateway bng

Description

This command enables the context to dump BNG information.

3.2.17.3 error-history

Syntax

error-history [*l2-access-id string-64*] [**up-ip** *ip-address* | *ipv6-address*] [**mac** *ieee-address*]

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 (eight 16-bit pieces) or 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

3.2.17.4 pfcg-audit**Syntax**

pfcg-audit remote-peer *ip-address | ipv6-address* [**router** *router-name*]

Context

[\[Tree\]](#) tools dump mobile-gateway pfcg-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 (eight 16-bit pieces) or 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.

Output example: PFCP audit

```
# tools dump mobile-gateway 1 pfcpc-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
=====
```


4 perform command reference

4.1 perform hierarchy descriptions

This section provides the following perform hierarchy descriptions:

- [tools perform command hierarchy](#)

4.1.1 tools perform command hierarchy

```
tools
- perform
  - mobile-gateway
    - pdn
      - force-clear
        - bearer-context
      - pfcf-audit
    - profile
      - authentication-database
        - lookup
      - bng
        - entry-point
          - lookup
        - radius
          - coa
            - attribute
            - debug
            - deliver-request
            - destination-ip
            - info
            - router
            - source-ip
```

4.2 perform command descriptions

This section provides the following perform command descriptions:

- [tools perform command descriptions](#)

4.2.1 tools perform command descriptions

4.2.1.1 mobile-gateway

Syntax

mobile-gateway

Context

[\[Tree\]](#) tools perform mobile-gateway

Description

This command enables the context to execute mobile gateway performance commands.

4.2.1.2 pdn

Syntax

pdn *gw-id*

Context

[\[Tree\]](#) tools perform mobile-gateway pdn

Description

This command enables the context to execute tools commands on a specific mobile gateway instance.

Parameters

gw-id

Specifies the gateway ID.

Values: 1 to 8

4.2.1.3 force-clear

Syntax

force-clear

Context

[\[Tree\]](#) tools perform mobile-gateway pdn force-clear

Description

This command enables the context to force execution of clear commands during troubleshooting.



Caution: Commands in the `tools perform force-clear` context should only be used when necessary and as instructed by Nokia Technical Support.

4.2.1.4 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

Description

This command forcefully clears the bearer context for a specific UE. All sessions of the UE at the PDN level are cleared when the APN option is not used. A rate limiting is applied to the command, by only accepting 16 commands in parallel and only allowing one command per second to proceed internally for execution.



Caution: This command performs an exhaustive search of the UE identity on all the cards/VMs of the mobile gateway and should only be used 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; when used, only the UE sessions on this APN are cleared.



Note: Virtual APNs are not supported in this command, use only real APNs.

local-only

Specifies an internal cleanup.

slave

Specifies that the clearing is needed on the slave in an ICR deployment.

4.2.1.5 pfcg-audit

Syntax

pfcg-audit [peer *ip-address* | *ipv6-address*]

Context

[\[Tree\]](#) tools perform mobile-gateway pdn pfcg-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*

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 (eight 16-bit pieces) or x:x:x:x:x:d.d.d.d where
x – [0..FFFF]H
d – [0..255]D

4.2.1.6 profile

Syntax

[no] **profile** *profile-id*

Context

[\[Tree\]](#) tools perform mobile-gateway profile

Description

This command enables the context to execute profile performance management commands.

Parameters

profile-id

Specifies a profile number identifier.

Values: 0 to 255

4.2.1.7 authentication-database

Syntax

authentication-database *name*

Context

[\[Tree\]](#) tools perform mobile-gateway profile authentication-database

Description

This command enables the context to execute the tool commands for the ADB.

Parameters

name

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

4.2.1.8 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 hexh string*]

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

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

Specifies that the UP group filter is automatically derived 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.

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 (eight 16-bit pieces) or 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 FFFFFFFF

4.2.1.9 bng

Syntax

bng

Context

[\[Tree\]](#) tools perform mobile-gateway profile bng

Description

This command enables the context to execute the tool commands for BNG CUPS.

4.2.1.10 entry-point

Syntax

entry-point *entry-point-name*

Context

[\[Tree\]](#) tools perform mobile-gateway profile bng entry-point

Description

This command enables the context to 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.

4.2.1.11 lookup

Syntax

lookup [**l2-access-id** *string-64*] [**up-ip** *ip-address*] [**c-vlan** *vlan-id*] [**s-vlan** *vlan-id*]

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 (eight 16-bit pieces) or x:x:x:x:x:d.d.d.d where
x – [0..FFFF]H
d – [0..255]D

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

4.2.1.12 radius

Syntax

radius

Context

[\[Tree\]](#) tools perform mobile-gateway profile bng radius

Description

This command enables the context to execute the tool commands for BNG CUPS RADIUS profiles.

4.2.1.13 coa

Syntax

coa
no coa

Context

[\[Tree\]](#) tools perform mobile-gateway profile bng radius coa

Description

This command creates a RADIUS CoA test action.

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.

4.2.1.14 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.

Values:

- *ipv4-address* – a.b.c.d
- *ipv6-address* – x:x:x:x:x:x:x (eight 16-bit pieces) or x:x:x:x:x:d.d.d.d where
x – [0..FFFF]H
d – [0..255]D

ip-prefix/*ip-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 (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.

4.2.1.15 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.

4.2.1.16 deliver-request

Syntax

deliver-request

Context

[\[Tree\]](#) tools perform mobile-gateway profile bng radius coa deliver-request

Description

This command sends the CoA request.

4.2.1.17 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 (eight 16-bit pieces) or x:x:x:x:x:d.d.d.d where
 - x – [0..FFFF]H
 - d – [0..255]D

4.2.1.18 info

Syntax

`info`

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.

4.2.1.19 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

4.2.1.20 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 [::]

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:d.d.d where
x – [0..FFFF]H
d – [0..255]D

5 redundancy command reference

5.1 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](#)

5.1.1 admin redundancy command hierarchy

```
admin
- redundancy
  - cpm-switchover
  - mc-master-lock
  - mc-mobile-switchover
  - mc-slave-lock
  - mg-switchover
    - group
```

5.1.2 clear redundancy command hierarchy

```
clear
- redundancy
  - multi-chassis
    - mc-mobile
```

5.1.3 configure redundancy command hierarchy

```
configure
- redundancy
  - multi-chassis
    - peer
      - mc-mobile
        - bfd-enable
        - hold-on-neighbor-failure
        - keep-alive-interval
        - mc-complete-ue-sync
        - mc-redirect
        - mobile-gateway
```

```
- shutdown  
- traffic-detection
```

5.1.4 show redundancy command hierarchy

```
show  
- redundancy  
  - multi-chassis  
    - mc-mobile
```

5.2 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](#)

5.2.1 admin redundancy command descriptions

5.2.1.1 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.

5.2.1.2 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) synchronization fails and an alarm is issued.

Default

no mc-master-lock

5.2.1.3 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

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.

5.2.1.4 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

5.2.1.5 mg-switchover

Syntax

mg-switchover

Context

[\[Tree\]](#) admin redundancy mg-switchover

Description

Commands in this context perform a controlled SM-VM switchover.

5.2.1.6 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

5.2.2 clear redundancy command descriptions

5.2.2.1 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 (eight 16-bit pieces) or x:x:x:x:x:d.d.d.d where
x – [0..FFFF]H
d – [0..255]D

5.2.3 configure redundancy command descriptions

5.2.3.1 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.

Default

no mc-mobile

5.2.3.2 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

5.2.3.3 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

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

Default: 3

5.2.3.4 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

Default: 10

5.2.3.5 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

5.2.3.6 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.

The **no** form of this command disables the use of MC redirect.

Default

no mc-redirect

5.2.3.7 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

5.2.3.8 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.

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

5.2.3.9 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 has received an uplink control packet, a downlink data packet, and an uplink data packet.

relaxed

Keyword to transition from standby to active only after the standby system has received a PFCP or IBCP packet.

5.2.4 show redundancy command descriptions

5.2.4.1 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.

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: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.

6 router command reference

6.1 router hierarchy descriptions

This section provides the following router hierarchy descriptions:

- [configure router command hierarchy](#)

6.1.1 configure router command hierarchy

```
configure
- router
  - interface
    - ip-reassembly
    - monitor-mc-redirect
      - active-mg
```

6.2 router command descriptions

This section provides the following router command descriptions:

- [configure router command descriptions](#)

6.2.1 configure router command descriptions

6.2.1.1 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.

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

Parameters

port-name

Specifies the port name.

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

where

port-id – ...

context-val – 1 to 31

port-id

Specifies the configured port ID.

Values: slot/mda/port

lag-id – the configured LAG ID

where

id – 1 to 200

6.2.1.2 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

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

Default: 1000

low-threshold

Specifies the low threshold value in number of packets.

Values: 0 to 4294967295

Default: 500

6.2.1.3 active-mg

Syntax

active-mg *vm-id*
no active-mg

Context

[\[Tree\]](#) configure router policy-options policy-statement entry from active-mg

Description

This command configures the route policy entry to include active VMs. An MG group-specific VM is used to advertise and update the next-hop of an active VM during inter-VM failover.

The **no** form of this command removes the active SM-VM associated with the route policy entry.

Default

no active-mg

Parameters

vm-id

Specifies the SM-VM ID to include for the route policy.

Values: 1 to 20

7 service command reference

7.1 service hierarchy descriptions

This section provides the following service hierarchy descriptions:

- [configure service command hierarchy](#)
- [show service command hierarchy](#)

7.1.1 configure service command hierarchy

```
configure
- service
  - vprn
    - interface
      - ip-reassembly
      - monitor-mc-redirect
```

7.1.2 show service command hierarchy

```
show
- service
  - mg-group-using
```

7.2 service command descriptions

This section provides the following service command descriptions:

- [configure service command descriptions](#)
- [show service command descriptions](#)

7.2.1 configure service command descriptions

7.2.1.1 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

...

Parameters

port-name

Specifies the port name.

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

port-id – ...

context-val – 1 to 31

port-id

Specifies the configured port ID.

Values: slot/mda/port

lag-id – the configured LAG ID
where

id – 1 to 200

7.2.1.2 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

Default: 1000

low-threshold

Specifies the low threshold value in number of packets.

Values: 0 to 4294967295

Default: 500

7.2.2 show service command descriptions

7.2.2.1 mg-group-using

Syntax

mg-group-using

Context

[\[Tree\]](#) show service mg-group-using

Description

This command displays for each MG group the VPRNs which are configured to redirect the GTP-U traffic and the SGi VPRNs which allocate all the IP addresses from an IP pool to the respective MG host VPRN.

Output

The output example shows the allocation of VPRN routes at the SGi interface to specific MG groups and the following table describes the output fields.

Table 11: Show service mg-group-using output fields

Label	Description
MG-Group	Indicates the MG group that is associated with a specific VPRN instance at the SGi interface.
VPRN	Indicates the VPRN instance which is associated with a specific MG Group.
SGI/No of APNs	Indicates the number of APNs at the SGi interface which are associated with a specific MG group.

Output example: MG groups and VPRNs

```
# show service mg-group-using
```

=====		
MG Group Using		
=====		
MG-Group	VPRN	SGI/No of APNs

1	vprn101	non-SGI
1	vprn151	non-SGI
1	vprn2001	SGI/2
1	vprn2051	SGI/1

2	vprn102	non-SGI
2	vprn152	non-SGI
2	vprn2002	SGI/2
2	vprn2052	SGI/1

3	vprn103	non-SGI
3	vprn153	non-SGI
3	vprn2003	SGI/2
3	vprn2053	SGI/1

MG-groupEntries found: 3		
=====		

8 system command reference

8.1 system hierarchy descriptions

This section provides the following system hierarchy descriptions:

- [configure system command hierarchy](#)
- [show system command hierarchy](#)
- [tools system command hierarchy](#)

8.1.1 configure system command hierarchy

```
configure
- system
  - license
    - advanced-expiration-alarm
```

8.1.2 show system command hierarchy

```
show
- system
  - virtual-fabric
```

8.1.3 tools system command hierarchy

```
tools
- dump
  - system
    - virtual-fabric
```

8.2 system command descriptions

This section provides the following system command descriptions:

- [configure system command descriptions](#)
- [show system command descriptions](#)
- [tools system command descriptions](#)

8.2.1 configure system command descriptions

8.2.1.1 license

Syntax

license

Context

[\[Tree\]](#) configure system license

Description

The command in this context configures the license expiration alarm.

8.2.1.2 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

8.2.2 show system command descriptions

8.2.2.1 virtual-fabric

Syntax

virtual-fabric [**control** | **data**] **detail** [**vm** *vm-id*]

Context

[Tree] show system virtual-fabric

Description

This command displays virtual fabric information.

Parameters

control


Specifies to display CSF information.

data

Specifies to display DSF information.

detail

Specifies 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.

```
# 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 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| . * . . . . . . - . . . . . . . . . . . . . * * . .
```

```

R 11| . * . . . . . . . - . . . . . . * * . .
X 12| . * . . . . . . . - . . . . . . * * . .
  13| . * . . . . . . . - . . . . . . * * . .
  14| . * . . . . . . . - . . . . . . * * . .
  15| . * . . . . . . . - . . . . . . * * . .
  16| . * . . . . . . . - . . . . . . * * . .
  17| . * . . . . . . . - . . . . . . * * . .
  18| . * . . . . . . . - . . . . . . * * . .
  19| * * * * * * * * * * * * * * * * * * * *
  20| * * * * * * * * * * * * * * * * * * * *
  A | . * . . . . . . . . . . . . . . * * - .
  B | . * . . . . . . . . . . . . . . * * . -

```

Data Fabric-2

```

                                VM-ID
                                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 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| * * * * * * * * * * * * * * * * * * * - * *

```

[illegible]

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

```
# 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
```

```

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

```

# 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)

```

```

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)

```

8.2.3 tools system command descriptions

8.2.3.1 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

Specifies to display CSF information.

data

Specifies to display DSF information.

detail

Specifies to display more information for the specified VM.



Note: The **detail** keyword can be used with or without the **vm** parameter.

statistics

Requests 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



Note: The **vm** parameter can only be used in conjunction with the **detail** keyword.

override-csf

Specifies 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

```
# 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 1 2 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| * * * - * * * * * * * * * * * * * * * *
```

```

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 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| - 2 2 3 * * * * * * * * * * * * * * 1 2
03| 2 - 2 3 * * * * * * * * * * * * * * 1 2
04| 1 2 - 3 * * * * * * * * * * * * * * 2 2
05| 1 2 2 - * * * * * * * * * * * * * * 2 2
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

```
# tools dump system virtual-fabric detail
```


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-----

```

      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)

```

# 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)

```

# 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

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)

```
# 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
=====
VM-ID      packets lost      peak jitter, us
          current previous      current previous
-----
  03              0         0      10857         0
=====
```

Output example: Control fabric override status

```
# 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
```

9 virtual-fabric command reference

9.1 virtual-fabric hierarchy descriptions

This section provides the following virtual-fabric hierarchy descriptions:

- [traceroute virtual-fabric command hierarchy](#)

9.1.1 traceroute virtual-fabric command hierarchy

```
traceroute
- virtual-fabric
```

9.2 virtual-fabric command descriptions

This section provides the following virtual-fabric command descriptions:

- [traceroute virtual-fabric command descriptions](#)

9.2.1 traceroute virtual-fabric command descriptions

9.2.1.1 virtual-fabric

Syntax

virtual-fabric [**control** | **data**] **vm** *vm-id* [**vm-source** *vm-source-id*] [**fabric-number** *fabric-number*]

Context

[\[Tree\]](#) traceroute virtual-fabric

Description

This command traces fabric routes from any card to any other card on any fabric. By default, tracing starts from the active OAM card on control fabric 1.

Parameters

control

Specifies the CSF information.

data

Specifies the DSF information.

vm-id

Specifies the ID of the target VM.

Values: 1 to 20 | A | B

vm-source-id

Specifies the ID of the source VM.

Values: 1 to 20 | A | B

fabric-number

Specifies the switch fabric number.

Values: 1 (for CSF1 and DSF1) | 2 (for CSF2 and DSF2)

Default: 1

Output

The following output example shows the tracing of the packet route.

Output example: Output of packet route

```
# traceroute virtual-fabric control vm 2 vm-source 3 fabric-number 1
Control Fabric-1, VM 3:
traceroute to 192.168.1.2, 16 hops max:
 1 192.168.3.254 0.359 ms
 2 10.0.0.2 0.333 ms
 3 192.168.1.2 0.304 ms
```

10 vm command reference

10.1 vm hierarchy descriptions

This section provides the following vm hierarchy descriptions:

- [clear vm command hierarchy](#)
- [show vm command hierarchy](#)

10.1.1 clear vm command hierarchy

```
clear
  - vm
```

10.1.2 show vm command hierarchy

```
show
  - vm
    - virtual
      - cpu-scheduling
      - fp
```

10.2 vm command descriptions

This section provides the following vm command descriptions:

- [clear vm command descriptions](#)
- [show vm command descriptions](#)

10.2.1 clear vm command descriptions

10.2.1.1 vm

Syntax

vm *vm-id*

vm *vm-id* **fp** [1..2] **dist-cpu-protection**

```

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.

10.2.2 show vm command descriptions

10.2.2.1 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**

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

Specifies to display more information for the specified VM.

memory-pools

Displays memory pool details for the specified VM.

cpu

Displays 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.

- 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

```
# 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 12: 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

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

```
# show vw 1 detail
=====
VM 1
=====
Slot      Provisioned Type      Admin Operational  Comments
         Equipped Type (if different)   State   State
-----
1         iom-v
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
=====
```



Note:

- 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

```
# 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

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 13: 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

```
# show vm 3 cpu
=====
VM 3 CPU Utilization (Sample period: 1 second)
=====
Name                Cores      CPU Time    CPU Usage    Capacity
                    (HT=ON)    (uSec)      Usage        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%
```

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

```
# 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

```
# show vm 4 virtual fp
```

VM 4 Virtual Forwarding Plane Statistics			
Task	vCPUs (HT=ON)	Average Utilization	Maximum 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 %

10.2.2.2 virtual

Syntax

virtual

Context

[\[Tree\]](#) show vm virtual

Description

This command displays virtual VM information.

10.2.2.3 cpu-scheduling**Syntax**

cpu-scheduling

Context

[\[Tree\]](#) show vm virtual cpu-scheduling

Description

This command displays virtual CPU scheduling information on the VM.

10.2.2.4 fp**Syntax**

fp

Context

[\[Tree\]](#) show vm virtual fp

Description

This command displays virtual forwarding plane information on the VM.

11 vm-function command reference

11.1 vm-function hierarchy descriptions

This section provides the following vm-function hierarchy descriptions:

- [show vm-function command hierarchy](#)

11.1.1 show vm-function command hierarchy

```
show
  - vm-function
    - qos
```

11.2 vm-function command descriptions

This section provides the following vm-function command descriptions:

- [show vm-function command descriptions](#)

11.2.1 show vm-function command descriptions

11.2.1.1 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

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

```
# 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
=====
```

11.2.1.2 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.

12 vnf-instance command reference

12.1 vnf-instance hierarchy descriptions

This section provides the following vnf-instance hierarchy descriptions:

- [show vnf-instance command hierarchy](#)

12.1.1 show vnf-instance command hierarchy

```
show
  - vnf-instance
```

12.2 vnf-instance command descriptions

This section provides the following vnf-instance command descriptions:

- [show vnf-instance command descriptions](#)

12.2.1 show vnf-instance command descriptions

12.2.1.1 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

Displays environment usage information for specialized configurations.

power-supply

Displays power-supply usage information for specialized configurations.

detail

Displays more information for all vnf-instance in the system.

vnf-instance-class

Displays vnf-instance information for the specified class only.

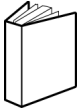
Output

The following output example shows VNF instance statistics.

Output example: VNF instance statistics

```
# 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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