Cisco Ultra Cloud Serving Gateway Control Plane Function, Release 2023.04 - CLI Command Reference

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CONTENTS

About this Guide

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

This preface describes the *Ultra Cloud Core Serving Gateway Control Plane Function - CLI Command Reference*, the document conventions, and the customer support details.

Conventions Used

The following tables describe the conventions used throughout this documentation.

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

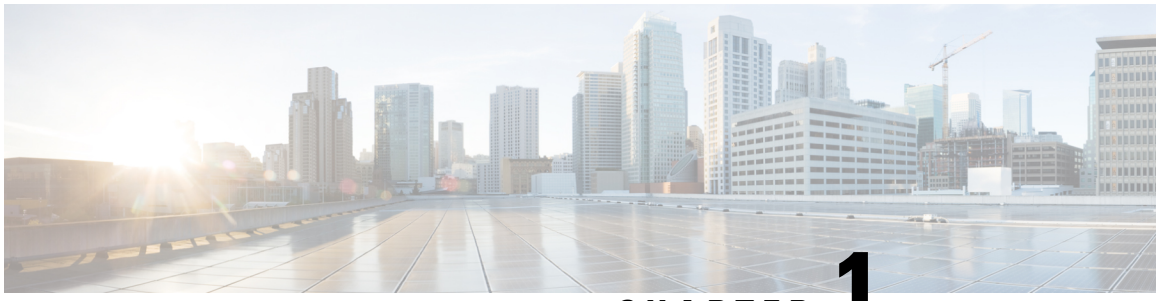
Typeface Conventions	Description
Text represented as a `screen display`	This typeface represents displays that appear on your terminal screen, for example: `Login:`

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

Contacting Customer Support

Use the information in this section to contact customer support.

Refer to the support area of http://www.cisco.com for up-to-date product documentation or to submit a service request. A valid username and password are required to access this site. Please contact your Cisco sales or service representative for additional information.



CHAPTER 1

cnSGW Command Reference

test dns-query

Tests FQDN resolution.

Command Modes

Exec

Syntax Description

`test dns-query { fqdn` *`fqdn`* **`| num-ipv4`** *`ipv4_count`* **`| num-ipv4v6`** *`ipv4v6_count`* **`| num-ipv6`** *`ipv6_count`* **`}`**

fqdn *fqdn*

Specify the Fully Qualified Domain Name (FQDN) of the node for which DNS query has to be sent.

Must be a string of 1-255 characters.

num-ipv4 *ipv4_count*

Specify the number of IPv4 to be used for DNS query.

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

num-ipv4v6 *ipv4v6_count*

Specify the number of IPv4v6 to be used for DNS query.

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

num-ipv6 *ipv6_count*

Specify the number of IPv6 to be used for DNS query.

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

Usage Guidelines Use this command to test FQDN of the node for which dns query has to be sent.

policy call-control-profile

Configures SGW call control profile for operator policy.

Syntax Description **`call-control-profile`** *`sgw_cc_profile_name`* **`charging-mode`** *`sgw_charging_mode`*
`sgw-charging-profile` *`sgw_charging_profile_name`*

call-control-profile *sgw_cc_profile_name*

Specify name of the SGW Call Control Profile for operator policy.

Must be a string.

charging-mode *sgw_charging_mode*

Specify the SGW charging mode.

Must be one of the following:

- **gtpp**
- **none**

sgw-charging-profile *sgw_charging_profile_name*

Specify name of the associated SGW charging profile.

Usage Guidelines Use this command to configure SGW call control profile for operator policy.

policy call-control-profile cc

Configures charging characteristics selection preference parameter.

Syntax Description **`cc prefer`** *`cc_selection_preference`*

prefer *cc_selection_preference*

Specify the preference for selecting charging characteristics.

Must be one of the following:

- **hlr-hss-value**: Specify hlr-hss-value - value received from serving node.
- **local-value**: Specify local-value - value defined locally.

Default Value: hlr-hss-value.

Usage Guidelines Use this command to configure charging characteristics selection preference parameter.

policy call-control-profile cc local-value

Configures local value for charging characteristics.

Syntax Description **`local-value profile`** *`profile_index`*

profile *profile_index*

Specify the local profile index.

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

Default Value: 8.

Usage Guidelines Use this command to configure local value for charging characteristics.

policy dnn

Configures the virtual DNN to operator DNN mapping.

Command Modes Exec > Global Configuration (config)

Syntax Description **`dnn`** *`dnn_policy_name`* **`[ profile`** *`dnn_profile_name`* **`]`**

dnn *dnn_policy_name*

Specify name of the DNN policy.

Must be a string.

profile *dnn_profile_name*

Specify name of the DNN profile.

Must be a string.

Usage Guidelines Use this command to configure the virtual DNN to operator DNN mapping.

policy dnn dnn dnn

Configures the virtual DNN to a network DNN.

Syntax Description **dnn** *dnn_name* **[profile** *dnn_profile_name* **] dnn-list** *dnn_list*

dnn-list *dnn_list*

Specify the additional list of DNNs to be associated for the DNN profile.

Must be a string.

dnn *dnn_name*

Specify name of the DNN.

Must be a string.

profile *dnn_profile_name*

Specify name of the DNN profile.

Must be a string.

Usage Guidelines Use this command to configure the virtual DNN to a network DNN.

policy dnn dnn network-identifier

Configures the network identifier.

Command Modes Exec > Global Configuration (config) > DNN Configuration (config-dnn-*policy_name*)

Syntax Description **dnn network-identifier** *network_identifier* **[profile** *profile_name* **] [dnn-list** *dnn_list* **]**

network-identifier *network_identifier*

Specify the network identifier.

Must be a string.

profile *profile_name*

Specify name of the profile.

Must be a string.

Usage Guidelines Use this command to configure the network identifier.

policy dnn dnn network-identifier operator-identifier

Configures the operator identifier.

Command Modes Exec > Global Configuration (config) > DNN Configuration (config-dnn-*policy_name*)

Syntax Description **dnn network-identifier** *network_identifier* **operator-identifier** *operator_identifier* **[profile** *profile_name* **]**

operator-identifier *operator_identifier*

Specify the operator identifier.

Must be a string.

profile *profile_name*

Specify name of the profile.

Must be a string.

Usage Guidelines Use this command to configure the operator identifier.

policy dnn dnn operator-identifier

Configures the operator identifier.

Command Modes Exec > Global Configuration (config) > DNN Configuration (config-dnn-*policy_name*)

Syntax Description **dnn operator-identifier** *operator_identifier* **[profile** *profile_name* **] [dnn-list** *dnn_list* **]**

operator-identifier *operator_identifier*

Specify the operator identifier.

Must be a string.

profile *profile_name*

Specify name of the profile.

Must be a string.

Usage Guidelines Use this command to configure the operator identifier.

policy network-capability

Configures Network Capability Policy configuration.

Command Modes Exec > Global Configuration (config)

Syntax Description **policy network-capability** *policy_name* **[link-mtu** *link_mtu* **| max-supported-pkt-filter** *max_supported_pkt_filter* **| nw-support-local-address-tft { false | true }]**

link-mtu *link_mtu*

Specify name of the Network Capability Policy.

Must be an integer in the range of 1280-2000.

Default Value: 1500.

max-supported-pkt-filter *max_supported_pkt_filter*

Specify the maximum supported packet filters.

Must be an integer in the range of 16-256.

Default Value: 16.

network-capability *policy_name*

Specify name of the Network Capability Policy.

Must be a string.

nw-support-local-address-tft { false | true }

Enable or disable network support for local address in TFT.

Must be one of the following:

- **false**
- **true**

Default Value: false.

Usage Guidelines Use this command to configure Network Capability Policy configuration.

policy operator

Configures the operator policy configuration.

Command Modes Exec > Global Configuration (config)

Syntax Description **policy operator** *policy_name* **call-control-profile** *sgw_cc_profile_name* **roaming-status** *roaming_status*

call-control-profile *sgw_cc_profile_name*

Specify name of the associated SGW Call Control profile.

operator *policy_name*

Specify name of the operator policy.

Must be a string.

roaming-status *roaming_status*

Specify the roaming status.

Must be one of the following:

- **roamer**
- **visitor-hrt**
- **visitor-lbo**

Usage Guidelines Use this command to configure the operator policy specific configuration.

policy operator policy

Configures DNN policy parameters.

Command Modes Exec > Global Configuration (config) > Operator Policy Configuration (config-operator-*policy_name*)

Syntax Description **policy dnn** *dnn_policy_name* **[network-capability** *network_capability* **]**

dnn *dnn_policy_name*

Specify name of the DNN policy.

Must be a string.

network-capability *network_capability*

Specify the network capability.

Must be a string.

secondary *secondary*

Specify the secondary.

Must be a string.

Usage Guidelines Use this command to configure DNN policy parameters.

policy path-failure-detection

Configures path failure detection policy-specific configuration.

Command Modes Exec > Global Configuration (config)

Syntax Description **policy path-failure-detection** *policy_name* **max-remote-rc-change** *max_remote_rc_change*

max-remote-rc-change *max_remote_rc_change*

Specify the maximum remote restart counter change.

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

path-failure-detection *policy_name*

Specify name of the Path Failure Detection policy.

Must be a string.

Usage Guidelines Use this command to configure path failure detection policy-specific configuration.

policy path-failure-detection ignore

Configures to ignore counter values, echo timeouts, or echo failures.

Command Modes Exec > Global Configuration (config) > Path Failure Detection Policy Configuration (config-path-failure-detection-*policy_name*)

Syntax Description **`ignore type`** *`ignore_type`*

type *ignore_type*

Specify to ignore restart counter values, echo timeouts, or echo failures.

Must be one of the following:

- **control-rc-change**
- **echo-failure**
- **echo-rc-change**

Usage Guidelines Use this command to configure ignoring counter values, echo timeouts, or echo failures.

policy subscriber

Configures SMF policy parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **`policy subscriber`** *`policy_name`*

policy subscriber *policy_name*

Specify name of the subscriber policy.

Must be a string.

Usage Guidelines Use this command to configure SMF policy parameters.

policy subscriber list-entry

Configures operator policy selection match criteria definition.

Command Modes

Exec > Global Configuration (config) > Subscriber Policy Configuration (config-subscriber-*policy_name*)

Syntax Description

precedence *precedence_number* **[sst** *slice_service_type* **| sdt** *slice_differentiator_type* **| supi-start-range** *supi_start_range* **| supi-stop-range** *supi_stop_range* **| gpsi-start-range** *gpsi_start_range* **| gpsi-stop-range** *gpsi_stop_range* **| pei-start-range** *pei_start_range* **| pei-stop-range** *pei_stop_range* **| operator-policy** *operator_policy_name* **]**

gpsi-start-range *gpsi_start_range*

Specify the GPSI start range.

Must be an integer in the range of 1000000000-999999999999999.

gpsi-stop-range *gpsi_stop_range*

Specify the GPSI stop range.

Must be an integer in the range of 1000000000-999999999999999.

imsi-start-range *imsi_start_range*

Specify the IMSI start range.

Must be an integer in the range of 100000000000000-9999999999999999.

imsi-stop-range *imsi_stop_range*

Specify the IMSI stop range.

Must be an integer in the range of 100000000000000-9999999999999999.

operator-policy *operator_policy_name*

Specify name of the operator policy.

Must be a string.

pei-start-range *pei_start_range*

Specify the PEI start range.

Must be an integer in the range of 1000000000000-9999999999999999.

pei-stop-range *pei_stop_range*

Specify the PEI stop range.

Must be an integer in the range of 1000000000000-9999999999999999.

precedence *precedence_number*

Specify the precedence for entry.

Must be an integer in the range of 1-2048.

sdt *slice_differentiator_type*

Specify the Slice Differentiator Type (SDT).

sst *slice_service_type*

Specify the Slice/Service Type (SST).

supi-start-range *supi_start_range*

Specify the SUPI start range.

Must be an integer in the range of 100000000000000-999999999999999.

supi-stop-range *supi_stop_range*

Specify the SUPI stop range.

Must be an integer in the range of 100000000000000-999999999999999.

Usage Guidelines Use this command to configure operator policy selection match criteria definition.

policy subscriber list-entry imsi

Configures subscriber International Mobile Station Identification (IMSI).

Command Modes Exec > Global Configuration (config) > Subscriber Policy Configuration (config-subscriber-*policy_name*) > Subscriber Policy Precedence Configuration (config-subscriber-*precedence*)

Syntax Description **imsi mcc** *mobile_country_code* **mnc** *mobile_network_code*

mcc *mobile_country_code*

Specify the Mobile Country Code (MCC).

mnc *mobile_network_code*

Specify the Mobile Network Code (MNC).

Usage Guidelines Use this command to configure subscriber IMSI.

policy subscriber list-entry imsi msin

Configures MSIN range for mobile subscriber identification number.

Command Modes Exec > Global Configuration (config) > Subscriber Policy Configuration (config-subscriber-*policy_name*) > Subscriber Policy Precedence Configuration (config-subscriber-*precedence*)

Syntax Description **imsi msin first** *start_msin_range* **last** *end_msin_range*

first *start_msin_range*

Specify starting value of the MSIN range.

Must be an integer in the range of 1-9999999999.

last *end_msin_range*

Specify the ending value of the MSIN range.

Must be an integer in the range of 1-9999999999.

Usage Guidelines Use this command to configure MSIN range for mobile subscriber identification number.

policy subscriber list-entry serving-plmn

Configures serving PLMN parameters.

Command Modes Exec > Global Configuration (config) > Subscriber Policy Configuration (config-subscriber-*policy_name*) > Subscriber Policy Precedence Configuration (config-subscriber-*precedence*)

Syntax Description **serving-plmn [mcc** *mobile_country_code* **| mnc** *mobile_network_code* **| mnc-list** *mnc_list* **]**

mcc *mobile_country_code*

Specify the Mobile Country Code (MCC) portion of the PLMN ID.

mnc-list *mnc_list*

Specify the MNC list.

mnc *mobile_network_code*

Specify the Mobile Network Code (MNC) portion of the PLMN ID.

Usage Guidelines Use this command to configure serving PLMN parameters.

policy sx-path-failure-detection

Configures Sx Path Failure Detection Policy-specific configuration.

Command Modes Exec > Global Configuration (config)

Syntax Description **policy sx-path-failure-detection** *policy_name*

sx-path-failure-detection *policy_name*

Specify name of the Sx Path Failure Detection policy.

Must be a string.

Usage Guidelines Use this command to configure Sx Path Failure Detection Policy-specific configuration.

policy sx-path-failure-detection ignore

Configures to ignore heartbeat-retry-failure or the heartbeat-recovery-timestamp-change configuration.

Command Modes Exec > Global Configuration (config) > Sx Path Failure Detection Policy Configuration (config-sx-path-failure-detection-*policy_name*)

Syntax Description **`ignore`** *`ignore_type`*

ignore *ignore_type*

Specify to ignore heartbeat-retry-failure or the heartbeat-recovery-timestamp-change configuration.

Must be one of the following:

- **heartbeat-recovery-timestamp-change**
- **heartbeat-retry-failure**

Usage Guidelines Use this command to configure ignoring the heartbeat-retry-failure or the heartbeat-recovery-timestamp-change configuration.

policy upf-selection

Configures UPF selection policy parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **`policy upf-selection`** *`policy_name`*

upf-selection *policy_name*

Specify name of the UPF selection policy.

Must be a string.

Usage Guidelines Use this command to configure UPF selection policy parameters.

policy upf-selection list-entry

Configures UPF selection match criteria definition.

Command Modes Exec > Global Configuration (config) > UPF Selection Policy Configuration (config-upf-selection-*policy_name*)

Syntax Description **precedence** *entry_precedence*

precedence *entry_precedence*

Specify the precedence for entry.

Must be an integer in the range of 1-4.

Usage Guidelines Use this command to configure UPF selection match criteria definition.

policy upf-selection list-entry query-params

Configures the query parameter for UPF selection.

Command Modes Exec > Global Configuration (config) > UPF Selection Policy Configuration (config-upf-selection-*policy_name*) > UPF Selection Policy Precedence Configuration (config-upf-selection-*precedence*)

Syntax Description **query-params** *query_params*

query-params *query_params*

Specify the query parameters. If both pdn-type-subscription and pdn-type-session are configured, pdn-type-subscription will be considered.

Must be one of the following:

- **dcnr**
- **dnn**
- **location**
- **pdn-type-session**
- **pdn-type-subscription**
- **slice**

Usage Guidelines Use this command to configure the query parameter for UPF selection.

profile content-filtering category database

Configures the Content Filtering database parameter.

Command Modes Exec > Global Configuration (config)

Syntax Description **content-filtering category database max-versions** *max_versions*

max-versions *max_versions*

Specify the maximum number of Content-Filtering database versions.

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

Usage Guidelines Use this command to configure the Content Filtering database parameter.

profile content-filtering category database directory

Configures the Content Filtering database directory parameter.

Command Modes Exec > Global Configuration (config)

Syntax Description **content-filtering category database directory path** *cf_directory_path*

path *cf_directory_path*

Specify the Content-Filtering directory path.

Must be a string of 1-255 characters.

Usage Guidelines Use this command to configure the Content Filtering database directory parameter.

profile dnn

Configures DNN profile.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile dnn** *dnn_profile_name* **[always-on { false | true } | charging-profile** *profile_name* **| dcnr { false | true } | dnn-selection-mode** *dnn_selection_mode* **| dnn** *profile_name* **| emergency { false | true } | mode** *dnn_mode* **| only-nr-capable-ue { false | true } | pcc-ue-rule-precedence-mapping { false | true } | pcscf-profile** *profile_name* **| ppd-profile** *profile_name* **| presence-reporting { false | true } | qci-qos-profile** *qci_qos_profile* **| qos-profile** *profile_name* **| upf-selection-policy** *upf_selection_policy* **| userplane-inactivity-timer** *timeout_period* **| virtual-mac** *mac_address* **| wps-profile** *profile_name* **]**

always-on { false | true }

Specify to enable or disable Always On PDU session.

Must be one of the following:

- **false**
- **true**

Default Value: false.

charging-characteristics-id *cc_id*

Specify the charging characteristics ID.

Must be an integer in the range of 1-16.

charging-profile *profile_name*

Specify name of the charging profile.

Must be a string.

charging-qbc-profile *profile_name*

Specify name of the charging QBC profile.

Must be a string.

dcnr { false | true }

Specify to enable or disable support for dual connectivity with new radio.

Must be one of the following:

- **false**
- **true**

Default Value: false.

dnn-selection-mode *dnn_selection_mode*

Specify the selection mode for subscription. The default mode is "verified".

Must be one of the following:

- **network-provided**
- **ue-provided**
- **verified**

dnn *dnn_profile_name*

Specify name of the DNN profile.

Must be a string.

emergency { false | true }

Specify whether the DNN is emergency DNN or not.

Must be one of the following:

- **false**
- **true**

Default Value: false.

mode *dnn_mode*

Specify the DNN mode of operation.

Must be one of the following:

- **offline**: Offline. DNN in offline mode, new sessions are rejected.

only-nr-capable-ue { false | true }

Specify whether to allow only 5G capable UE, and reject calls from non-5G capable UE.

Must be one of the following:

- **false**
- **true**

Default Value: false.

override *profiles*

Specify the list of profiles for local preference.

Must be one of the following:

- **charging-characteristics-id**
- **charging-profile**
- **charging-qbc-profile**

pcc-ue-rule-precedence-mapping { false | true }

Specify whether to map PCC rule precedence to SMF-assigned TFT and auth rule precedence values. If disabled, values sent by PCF are used.

Must be one of the following:

- **false**
- **true**

Default Value: true.

pcscf-profile *profile_name*

Specify the P-CSCF profile association.

Must be a string.

ppd-profile *profile_name*

Specify the Paging-Policy differentition.

Must be a string.

presence-reporting { false | true }

Specify whether to enable or disable presence reporting for this DNN.

Must be one of the following:

- **false**
- **true**

Default Value: false.

qci-qos-profile *qci_qos_profile*

Specify the QCI QoS Profile configuration related to QCI to QoS mapping.

Must be a string.

qos-profile *qos_profile*

Specify the QoS Profile configuration.

Must be a string.

upf-selection-policy *upf_selection_policy*

Specify the UPF selection policy specific configuration.

Must be a string.

userplane-inactivity-timer *timeout_period*

Specify the user plane inactivity timer in seconds.

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

Default Value: 0.

virtual-mac *mac_address*

Specify the remote virtual MAC address used to generate interface ID for UE.

wps-profile *profile_name*

Specify name of the Wireless Priority Service (WPS) profile.

Must be a string.

Usage Guidelines Use this command to configure the DNN profile. The CLI prompt changes to the DNN Profile Configuration mode (config-dnn-<profile_name>).

profile dnn accounting

Configures accounting parameters.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-*profile_name*)

Syntax Description **accounting server-group** *radius_server_group_name*

server-group *radius_server_group_name*

Specify name of the RADIUS server group.

Usage Guidelines Use this command to configure the accounting parameters.

profile dnn authentication algorithm

Configures the authentication algorithm.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-*profile_name*)

Syntax Description **authentication algorithm { chap** *chap_preference* **| convert-to-mschap | mschap** *mschap_preference* **| pap** *pap_preference* **| password-use-pco }**

chap *chap_preference*

Specify the Challenge Handshake Authentication Protocol (CHAP) and preference. Lower value means higher preference. To disable, set it to 0.

Must be an integer in the range of 0-3.

Default Value: 0.

convert-to-mschap

Specify conversion of CHAP to MSCHAP when CHAP response length is 49 bytes.

mschap *mschap_preference*

Specify the Microsoft Challenge Handshake Authentication Protocol (MS-CHAP) and preference. Lower value means higher preference. To disable, set it to 0.

Must be an integer in the range of 0-3.

Default Value: 0.

pap *pap_preference*

Specify the Password Authentication Protocol (PAP) and preference. Lower value means higher preference. To disable, set it to 0.

Must be an integer in the range of 0-3.

Default Value: 0.

password-use-pco

Specify to override password with PCO password.

Usage Guidelines Use this command to configure the authentication algorithm.

profile dnn authentication secondary

Configures the secondary authentication method.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-*profile_name*)

Syntax Description **`authentication secondary radius group`** *`radius_server_group_name`*

group *radius_server_group_name*

Specify name of the RADIUS server group.

radius

Specify to use RADIUS as secondary authentication method.

Usage Guidelines Use this command to configure the secondary authentication method.

profile dnn authorization

Configures the authorization method.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-*profile_name*)

Syntax Description **`authorization local [ rat-type`** *`rat_types`* **`]`**

local

Specify to use local policy configuration.

rat-type *rat_types*

Specify the RAT types.

Must be one of the following:

- **eutra**
- **nr**
- **wlan**

Usage Guidelines Use this command to configure the authorization method.

profile dnn dnn

Configures a Virtual DNN profile under a DNN profile and NF user list.

Command Modes Exec > Global Configuration (config)

Syntax Description **dnn** *profile_name*

Usage Guidelines Use this command to configure a DNN profile that is used to map a UE-requested DNN to a Virtual DNN. The SMF sends "Mapped" DNNs for configured network functions and "UE-requested" DNNs for other network functions. The UE-requested DNN is always sent on the N1 interface.

profile dnn dnn nw-fu-conf

Configures network function parameters.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-*profile_name*)

Syntax Description **dnn** *dnn_name* **network-function-list** *nf_list*

dnn *dnn_name*

Specify name of the DNN.

Must be a string.

network-function-list *nf_list*

Specify the list of network functions that the selected DNN profile will be sent. The list of network functions supported are CHF, PCF, and UPF.

Must be a string.

Usage Guidelines Configures a Virtual DNN profile under a DNN profile and NF user list. Use this command to configure the network function parameters.

profile dnn dnn rmgr-conf

Configures the RMGR parameters.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-*profile_name*)

Syntax Description **dnn rmgr** *rmgr_nf*

rmgr *rmgr_nf*

Specify the RMGR Network Function.

Must be a string.

Usage Guidelines Use this command to configure the RMGR parameters.

profile dnn dns primary

Configures the primary DNS server details.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-*profile_name*)

Syntax Description **dns primary { ipv4** *ipv4_address* **| ipv6** *ipv6_address* **}**

ipv4 *ipv4_address*

Specify the primary DNS server's IPv4 address.

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

ipv6 *ipv6_address*

Specify the primary DNS server's IPv6 address.

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

Usage Guidelines Use this command to configure the primary DNS server details.

profile dnn dns secondary

Configures the secondary DNS server details.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-*profile_name*)

Syntax Description **dns secondary { ipv4** *ipv4_address* **| ipv6** *ipv6_address* **}**

ipv4 *ipv4_address*

Specify the secondary DNS server's IPv4 address.

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

ipv6 *ipv6_address*

Specify the secondary DNS server's IPv6 address.

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

Usage Guidelines Use this command to configure the secondary DNS server details.

profile dnn ims mark

Configures marking standard QCI value as IMS media.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-*profile_name*)

Syntax Description **ims mark qci** *qos_class_id*

qci *qos_class_id*

Specify the standard QoS Class Identifiers.

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

You can configure a maximum of four elements with this keyword.

Usage Guidelines Use this command to configure marking standard QCI value as IMS media.

profile dnn network-element-profiles

Configures network element profiles.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-*profile_name*)

Syntax Description **`network-element-profiles { amf | chf | pcf | udm }`** *`profile_name`*

amf *profile_name*

Specify name of the AMF network element profile. Changing the current profile name may impact existing calls. Requires DNN in offline mode.

Must be a string.

chf *profile_name*

Specify name of the CHF network element profile. Changing the current profile name may impact existing calls. Requires DNN in offline mode.

Must be a string.

pcf *profile_name*

Specify name of the PCF network element profile. Changing the current profile name may impact existing calls. Requires DNN in offline mode.

Must be a string.

udm *profile_name*

Specify name of the UDM network element profile. Changing the current profile name may impact existing calls. Requires DNN in offline mode.

Must be a string.

Usage Guidelines Use this command to configure network element profiles. Changing the current profile name may impact existing calls. Requires DNN in offline mode.

profile dnn nexthop-forwarding-address

Configures the Redirect Service/NextHop IP address.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-*profile_name*)

Syntax Description **nexthop-forwarding-address { ipv4** *ipv4_address* **| ipv6** *ipv6_address* **}**

ipv4 ***ipv4_address***

Specify the IPv4 address.

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

ipv6 ***ipv6_address***

Specify the IPv6 address.

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

Usage Guidelines Use this command to configure the Redirect Service/NextHop IP address.

profile dnn nssai

Configures the default NSSAI configuration.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-*profile_name*)

Syntax Description **nssai { [sd** *slice_differentiator* **] [sst** *slice_service_type* **] }**

sd ***slice_differentiator***

Specify the S-NSSAI Slice Differentiator (SD).

sst ***slice_service_type***

Specify the S-NSSAI Slice/Service Type (SST).

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

Usage Guidelines Use this command to configure the default NSSAI configuration.

profile dnn outbound

Configures DNN host password for PPP session authentication.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-*profile_name*)

Syntax Description **outbound password** *dnn_host_password*

password ***dnn_host_password***

Specify the DNN host password.

Must be a string.

Usage Guidelines Use this command to configure designating the DNN host password for PPP session authentication.

profile dnn primary-plmn

Configures the primary PLMN configuration.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-*profile_name*)

Syntax Description **primary-plmn { [mcc** *mobile_country_code* **] [mnc** *mobile_network_code* **] }**

Usage Guidelines Use this command to configure the primary PLMN configuration.

profile dnn session type

Configures the PDU session type.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-*profile_name*)

Syntax Description **session type** *default_session_type* **[allowed** *allowed_session_type* **]**

allowed *allowed_session_type*

Specify the SMF allowed session types. Up to two allowed session types can be configured in addition to the default session type. The same session type cannot be configured both as allowed and default.

Must be one of the following:

- **IPV4**
- **IPV4V6**
- **IPV6**

You can configure a maximum of two elements with this keyword.

type *default_session_type*

Specify the default session type.

Must be one of the following:

- **IPV4**
- **IPV4V6**
- **IPV6**

Usage Guidelines Use this command to configure the PDU session type.

profile dnn ssc-mode

Configures Session and Service Continuity (SSC) Mode parameters.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-*profile_name*)

Syntax Description **ssc-mode** *default_ssc_mode* **[allowed** *allowed_ssc_mode* **]**

allowed *allowed_ssc_mode*

Specify the allowed SSC Modes. Up to two allowed modes can be configured in addition to the default SSC mode. The same SSC mode cannot be configured both as allowed and default.

Must be one of the following:

- **1**
- **2**
- **3**

You can configure a maximum of two elements with this keyword.

ssc-mode *default_ssc_mode*

Specify the default SSC mode.

Must be one of the following:

- **1**
- **2**
- **3**

Usage Guidelines Use this command to configure SSC mode parameters.

profile dnn timeout

Configures session time-to-live (TTL) configuration.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-*profile_name*)

Syntax Description **timeout { [absolute** *max_duration* **] [backoff** *backoff_timer_duration* **] [cp-idle** *cp_idle_duration* **] [default-flow-only** *default_flow_only_duration* **] [jitter** *jitter_duration* **] [setup** *setup_duration* **] [up-idle** *up_idle_duration* **] }**

absolute *max_session_duration*

Specify the maximum duration of the session in seconds, before the system automatically terminates the session. Value 0 indicates the function is disabled.

Must be an integer in the range of 0-2147483647.

Default Value: 0.

backoff *backoff_timer_duration*

Specify the maximum duration in seconds for backoff timer during IP Exhaustion and N4 Path Failure cases.

Must be an integer in the range of 0-576000.

Default Value: 0.

cp-idle *cp_idle_duration*

Specify the maximum duration after a 5G session has moved to idle (controlplane) state, before the system automatically terminates it. Value 0 indicates the function is disabled.

Must be an integer in the range of 0-2147483647.

Default Value: 0.

default-flow-only *default_flow_only_duration*

Specify the maximum allowed duration for a PDU/PDN session to be in idle state, after which the system automatically terminates it. Value 0 indicates the function is disabled.

Must be an integer in the range of 0-604800000.

Default Value: 0.

jitter *jitter_value*

Specify the jitter value in seconds.

Must be an integer in the range of 0-1000.

Default Value: 0.

setup *max_setup_duration*

Specify the maximum setup time duration in milliseconds, after which the system automatically aborts the request.

Must be an integer in the range of 5000-60000.

Default Value: 10000.

up-idle *up_idle_duration*

Specify the maximum duration after a 5G session has moved to idle (userplane) state, before the system automatically terminates it. Value 0 indicates the function is disabled.

Must be an integer in the range of 0-2147483647.

Default Value: 0.

Usage Guidelines

Use this command to configure session time-to-live (TTL) configuration.

profile dnn upf

Configures the UPF APN profile.

Command Modes Exec > Global Configuration (config) > DNN Profile Configuration (config-dnn-*profile_name*)

Syntax Description **upf apn** *apn_name*

apn *apn_name*

Specify name of the APN.

Must be a string of 1-63 characters.

Usage Guidelines Use this command to configure the UPF APN profile.

profile dns-proxy

Configures DNS proxy profile parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile dns-proxy [cache-ttl** *ttl* **| query-type** *query_type* **| randomize-answers | round-robin-answers | timeout** *dns_timeout* **]**

cache-ttl *ttl*

Specify the TTL value of DNS responses in cache, in seconds.

Must be an integer in the range of 60-86400.

query-type *query_type*

Specify the DNS query type.

Must be one of the following:

- **ipv4-ipv6**
- **ipv4**
- **ipv6**

Default Value: ipv4.

randomize-answers

Specify to enable randomizing address fetch.

round-robin-answers

Specify to enable round-robin address fetch.

timeout *dns_timeout*

Specify the DNS timeout.

Must be an integer.

Default Value: 500.

Usage Guidelines Use this command to enable and configure DNS proxy parameters.

profile dns-proxy servers

Configures DNS server parameters.

Command Modes Exec > Global Configuration (config) > DNS Proxy Configuration (config-dns-proxy)

Syntax Description **servers** *dns_server_name* **[ip** *dns_server_ip_address* **| port** *dns_server_port_number* **| priority** *dns_server_priority* **| protocol** *dns_server_protocol* **]**

ip *dns_server_ip_address*

Specify the IP address of the DNS server.

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

-Or-

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

port *dns_server_port_number*

Specify the port number of the DNS server.

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

priority *dns_server_priority*

Specify the priority for the DNS server.

Must be an integer in the range of 1-100.

protocol *dns_server_protocol*

Specify the protocol type for the DNS server.

Must be one of the following:

- **tcp**
- **udp**

Default Value: tcp.

servers *dns_server_name*

Specify the name of the DNS server.

Must be a string.

Usage Guidelines Use this command to configure the DNS server parameters.

profile emergency-profile

Configures emergency profile.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile emergency-profile** *emergency_profile_name* **[udm-profile** *udm_profile_name* **]**

emergency-profile *emergency_profile_name*

Specify name of the emergency profile.

Must be a string.

udm-profile *udm_profile_name*

Specify name of the UDM profile.

Must be a string.

Usage Guidelines Use this command to configure emergency profiles.

profile failure-handling

Configures the Failure Handling profile.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile failure-handling** *profile_name*

failure-handling *profile_name*

Specify name of the Failure Handling profile.

Must be a string.

Usage Guidelines Use this command to configure the Failure Handling profile.

profile failure-handling interface gtpc message

Configures GTPC failure-handling template message types.

Command Modes Exec > Global Configuration (config) > Failure Handling Profile Configuration (config-failure-handling-*profile_name*)

Syntax Description **`interface gtpc message`** *`gtpc_message_type`*

message *gtpc_message_type*

Specify the GTPC message type.

Must be one of the following:

- **S5S8CreateBearerReq**
- **S5S8DeleteBearerReq**
- **S5S8UpdateBearerReq**

Usage Guidelines Use this command to configure GTPC failure-handling template message types.

profile failure-handling interface gtpc message cause-code-type cause-code

Configures GTPC interface cause code types.

Command Modes Exec > Global Configuration (config) > Failure Handling Profile Configuration (config-failure-handling-*profile_name*) > GTPC Message Configuration (config-message-*gtpc_message_type*)

Syntax Description **`cause-code`** *`gtpc_cause_code_type`*

cause-code *gtpc_cause_code_type*

Specify the GTPC cause code type.

Must be one of the following:

- **temp-fail**

Usage Guidelines Use this command to configure GTPC interface cause code types.

profile failure-handling interface gtpc message cause-code-type cause-code action

Configures the action type for the cause.

Command Modes Exec > Global Configuration (config) > Failure Handling Profile Configuration (config-failure-handling-*profile_name*) > GTPC Message Configuration (config-message-*gtpc_message_type*) > Cause Code Configuration (config-cause-code-*cause_code*)

Syntax Description **action** *action_type* **[timeout** *retry_interval* **| max-retry** *max_retry* **]**

action *action_type*

Specify the action type for the cause.

Must be one of the following:

- **clear**
- **retry**
- **terminate**

max-retry *max_retry*

Specify the maximum retry count.

Must be an integer in the range of 0-5.

Default Value: 1.

timeout *retry_interval*

Specify the retry interval in milliseconds.

Must be an integer in the range of 1000-5000.

Default Value: 1000.

Usage Guidelines Use this command to configure the action type for the cause.

profile failure-handling interface n11

Configures the N11 interface - SMF/PGW-C timer for reattempting bearer creation/updation.

Command Modes Exec > Global Configuration (config) > Failure Handling Profile Configuration (config-failure-handling-*profile_name*)

Syntax Description **interface n11**

Usage Guidelines Use this command to configure the N11 interface - SMF/PGW-C timer for reattempting bearer creation/updation.

profile failure-handling interface n11 message

Configures N11 message types.

Command Modes Exec > Global Configuration (config) > Failure Handling Profile Configuration (config-failure-handling-*profile_name*) > N11 Interface Configuration (config-n11)

Syntax Description **message** *message_type*

message *message_type*

Specify the N11 message type.

Must be one of the following:

- **n1n2transfer**

Usage Guidelines Use this command to configure n11 message types.

profile failure-handling interface n11 message cause-code-value cause-code

Configures the N11 interface cause code types.

Command Modes Exec > Global Configuration (config) > Failure Handling Profile Configuration (config-failure-handling-*profile_name*) > N11 Interface Configuration (config-n11) > n1n2transfer Message Configuration (config-message-n1n2transfer)

Syntax Description **cause-code** *n11_cause_code_type*

cause-code *n11_cause_code_type*

Specify the N11 interface cause code type.

Must be one of the following:

- **temp-reject-handover**
- **temp-reject-register**

Usage Guidelines Use this command to configure the N11 interface cause code types.

profile failure-handling interface n11 message cause-code-value cause-code action

Configures the action type for the cause.

Command Modes Exec > Global Configuration (config) > Failure Handling Profile Configuration (config-failure-handling-*profile_name*) > N11 Interface Configuration (config-n11) > n1n2transfer Message Configuration (config-message-n1n2transfer) > Cause Code Configuration (config-cause-code-temp-*cause_code*)

Syntax Description **action** *action_type* **[timeout** *retry_interval* **| max-retry** *max_retry* **]**

action *action_type*

Specify the action type for the cause.

Must be one of the following:

- **clear**
- **retry**
- **terminate**

max-retry *max_retry*

Specify the maximum retry count.

Must be an integer in the range of 1-5.

Default Value: 1.

timeout *retry_interval*

Specify the retry interval in milliseconds.

Must be an integer in the range of 100-5000.

Default Value: 300.

Usage Guidelines Use this command to configure the action type for the cause.

profile failure-handling interface pfcp

Configures PFCP Failure Handling template.

Command Modes Exec > Global Configuration (config) > Failure Handling Profile Configuration (config-failure-handling-*profile_name*)

Syntax Description `interface pfcp`

Usage Guidelines Use this command to configure PFCP Failure Handling template.

profile failure-handling interface pfcp message

Configures PFCP message types.

Command Modes Exec > Global Configuration (config) > Failure Handling Profile Configuration (config-failure-handling-*profile_name*) > PFCP Interface Configuration (config-pfcp)

Syntax Description **`message`** *`pfcp_message_type`*

message *pfcp_message_type*

Specify the PFCP message type.

Must be one of the following:

- **N4SessionEstablishmentReq**

- **N4SessionModificationReq**
- **N4SessionReportReq**

Usage Guidelines Use this command to configure PFCP message types.

profile failure-handling interface pfcp message cause-code-type-est cause-code

Configures PFCP interface cause code types.

Command Modes Exec > Global Configuration (config) > Failure Handling Profile Configuration (config-failure-handling-*profile_name*) > PFCP Interface Configuration (config-pfcp) > PFCP Message Configuration (config-message-*message_type*)

Syntax Description **cause-code** *cause_code_type*

cause-code *cause_code_type*

Specify the cause code type.

Must be a string.

-Or-

Must be one of the following:

- **no-resource-available**
- **no-response-received**
- **pfcp-entity-in-congestion**
- **reject**
- **service-not-supported**
- **system-failure**

Usage Guidelines Use this command to configure PFCP interface cause code types.

profile failure-handling interface pfcp message cause-code-type-est cause-code action

Configures the action type for the cause.

Command Modes Exec > Global Configuration

Syntax Description **action** *action_type* **[timeout** *retry_interval* **| max-retry** *max_retry_count* **]**

action *action_type*

Specify the action type for the cause.

Must be one of the following:

- **retry-terminate**
- **terminate**

max-retry *max_retry_count*

Specify the maximum retry count for the retry-terminate action.

Must be an integer in the range of 0-5.

Default Value: 1.

Usage Guidelines Use this command to configure the action type for the cause.

profile failure-handling interface pfcp message cause-code-type-mod cause-code

Configures PFCP interface cause code types.

Command Modes Exec > Global Configuration (config) > Failure Handling Profile Configuration (config-failure-handling-*profile_name*) > PFCP Interface Configuration (config-pfcp) > PFCP Message Configuration (config-message-*message_type*)

Syntax Description **`cause-code-type-mod cause-code`** *`pfcp_cause_code_type`*

cause-code *pfcp_cause_code_type*

Specify the PFCP cause code type.

Must be a string.

-Or-

Must be one of the following:

- **mandatory-ie-incorrect**
- **no-resource-available**
- **no-response-received**
- **pfcp-entity-in-congestion**
- **reject**
- **session-ctx-not-found**

Usage Guidelines Use this command to configure the PFCP cause code type.

profile failure-handling interface pfcp message cause-code-type-mod cause-code action

Configures the action type for the cause.

Command Modes Exec > Global Configuration

Syntax Description **action** *action_type*

action *action_type*

Specify the action type for the cause.

Must be one of the following:

- **terminate**

Usage Guidelines Use this command to configure the action type for the cause.

profile failure-handling interface pfcp message cause-code-type-sessreport cause-code

Configures the PFCP interface cause code types.

Command Modes Exec > Global Configuration

Syntax Description **cause-code-type-sessreport cause-code** *cause_id*

cause-code *cause_id*

Specify the cause ID or a range of cause IDs separated by either hyphhen (-) or comma (,) or both.

Must be a string.

Usage Guidelines Use this command to configure the PFCP interface cause-code types.

profile failure-handling interface pfcp message cause-code-type-sessreport cause-code action

Configures the action type for the cause.

Command Modes Exec > Global Configuration

Syntax Description **action** *action_type*

action *action_type*

Specify the action type for the cause.

Must be one of the following:

- **ignore**
- **terminate**

Usage Guidelines Use this command to configure the action type for the cause.

profile failure-handling interface sxa message

Configures Sxa message types.

Command Modes Exec > Global Configuration

Syntax Description **sxa message** *sxa_message_type*

message *sxa_message_type*

Specify the Sxa message type.

Must be one of the following:

- **SessionEstablishmentReq**

Usage Guidelines Use this command to configure Sxa message types.

profile failure-handling interface sxa message cause-code-type-est cause-code

Configures Sxa interface cause code types.

Command Modes Exec > Global Configuration

Syntax Description **cause-code** *sxa_cause_code_type*

cause-code *sxa_cause_code_type*

Specify the Sxa interface cause code type, or range of cause codes separated by either hyphen (-) or comma (,) or both.

Must be a string.

-Or-

Must be one of the following:

- **no-resource-available**

- **no-response-received**
- **pfcp-entity-in-congestion**
- **reject**
- **service-not-supported**
- **system-failure**

Usage Guidelines Use this command to configure Sxa interface cause code types.

profile failure-handling interface sxa message cause-code-type-est cause-code action

Configures the action type for the cause.

Command Modes Exec > Global Configuration

Syntax Description **action** *action_type* **[timeout** *retry_interval* **| max-retry** *max_retry_count* **]**

action *action_type*

Specify the action type for the cause.

Must be one of the following:

- **retry-terminate**
- **terminate**

max-retry *max_retry_count*

Specify the maximum retry count for the retry-terminate action.

Must be an integer in the range of 0-5.

Default Value: 1.

Usage Guidelines Use this command to configure the action type for the cause.

profile n3-tunnel

Configures N3 tunnelling information profile configuration.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile n3-tunnel** *profile_name* **[notify]**

n3-tunnel *profile_name*

Specify name of the N3 tunnelling profile.

Must be a string.

notify

Specify to enable downlink data notification.

Usage Guidelines Use this command to configure N3 tunnelling information profile configuration.

profile n3-tunnel buffer

Configures the buffering for downlink direction.

Command Modes Exec > Global Configuration (config) > N3 Tunnel Profile Configuration (config-n3-tunnel-*profile_name*)

Syntax Description **buffer** *node*

buffer *node*

Specify to enable buffering.

Must be one of the following:

- **upf**: Enables buffering in UPF.

Usage Guidelines Use this command to configure buffering for downlink direction.

profile network-element upf

Configures the UPF profile.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile network-element upf** *upf_profile_name* **[[capacity** *lb_capacity* **] [dnn-list** *dnn_list* **] [downlink-data-buffer { false | true }] [downlink-data-report { false | true }] [mode** *mode_of_operation* **] [n4-peer-port** *port_number* **] [node-id** *node_id* **] [priority** *lb_priority* **] [upf-group-profile** *profile_name* **]]**

capacity *lb_capacity*

Specify the static capacity relative to other UPFs used for load balancing.

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

Default Value: 10.

dnn-list *dnn_list*

Specify the list of DNNs supported by the UPF node.

Must be a string.

downlink-data-buffer { false | true }

Specify to enable or disable buffering in UPF for downlink data.

Must be one of the following:

- **false**
- **true**

Default Value: true.

downlink-data-report { false | true }

Specify to enable or disable notification from UPF for downlink data.

Must be one of the following:

- **false**
- **true**

Default Value: true.

mode *mode_of_operation*

Specify the UPF mode of operation.

Must be one of the following:

- **offline**

n4-peer-port *port_number*

Specify the UPF N4 peer port number.

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

Default Value: 8805.

node-id *node_id*

Specify the node ID for the UPF peer node.

Must be a string.

priority *lb_priority*

Specify the static priority relative to other UPFs used for load balancing.

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

Default Value: 1.

upf-group-profile *profile_name*

Specify name of the UPF Group profile.

Must be a string.

upf *upf_profile_name*

Specify name of the UPF peer.

Must be a string.

Usage Guidelines Use this command to configure the UPF profile. When active profile is removed, clears if any existing sessions and upf will be un-associated. The CLI prompt changes to the UPF Profile Configuration mode (config-upf-<profile_name>).

profile network-element upf n4-peer-address

Configures the N4 peer address.

Command Modes Exec > Global Configuration (config) > UPF Profile Configuration (config-upf-*profile_name*)

Syntax Description **`n4-peer-address { [ ipv4-address`** *`ipv4_address`* **`] [ ipv6-address`** *`ipv6_address`* **`] }`**

ipv4-address *ipv4_address*

Specify the N4 peer IPv4 address.

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

ipv6-address *ipv6_address*

Specify the N4 peer IPv6 address.

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

Usage Guidelines Use this command to confgure the N4 peer address.

profile ppd

Configures the Paging Policy Differentiation (PPD) profile configuration.

Command Modes Exec > Global Configuration (config)

Syntax Description **`ppd`** *`ppd_profile_name`* **`[ fqi`** *`5qi_priority_levels`* **`]`**

fqi *5qi_priority_levels*

Specify the range of 5qi priority levels.

Must be an integer.

-Or-

Must be a string.

ppd *ppd_profile_name*

Specify name of the PPD profile.

Must be a string.

Usage Guidelines Use this command to configure the PPD profile configuration.

profile ppd dscp-list

Configures the Differentiated Services Code Point (DSCP) values.

Command Modes Exec > Global Configuration (config) > PPD Configuration (config-ppd-*profile_name*)

Syntax Description **dscp** *dscp_value* **[ppi** *ppi_value* **]**

dscp *dscp_value*

Specify the DSCP value.

ppi *ppi_value*

Specify the Paging Policy Indicator (PPI) value.

Must be an integer in the range of 0-7.

Usage Guidelines Use this command to configure the DSCP values.

profile qos

Configures the QoS profile configuration.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile qos** *qos_profile_name* **[[priority** *5qi_priority* **] [qi5** *qos_id* **]]**

priority *5qi_priority*

Specify the 5QI priority level.

Must be an integer in the range of 1-127.

profile qos *qos_profile_name*

Specify name of the QoS profile.

Must be a string.

qi5 *qos_id*

Specify the ID for the authorized QoS parameters.

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

Usage Guidelines Use this command to configure the QoS profile configuration.

profile qos ambr

Configures the Aggregate Maximum Bit Rate (AMBR).

Command Modes Exec > Global Configuration (config) > QoS Profile Configuration (config-qos-*profile_name*)

Syntax Description **ambr { ul** *ambr_uplink_threshold* **| dl** *ambr_downlink_threshold* **}**

dl *ambr_downlink_threshold*

Specify the AMBR downlink threshold in bps, Kbps, Mbps, Gbps, or Tbps.

Must be a string in the pattern '[0-9]+.[0-9]+ (bps|Kbps|Mbps|Gbps|Tbps)'.

ul *ambr_uplink_threshold*

Specify the AMBR uplink threshold in bps, Kbps, Mbps, Gbps, or Tbps.

Must be a string in the pattern '[0-9]+.[0-9]+ (bps|Kbps|Mbps|Gbps|Tbps)'.

Usage Guidelines Use this command to configure the AMBR.

profile qos arp

Configures the Allocation and Retention Priority (ARP) for the service data.

Command Modes Exec > Global Configuration (config) > QoS Profile Configuration (config-qos-*profile_name*)

Syntax Description **arp priority-level** *priority_level* **[preempt-cap** *preempttion_capability* **] [preempt-vuln** *preemption_vulnerability* **]**

preempt-cap *preempttion_capability*

Specify the preemption capability.

Must be one of the following:

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

Default Value: MAY_PREEMPT.

preempt-vuln *preemption_vulnerability*

Specify the preemption vulnerability.

Must be one of the following:

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

Default Value: NOT_PREEMPTABLE.

priority-level *priority_level*

Specify the priority level.

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

Usage Guidelines Use this command to configure the ARP for the service data.

profile qos dscp-map qi5

Configures the standard 5QI value.

Command Modes Exec > Global Configuration (config) > QoS Profile Configuration (config-qos-*profile_name*)

Syntax Description **dscp-map qi5** *standard_qci*

qi5 *standard_qci*

Specify the standard QCI value.

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

Usage Guidelines Configures the 5QI to DSCP-Marking mapping. Use this command to configure the standard 5QI value.

profile qos dscp-map qi5 arp-priority-level

Configures the ARP priority level.

Command Modes Exec > Global Configuration (config) > QoS Profile Configuration (config-qos-*profile_name*)

Syntax Description **arp priority-level** *arp_priority_level*

Command Modes Exec > Global Configuration (config) > SGW QoS Profile Configuration (config-sgw-qos-profile-*profile_name*)

Syntax Description **dscp-map operator-defined-qci** *operator_defined_qci* **[gbr arp-priority-level** *arp_priority_level* **]**

arp-priority-level *arp_priority_level*

Specify the ARP priority level.

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

Usage Guidelines Configures the type of the QCI to GBR. Use this command to configure the ARP priority level.

profile qos dscp-map qi5 arp-priority-level dscp-info

Configures the Differentiated Services Code Point (DSCP) type.

Command Modes Exec > Global Configuration

Syntax Description **`dscp-info type`** *`dscp_type`*

dl-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-encap-dscp-marking *dscp_marking*

Specify the DSCP value to be applied to packets.

dl-encaps-header

Specify the DSCP value be applied to encaps header.

dl-ud-dscp *dscp_marking*

Specify the DSCP value to be applied to packets.

dl-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-ud-encap-dscp *dscp_marking*

Specify the DSCP value to be applied to packets.

encsp-header

Specify the DSCP value to be applied to encaps header.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

user-datagram1

Specify the DSCP value be applied to user datagram.

Usage Guidelines Configures the type of the QCI to GBR. Use this command to configure the DSCP type.

profile qos dscp-map qi5 arp-priority-level dscp-info user-datagram

Configures the Differentiated Services Code Point (DCSP) value to be applied to user datagram.

Command Modes Exec > Global Configuration

Syntax Description **`user-datagram ul-uD-dscp-marking`** *`dscp_marking`*

ul-uD-dscp-marking *dscp_marking*

Specify the DSCP value to be applied to packets.

Usage Guidelines Use this command to configure the DCSP value to be applied to user datagram.

profile qos dscp-map qi5 dscp-info

Configures the Differentiated Services Code Point (DSCP) type.

Command Modes Exec > Global Configuration

Syntax Description **`dscp-info type`** *`dscp_type`*

dl-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-encap-dscp-marking *dscp_marking*

Specify the DSCP value to be applied to packets.

dl-encaps-header

Specify the DSCP value be applied to encaps header.

dl-ud-dscp *dscp_marking*

Specify the DSCP value to be applied to packets.

dl-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-ud-encap-dscp *dscp_marking*

Specify the DSCP value to be applied to packets.

encsp-header

Specify the DSCP value to be applied to encaps header.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

user-datagram1

Specify the DSCP value be applied to user datagram.

Usage Guidelines Configures the type of the QCI to GBR. Use this command to configure the DSCP type.

profile qos dscp-map qi5 dscp-info user-datagram

Configures the Differentiated Services Code Point (DCSP) value to be applied to user datagram.

Command Modes Exec > Global Configuration

Syntax Description **`user-datagram ul-uD-dscp-marking`** *`dscp_marking`*

ul-uD-dscp-marking *dscp_marking*

Specify the DSCP value to be applied to packets.

Usage Guidelines Use this command to configure the DCSP value to be applied to user datagram.

profile qos max

Configures the maximum data burst volume.

Command Modes Exec > Global Configuration (config) > QoS Profile Configuration (config-qos-*profile_name*)

Syntax Description **`max data-burst`** *`max_data_burst_volume`*

data-burst *max_data_burst_volume*

Specify the maximum data burst volume.

Must be an integer in the range of 1-4095.

Usage Guidelines Use this command to configure the maximum data burst volume.

profile qos qos-enforcement

Configures flow-level QoS enforcement configuration.

Command Modes Exec > Global Configuration (config) > QoS Profile Configuration (config-qos-*profile_name*)

Syntax Description **qos-enforcement flow-level**

flow-level

Specify flow-level QoS enforcement.

Usage Guidelines Use this command to configure flow-level QoS enforcement configuration.

profile sgw

Configures the SGW network function profile.

Command Modes Exec > Global Configuration (config)

Syntax Description

```
profile sgw sgw_profile_name
[
      charging-mode { gtpp | none }
    | fqdn sgwc_fqdn
    | load-profile load_profile_name
    | locality locality_name
    | overload-profile overload_profile_name
    | plmn-list [mcc | mnc]
    | resmgr-batch-operation [ enable | disable ]
    | subscriber-policy policy_name
    | session-idle-timer session_idle_timer
    | timers session-expiration-in-secs timers_session_expiration_in_secs
    | timers affinity-expiration-in-secs timers_affinity_expiration_in_secs
    | timers session-dbsync-interval-in-ms
timers_session-dbsync-interval-in-ms_in_secs
 ]
```

charging-mode { gtpp | none }

Specify the cnSGW-C charging mode for CDR generation.

gtpp: Indicates gtpp group profile name for CDR generation.

fqdn *sgwc_fqdn*

Specify the SGW-C Fully Qualified Domain Name (FQDN).

load-profile *load_profile_name*

Specify the name of the load profile.

locality *locality_name*

Specify the locality name for geo support.

overload-profile *overload_profile_name*

Specify the name of the overload profile.

plmn-list [mcc | mnc]

Specify the mobile country code (MCC) and the mobile network code (MNC).

resmgr-batch-operation [enable | disable]

Configure the batch operation as enable or disable.

subscriber-policy*policy_name*

Specify the subscriber policy name.

session-idle-timer *session_idle_timer*

Specify the maximum duration in seconds for which a session remains idle.

timers session-expiration-in-secs*session_expiration*

Specify the duration for which the session is cached on service pod.

timers affinity-expiration-in-secs*affinity_expiration*

Specify the duration for which the session affinity keys are valid on the service pod and other pods.

timers session-dbsync-interval-in-ms *database_sync*

Specify the duration after which the session is synchronized in the database.

profile sgw-qos-profile

Configures the SGW QoS profile configuration.

Command Modes

Exec > Global Configuration (config)

Syntax Description

`profile sgw-qos-profile` *`sgw_qos_profile_name`*

sgw-qos-profile *sgw_qos_profile_name*

Specify name of the SGW QoS profile.

Must be a string.

Usage Guidelines

Use this command to configure the SGW QoS profile configuration.

profile sgw-qos-profile dscp-map operator-defined-qci

Configures the non-standard QCI values.

Command Modes Exec > Global Configuration (config) > SGW QoS Profile Configuration (config-sgw-qos-profile-*profile_name*)

Syntax Description **dscp-map operator-defined-qci** *non_standard_qos_class_id*

operator-defined-qci *non_standard_qos_class_id*

Specify the non-standard QoS class identifier.

Must be an integer in the range of 128-254.

Usage Guidelines Use this command to configure the non-standard QCI values.

profile sgw-qos-profile dscp-map operator-defined-qci gbr arp-priority-level

Configures the ARP priority level.

Command Modes Exec > Global Configuration (config) > QoS Profile Configuration (config-qos-*profile_name*)

Syntax Description **dscp-map qi5** *qci_name* **arp-priority-level** *arp_priority_level*

arp-priority-level *arp_priority_level*

Specify the ARP priority level.

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

Usage Guidelines Configures the type of the QCI to GBR. Use this command to configure the ARP priority level.

profile sgw-qos-profile dscp-map operator-defined-qci gbr arp-priority-level dscp-info

Configures the Differentiated Services Code Point (DSCP) type.

Command Modes Exec > Global Configuration

Syntax Description **dscp-info type** *dscp_type*

dl-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encap-ci-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-dscp-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-iq-copy-outer

Specify to copy the outer DSCP to inner.

dl-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

dl-iq-encap-type

Specify to copy the inner DSCP to outer.

dl-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

dl-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-iq-user-datagram

Specify DSCP value be applied to user datagram.

dl-priority *dl_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-user-datagram

Specify DSCP value be applied to user datagram.

dscp-marking-dl *dscp_value*

Specify the DSCP value to be applied to packets.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

ul-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with "0x". For example, 0x3F.

ul-encap-ci-priority *ul_encap_ci_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

ul-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

ul-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-dscp-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

ul-encaps-header *dscp_value*

Specify the DCSP value to be applied to encaps header.

ul-iq-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-iq-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

ul-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

ul-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

ul-iq-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with 0x. For example, 0x3F.

ul-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-ud-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

ul-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

ul-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

Usage Guidelines

Use this command to configure the DSCP type.

profile sgw-qos-profile dscp-map operator-defined-qci gbr dscp-info

Configures the Differentiated Services Code Point (DSCP) type.

Command Modes

Exec > Global Configuration

Syntax Description

`dscp-info type` *`dscp_type`*

dl-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encap-ci-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-dscp-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-iq-copy-outer

Specify to copy the outer DSCP to inner.

dl-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

dl-iq-encap-type

Specify to copy the inner DSCP to outer.

dl-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

dl-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-iq-user-datagram

Specify DSCP value be applied to user datagram.

dl-priority *dl_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-user-datagram

Specify DSCP value be applied to user datagram.

dscp-marking-dl *dscp_value*

Specify the DSCP value to be applied to packets.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

ul-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with "0x". For example, 0x3F.

ul-encap-ci-priority *ul_encap_ci_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

ul-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

ul-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-dscp-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

ul-encaps-header *dscp_value*

Specify the DCSP value to be applied to encaps header.

ul-iq-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-iq-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

ul-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

ul-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

ul-iq-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with 0x. For example, 0x3F.

ul-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-ud-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

ul-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

ul-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

Usage Guidelines Use this command to configure the DSCP type.

profile sgw-qos-profile dscp-map operator-defined-qci non-gbr

Configures the QCI type to non GBR.

Command Modes Exec > Global Configuration

Syntax Description **non-gbr** *options*

Usage Guidelines Use this command to configure the QCI type to non GBR.

profile sgw-qos-profile dscp-map operator-defined-qci non-gbr arp-priority-level

Configures the ARP priority level.

Command Modes Exec > Global Configuration (config) > QoS Profile Configuration (config-qos-*profile_name*)

Syntax Description **dscp-map qi5** *qci_name* **arp-priority-level** *arp_priority_level*

arp-priority-level *arp_priority_level*

Specify the ARP priority level.

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

Usage Guidelines Configures the type of the QCI to GBR. Use this command to configure the ARP priority level.

profile sgw-qos-profile dscp-map operator-defined-qci non-gbr arp-priority-level dscp-info

Configures the Differentiated Services Code Point (DSCP) type.

Command Modes Exec > Global Configuration

Syntax Description

dscp-info type *dscp_type*

dl-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encap-ci-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-dscp-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-iq-copy-outer

Specify to copy the outer DSCP to inner.

dl-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

dl-iq-encap-type

Specify to copy the inner DSCP to outer.

dl-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

dl-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-iq-user-datagram

Specify DSCP value be applied to user datagram.

dl-priority *dl_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-user-datagram

Specify DSCP value be applied to user datagram.

dscp-marking-dl *dscp_value*

Specify the DSCP value to be applied to packets.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

ul-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with "0x". For example, 0x3F.

ul-encap-ci-priority *ul_encap_ci_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

ul-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

ul-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-dscp-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

ul-encaps-header *dscp_value*

Specify the DCSP value to be applied to encaps header.

ul-iq-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-iq-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

ul-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

ul-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

ul-iq-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with 0x. For example, 0x3F.

ul-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-ud-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

ul-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

ul-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

Usage Guidelines Use this command to configure the DSCP type.

profile sgw-qos-profile dscp-map operator-defined-qci non-gbr dscp-info

Configures the Differentiated Services Code Point (DSCP) type.

Command Modes Exec > Global Configuration

Syntax Description **`dscp-info type`** *`dscp_type`*

dl-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encap-ci-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-dscp-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-iq-copy-outer

Specify to copy the outer DSCP to inner.

dl-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

dl-iq-encap-type

Specify to copy the inner DSCP to outer.

dl-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

dl-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-iq-user-datagram

Specify DSCP value be applied to user datagram.

dl-priority *dl_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-user-datagram

Specify DSCP value be applied to user datagram.

dscp-marking-dl *dscp_value*

Specify the DSCP value to be applied to packets.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

ul-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with "0x". For example, 0x3F.

ul-encap-ci-priority *ul_encap_ci_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

ul-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

ul-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-dscp-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

ul-encaps-header *dscp_value*

Specify the DCSP value to be applied to encaps header.

ul-iq-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-iq-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

ul-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

ul-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

ul-iq-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with 0x. For example, 0x3F.

ul-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-ud-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

ul-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

ul-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

Usage Guidelines Use this command to configure the DSCP type.

profile sgw-qos-profile dscp-map qci

Configures the standard QCI value.

Command Modes Exec > Global Configuration (config) > SGW QoS Profile Configuration (config-sgw-qos-profile-*profile_name*)

Syntax Description **dscp-map qci** *standard_qos_class_id options*

qci *standard_qos_class_id*

Specify the standard QoS class identifier.

Must be an integer from the following: 1-9, 65, 66, 69, 70, 80, 82, 83.

Usage Guidelines Use this command to configure the standard QCI value.

profile sgw-qos-profile dscp-map qci arp-priority-level

Configures the ARP priority level.

Command Modes Exec > Global Configuration (config) > QoS Profile Configuration (config-qos-*profile_name*)

Syntax Description **dscp-map qi5** *qci_name* **arp-priority-level** *arp_priority_level*

arp-priority-level *arp_priority_level*

Specify the ARP priority level.

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

Usage Guidelines Configures the type of the QCI to GBR. Use this command to configure the ARP priority level.

profile sgw-qos-profile dscp-map qci arp-priority-level dscp-info

Configures the Differentiated Services Code Point (DSCP) type.

Command Modes Exec > Global Configuration

Syntax Description **dscp-info type** *dscp_type*

dl-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encap-ci-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-dscp-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-iq-copy-outer

Specify to copy the outer DSCP to inner.

dl-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

dl-iq-encap-type

Specify to copy the inner DSCP to outer.

dl-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

dl-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-iq-user-datagram

Specify DSCP value be applied to user datagram.

dl-priority *dl_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-user-datagram

Specify DSCP value be applied to user datagram.

dscp-marking-dl *dscp_value*

Specify the DSCP value to be applied to packets.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

ul-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with "0x". For example, 0x3F.

ul-encap-ci-priority *ul_encap_ci_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

ul-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

ul-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-dscp-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

ul-encaps-header *dscp_value*

Specify the DCSP value to be applied to encaps header.

ul-iq-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-iq-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

ul-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

ul-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

ul-iq-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with 0x. For example, 0x3F.

ul-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-ud-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

ul-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

ul-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

Usage Guidelines Use this command to configure the DSCP type.

profile sgw-qos-profile dscp-map qci default

Configures the default QCI parameter.

Command Modes Exec > Global Configuration

Syntax Description **`default`** *`options`*

Usage Guidelines Use this command to configure the default QCI parameter.

profile sgw-qos-profile dscp-map qci default dscp-info

Configures the Differentiated Services Code Point (DSCP) type.

Command Modes Exec > Global Configuration

Syntax Description **`dscp-info type`** *`dscp_type`*

dl-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encap-ci-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-dscp-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-iq-copy-outer

Specify to copy the outer DSCP to inner.

dl-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

dl-iq-encap-type

Specify to copy the inner DSCP to outer.

dl-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

dl-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-iq-user-datagram

Specify DSCP value be applied to user datagram.

dl-priority *dl_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-user-datagram

Specify DSCP value be applied to user datagram.

dscp-marking-dl *dscp_value*

Specify the DSCP value to be applied to packets.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

ul-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with "0x". For example, 0x3F.

ul-encap-ci-priority *ul_encap_ci_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

ul-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

ul-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-dscp-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

ul-encaps-header *dscp_value*

Specify the DCSP value to be applied to encaps header.

ul-iq-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-iq-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

ul-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

ul-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

ul-iq-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with 0x. For example, 0x3F.

ul-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-ud-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

ul-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

ul-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

Usage Guidelines Use this command to configure the DSCP type.

profile sgw-qos-profile dscp-map qci gbr dscp-info

Configures the Differentiated Services Code Point (DSCP) type.

Command Modes Exec > Global Configuration

Syntax Description **`dscp-info type`** *`dscp_type`*

dl-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encap-ci-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-dscp-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-iq-copy-outer

Specify to copy the outer DSCP to inner.

dl-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

dl-iq-encap-type

Specify to copy the inner DSCP to outer.

dl-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

dl-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-iq-user-datagram

Specify DSCP value be applied to user datagram.

dl-priority *dl_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-user-datagram

Specify DSCP value be applied to user datagram.

dscp-marking-dl *dscp_value*

Specify the DSCP value to be applied to packets.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

ul-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with "0x". For example, 0x3F.

ul-encap-ci-priority *ul_encap_ci_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

ul-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

ul-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-dscp-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

ul-encaps-header *dscp_value*

Specify the DCSP value to be applied to encaps header.

ul-iq-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-iq-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

ul-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

ul-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

ul-iq-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with 0x. For example, 0x3F.

ul-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-ud-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

ul-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

ul-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

Usage Guidelines Use this command to configure the DSCP type.

profile sgw-qos-profile dscp-map qci non-gbr dscp-info

Configures the Differentiated Services Code Point (DSCP) type.

Command Modes Exec > Global Configuration

Syntax Description **`dscp-info type`** *`dscp_type`*

dl-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encap-ci-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-encap-dscp-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-iq-copy-outer

Specify to copy the outer DSCP to inner.

dl-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

dl-iq-encap-type

Specify to copy the inner DSCP to outer.

dl-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

dl-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-iq-user-datagram

Specify DSCP value be applied to user datagram.

dl-priority *dl_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

dl-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

dl-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

dl-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

dl-user-datagram

Specify DSCP value be applied to user datagram.

dscp-marking-dl *dscp_value*

Specify the DSCP value to be applied to packets.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

ul-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with "0x". For example, 0x3F.

ul-encap-ci-priority *ul_encap_ci_priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

ul-encap-co-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

ul-encap-dscp-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-encap-dscp-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

ul-encaps-header *dscp_value*

Specify the DCSP value to be applied to encaps header.

ul-iq-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-iq-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

ul-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

ul-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

ul-iq-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets. A hexadecimal string starting with 0x. For example, 0x3F.

ul-ud-encap-copy-inner

Specify to copy the inner DSCP to outer.

ul-ud-encap-copy-outer

Specify to copy the outer DSCP to inner.

ul-ud-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

ul-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

ul-ud-priority *priority*

Specify the priority.

Must be a string in the pattern '[0-7]{1}'.

ul-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

Usage Guidelines

Use this command to configure the DSCP type.

profile upf-group

Configures the UPF group profile.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile upf-group** *upf_group_name* **[dcnr { false | true } | location-area-group-list** *location_area_group_list* **| pdn-session-type** *pdn_session_type* **| slice-group-list** *slice_group_list* **]**

dcnr { false | true }

Specify to enable or disable support for dual connectivity with new radio.

Must be one of the following:

- **false**
- **true**

Default Value: false.

location-area-group-list *location_area_group_list*

Specify the list of Location Area Group supported by UPF node.

Must be a string.

pdn-session-type *pdn_session_type*

Specify the list of PDN session type supported by UPF node.

Must be one of the following:

- **ipv4**
- **ipv4v6**
- **ipv6**

slice-group-list *slice_group_list*

Specify the list of slice group supported by UPF node.

Must be a string.

upf-group *upf_group_name*

Specify name of the UPF group.

Must be a string.

Usage Guidelines Use this command to configure the UPF group profile.

profile upf-group failure-profile

Configures the UPF Group failure profile.

Command Modes Exec > Global Configuration (config) > UPF Group Profile Configuration (config-upf-group-*profile_name*)

Syntax Description **failure-profile** *failure_profile_name*

failure-profile *failure_profile_name*

Specify name of the UPF failure profile.

Must be a string.

Usage Guidelines Use this command to configure the UPF Group failure profile.

profile upf-group heartbeat

Enables PFCP path management.

Command Modes Exec > Global Configuration (config) > UPF Group Profile Configuration (config-upf-group-*profile_name*)

Syntax Description **heartbeat [interval** *heartbeat_interval* **| retransmission-timeout** *retransmission_timeout* **| max-retransmissions** *max_retransmissions* **]**

interval *heartbeat_interval*

Specify the heartbeat interval in seconds. To disable, set to 0.

Must be an integer from the following: 0, 60-360.

max-retransmissions *max_retransmissions*

Specify the maximum number retries for PFCP heartbeat request.

Must be an integer in the range of 0-10.

retransmission-timeout *retransmission_timeout*

Specify the heartbeat retransmission timeout period in seconds.

Must be an integer in the range of 1-20.

Usage Guidelines Use this command to enable PFCP path management.

profile wps

Configures the Wireless Priority Service (WPS) profile parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile wps** *wps_service_name* **[arp** *arp_level_range* **message-priority-profile** *msg_priority_profile_name* **| message-priority** [pfcp gtpc] **]**

arp *arp_level_range*

Specify the range of ARP levels (separated by comma (,) or hyphen (-)).

Must be an integer.

-Or-

Must be a string.

message-priority-profile *msg_priority_profile*

Configures message priority profile at ARP level under the WPS profile configuration.

message-priority *message_priority*

Specify the message priority for GTP-C and UP.

Must be one of the following:

- **gtpc**
- **pfcp**

You can configure a maximum of two elements with this keyword.

wps *wps_service_name*

Specify name of the WPS service.

Must be a string.

Usage Guidelines Use this command to configure the WPS profile parameters. The CLI prompt changes to the WPS Profile Configuration mode (config-wps-<profile_name>).

profile wps dscp

Configures the DSCP marking value for N3.

Command Modes Exec > Global Configuration (config) > WPS Profile Configuration (config-wps-*profile_name*)

Syntax Description **dscp n3** *dscp_marking_value* **sxa** *cp_dscp_marking* **s5e** *cp_dscp_marking* **s11** *cp_dscp_marking*

n3 *dscp_marking_value*

Specify the UP DSCP marking value.

s11 *cp_dscp_marking*

Specify the CP DSCP marking value.

s5e *cp_dscp_marking*

Specify the CP DSCP marking value.

sxa *cp_dscp_marking*

Specify the CP DSCP marking value.

Usage Guidelines Use this command to configure the DSCP marking value for N3.

clear subscriber

Clears subscriber data.

Command Modes Exec

Syntax Description **clear subscriber { all | gr-instance** *gr_instance* **| imei** *imei_id* **| namespace** *namespace* **| nf-service** *nf_service* **| supi** *supi_id* **|** *config_specific_options* **}**

all

Specify to remove all subscriber data.

gr-instance *gr_instance*

Specify the subscribers from the GR instance.

imei *imei_id*

Specify the International Mobile Equipment Identity.

Must be a string of 15-16 characters.

namespace *namespace*

NOTE: This keyword is deprecated, use nf-service instead. Specifies the product namespace under which to search.

Default Value: cisco-mobile-infra:none.

nf-service *nf_service*

Specify the network function service under which to search.

Default Value: cisco-mobile-infra:none.

supi *supi_id*

Specify to remove subscriber data associated with the SUPI ID.

Must be a string of 1-63 characters.

Usage Guidelines Use this command to clear subscriber data.

client http header

Configures HTTP header parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **client http header user-agent** *user_agent_header*

user-agent *user_agent_header*

Specify the user agent header.

Must be one of the following:

- **app-name**
- **cluster-name**
- **disable**

Default Value: app-name.

Usage Guidelines Use this command to configure HTTP header parameters.

client http ping

Configures HTTP ping parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **client http ping { [timeout** *ping_timeout* **] [interval** *ping_interval* **] }**

interval *ping_interval*

Specify, in milliseconds, the time interval between two HTTP pings.

Must be an integer in the range of 0-30000.

Default Value: 10000.

timeout *ping_timeout*

Specify, in milliseconds, the ping timeout duration to detect if remote host is down.

Must be an integer in the range of 0-15000.

Default Value: 5000.

Usage Guidelines Use this command to configure HTTP ping parameters.

client inbound interface

Configures inbound client interface parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **client inbound interface** *interface_name*

interface *interface_name*

Specify name of the interface.

Usage Guidelines Use this command to configure inbound client interface parameters. The CLI prompt changes to the Interface Configuration mode (config-interface-<interface_name>).

client inbound interface limit overload

Configures Overload configuration parameters.

Command Modes Exec > Global Configuration (config) > Interface Configuration (config-interface-*interface_name*)

Syntax Description **`limit overload reject-code`** *`response_code`*

reject-code *response_code*

Specify the response code to be used when pending limit exceeds.

Must be an integer.

Usage Guidelines Use this command to configure Overload configuration parameters.

client inbound interface limit pending

Configures pending limit configuration.

Command Modes Exec > Global Configuration (config) > Interface Configuration (config-interface-*interface_name*)

Syntax Description **`limit pending request`** *`max_pending_request_limit`*

request *max_pending_request_limit*

Specify the maximum pending request limit to allow.

Must be an integer.

Default Value: 10240.

Usage Guidelines Use this command to configure pending limit configuration.

client inbound limit overload

Configures Overload configuration parameters.

Command Modes Exec > Global Configuration (config) > Interface Configuration (config-interface-*interface_name*)

Syntax Description **`limit overload reject-code`** *`response_code`*

reject-code *response_code*

Specify the response code to be used when pending limit exceeds.

Must be an integer.

Usage Guidelines Use this command to configure Overload configuration parameters.

client inbound limit pending

Configures pending limit configuration.

Command Modes Exec > Global Configuration (config) > Interface Configuration (config-interface-*interface_name*)

Syntax Description **limit pending request** *max_pending_request_limit*

request *max_pending_request_limit*

Specify the maximum pending request limit to allow.

Must be an integer.

Default Value: 10240.

Usage Guidelines Use this command to configure pending limit configuration.

client outbound host ping

Configures outbound host ping parameter.

Command Modes Exec > Global Configuration (config)

Syntax Description **client outbound host ping { [timeout** *ping_timeout* **] [interval** *ping_interval* **] [backoff** *backoff_interval* **] }**

Command Modes Exec > Global Configuration (config) > Interface Configuration (config-interface-*interface_name*)

Syntax Description **host ping { [timeout** *ping_timeout* **] [interval** *ping_interval* **] }**

backoff *backoff_interval*

Specify, in milliseconds, the backoff time interval to wait when remote host was detected down before start pinging again.

Must be an integer in the range of 0-3600000.

Default Value: 0.

interval *ping_interval*

Specify, in milliseconds, the time interval between two pings.

Must be an integer in the range of 0-30000.

Default Value: 0.

timeout *ping_timeout*

Specify, in milliseconds, the ping timeout duration to detect remote host down.

Must be an integer in the range of 0-15000.

Default Value: 0.

Usage Guidelines Use this command to configure outbound host ping parameter.

client outbound interface

Configures outbound client interface parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **client outbound interface** *interface_name*

interface *interface_name*

Specify the interface.

Usage Guidelines Use this command to configure outbound client interface parameters. The CLI prompt changes to the Interface Configuration mode (config-interface-<interface_name>).

client outbound interface host ping

Configures outbound host ping parameter.

Command Modes Exec > Global Configuration (config)

Syntax Description **client outbound host ping { [timeout** *ping_timeout* **] [interval** *ping_interval* **] [backoff** *backoff_interval* **] }**

Command Modes Exec > Global Configuration (config) > Interface Configuration (config-interface-*interface_name*)

Syntax Description **host ping { [timeout** *ping_timeout* **] [interval** *ping_interval* **] }**

backoff *backoff_interval*

Specify, in milliseconds, the backoff time interval to wait when remote host was detected down before start pinging again.

Must be an integer in the range of 0-3600000.

Default Value: 0.

interval *ping_interval*

Specify, in milliseconds, the time interval between two pings.

Must be an integer in the range of 0-30000.

Default Value: 0.

timeout *ping_timeout*

Specify, in milliseconds, the ping timeout duration to detect remote host down.

Must be an integer in the range of 0-15000.

Default Value: 0.

Usage Guidelines Use this command to configure outbound host ping parameter.

client outbound interface limit consecutive failure

Configures consecutive failure configuration parameters.

Command Modes Exec > Global Configuration

Syntax Description **consecutive failure count** *failure_limit_count* **codes** *failure_codes*

codes *failure_codes*

Specify the list of failure codes to be considered, such as timeout, 503, etc.

Must be a string.

You can configure a maximum of 10 elements with this keyword.

count *failure_limit_count*

Specify the consecutive failure limit count to detect remote host as down.

Must be an integer.

Default Value: 0.

Usage Guidelines Use this command to configure consecutive failure configuration parameters.

client outbound interface limit pending

Configures pending limit configuration.

Command Modes Exec > Global Configuration (config)

Syntax Description **client outbound limit pending response** *response_message_limit*

Command Modes Exec > Global Configuration (config) > Interface Configuration (config-interface-*interface_name*)

Syntax Description **pending response** *response_message_limit*

response *response_message_limit*

Specify the pending response message limit to detect remote host as down.

Must be an integer.

Default Value: 1024.

Usage Guidelines Use this command to configure pending limit configuration.

client outbound limit consecutive failure

Configures consecutive failure configuration parameters.

Command Modes Exec > Global Configuration

Syntax Description **consecutive failure count** *failure_limit_count* **codes** *failure_codes*

codes *failure_codes*

Specify the list of failure codes to be considered, such as timeout, 503, etc.

Must be a string.

You can configure a maximum of 10 elements with this keyword.

count *failure_limit_count*

Specify the consecutive failure limit count to detect remote host as down.

Must be an integer.

Default Value: 0.

Usage Guidelines Use this command to configure consecutive failure configuration parameters.

client outbound limit pending

Configures pending limit configuration.

Command Modes Exec > Global Configuration (config)

Syntax Description **client outbound limit pending response** *response_message_limit*

Command Modes Exec > Global Configuration (config) > Interface Configuration (config-interface-*interface_name*)

Syntax Description **pending response** *response_message_limit*

response *response_message_limit*

Specify the pending response message limit to detect remote host as down.

Must be an integer.

Default Value: 1024.

Usage Guidelines Use this command to configure pending limit configuration.

config-error info

Displays configuration error information.

Command Modes Exec

Syntax Description **`show config-error [ info ]`**

Usage Guidelines Use this command to view configuration error information.

datastore dbs

Configures DBS parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **`datastore dbs`** *`dbs_name`*

dbs *dbs_name*

Specify name of the DBS.

Must be a string.

Usage Guidelines Use this command to configure the DBS parameters.

datastore dbs endpoints

Configures endpoint parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **`datastore session-db endpoints`** *`host_name`* **`port`** *`port_number`*

Command Modes Exec > Global Configuration (config) > DBS Configuration (config-dbs-*dbs_name*)

Syntax Description **`endpoints`** *`host_name`* **`port`** *`port_number`*

endpoints *host_name*

Specify name of the host.

Must be a string.

port *port_number*

Specify the port number.

Must be an integer.

Usage Guidelines Use this command to configure endpoint parameters.

datastore notification-ep

Configures notification endpoint parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **`datastore notification-ep { [ host`** *`host_name`* **`] [ port`** *`port_number`* **`] }`**

host *host_name*

Specify name of the host.

Must be a string.

port *port_number*

Specify the port number.

Must be an integer.

Usage Guidelines Use this command to configure notification endpoint parameters.

datastore session-db

Configures Session DB parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **`datastore session-db slice-name`** *`slice_name`*

slice-name *slice_name*

Specify name of the slice.

Must be a string.

Usage Guidelines Use this command to configure Session DB parameters.

datastore session-db endpoints

Configures endpoint parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **datastore session-db endpoints** *host_name* **port** *port_number*

Command Modes Exec > Global Configuration (config) > DBS Configuration (config-dbs-*dbs_name*)

Syntax Description **endpoints** *host_name* **port** *port_number*

endpoints *host_name*

Specify name of the host.

Must be a string.

port *port_number*

Specify the port number.

Must be an integer.

Usage Guidelines Use this command to configure endpoint parameters.

deployment

Configures the deployment parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **deployment [app-name** *application_name* **| cluster-name** *cluster_name* **| dc-name** *datacenter_name* **| logical-nf-instance-id** *logical_nf_instance_id* **| model** *deployment_model* **]**

app-name *application_name*

Specify name of the application.

Must be a string.

cluster-name *cluster_name*

Specify name of the cluster.

Must be a string.

dc-name *datacenter_name*

Specify name of the datacenter.

Must be a string.

logical-nf-instance-id *logical_nf_instance_id*

Specify the logical NF instance ID.

Must be an integer.

Default Value: 0.

model *deployment_model*

Specify the deployment model.

Must be one of the following:

- **small**

Usage Guidelines Use this command to configure the deployment parameters.

deployment resource

Configures the deployment CPU resource parameter.

Command Modes Exec > Global Configuration (config) > Deployment Configuration (config-deployment)

Syntax Description **resource cpu** *cpu_size*

cpu *cpu_size*

Specify the CPU size in millicores.

Must be an integer in the range of 2000-1000000.

Default Value: 18000.

Usage Guidelines Use this command to configure the deployment CPU resource parameter.

diagnostics info

Displays diagnostics information.

Command Modes Exec

Syntax Description **show diagnostics [info]**

Usage Guidelines Use this command to view diagnostics information.

dump transactionhistory

Creates dump of transaction history.

Command Modes Exec

Syntax Description **dump transactionhistory**

Usage Guidelines Use this command to create dump of transaction history.

edr

Configures EDR parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **edr { [reporting** *reporting_status* **] [subscribers** *subscribers_edr_reporting* **] }**

reporting *reporting_status*

Specify to enable or disable EDR reporting.

Must be one of the following:

- **disable**
- **enable**

Default Value: disable.

subscribers *subscribers_edr_reporting*

Specify the subscribers for whom EDR reporting must be enabled.

Must be a string.

You can configure a maximum of 10 elements with this keyword.

Usage Guidelines Use this command to configure EDR parameters.

edr file files

Configures EDR file parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **edr file { transaction | transaction-collision } [reporting** *reporting_status* **] [verbose** *verbosity_status* **]**

reporting *reporting_status*

Specify to enable or disable reporting of this file.

Must be one of the following:

- **disable**
- **enable**

Default Value: disable.

verbose *verbosity_status*

Specify to enable or disable field description or long names in the file.

Must be one of the following:

- **disable**
- **enable**

Default Value: disable.

{ transaction | transaction-collision }

Specify name of the EDR file.

Usage Guidelines Use this command to configure EDR file parameters.

edr file files disable

Disables procedure IDs.

Command Modes Exec > Global Configuration (config) > EDR File Configuration (config-file-*transaction_transaction-collision*)

Syntax Description **`disable procedure-id`** *`procedure_ids`*

procedure-id *procedure_ids*

Specify the procedure ID value(s)/name(s).

Must be a string.

Usage Guidelines Use this command to disable specific procedure IDs.

edr file files flush

Configures EDR file flush parameters.

Command Modes Exec > Global Configuration (config) > EDR File Configuration (config-file-*transaction_transaction-collision*)

Syntax Description **`flush interval`** *`file_flush_interval`*

interval *file_flush_interval*

Specify, in milliseconds, the file flush interval.

Must be an integer.

Default Value: 1000.

Usage Guidelines Use this command to configure the EDR file flush parameters.

edr file files limit

Configures EDR file limit parameters.

Command Modes Exec > Global Configuration (config) > EDR File Configuration (config-file-*transaction_transaction-collision*)

Syntax Description **limit { [count** *max_files_to_preserve* **] [size** *max_single_file_size* **] }**

count *max_files_to_preserve*

Specify the maximum number of files to be preserved.

Must be an integer.

Default Value: 10.

size *max_single_file_size*

Specify the maximum single file size limit in MB.

Must be an integer.

Default Value: 100.

Usage Guidelines Use this command to configure the EDR file limit parameters.

edr file files procedure-id disable-event-id

Disables transaction-level procedure ID configuration.

Command Modes Exec > Global Configuration (config) > EDR File Configuration (config-file-*transaction_transaction-collision*)

Syntax Description **procedure-id** *procedure_id*

procedure *procedure_id*

Specify the procedure ID value/name.

Must be a string.

Usage Guidelines Use this command to disable transaction-level procedure ID configuration.

edr file files procedure-id disable-event-id disable-inner disable

Disables event IDs.

Command Modes Exec > Global Configuration (config) > EDR File Configuration (config-file-*transaction_transaction-collision*) > Procedure ID Configuration (config-procedure-id-*procedure_id*)

Syntax Description **`disable event-id`** *`event_ids`*

event-id *event_ids*

Specify the event ID value(s)/name(s).

Must be a string.

Usage Guidelines Use this command to disable event IDs.

edr file files procedure-id disable-event-id disable-inner event-id disable-field-id

Disables procedure-level event ID configuration.

Command Modes Exec > Global Configuration (config) > EDR File Configuration (config-file-*transaction_transaction-collision*) > Procedure ID Configuration (config-procedure-id-*procedure_id*)

Syntax Description **`event-id`** *`event_id`*

event *event_id*

Specify the event ID value/name.

Must be a string.

Usage Guidelines Use this command to disable procedure-level event ID configuration.

edr file files procedure-id disable-event-id disable-inner event-id disable-field-id disable

Disables field IDs.

Command Modes Exec > Global Configuration (config) > EDR File Configuration (config-file-*transaction_transaction-collision*) > Procedure ID Configuration (config-procedure-id-*procedure_id*)

Syntax Description **`disable field-id`** *`field_ids`*

field-id *field_ids*

Specify the field ID value(s)/name(s).

Must be a string.

Usage Guidelines Use this command to disable field IDs.

endpoint all

Displays endpoint status.

Command Modes Exec

Syntax Description **show endpoint [all]**

Usage Guidelines Use this command to view the status of endpoints.

endpoint info

Displays endpoint information.

Command Modes Exec

Syntax Description **show endpoint info [** *endpoint_name* **|** *endpoint_address* **| Interface** *interface_name* **| grInstance** *gr_instance_id* **| internal** *type_of_endpoint* **| startTime** *start_time* **| status** *endpoint_status* **| stoppedTime** *stop_time* **| type** *endpoint_type* **]**

Interface *interface_name*

Specify the interface name of the endpoint.

Must be a string.

grInstance *gr_instance_id*

Specify the GR instance ID.

Must be a string.

internal *type_of_endpoint*

Specify whether the endpoint is of internal or external type.

Must be a string.

startTime *start_time*

Specify the time at which the endpoint started.

Must be a string.

status *endpoint_status*

Specify the current status of the endpoint.

Must be a string.

stoppedTime *stop_time*

Specify the time at which the endpoint stopped.

Must be a string.

type *endpoint_type*

Specify the endpoint type.

Must be a string.

endpoint_address

Specify the host address and port number.

Must be a string.

endpoint_name

Specify the name of the endpoint.

Must be a string.

Usage Guidelines Use this command to view endpoint information.

geo maintenance

Configures Geo Admin Controller to enable or disable maintenance mode.

Command Modes Exec

Syntax Description `maintenance enable { false | true }`

enable { false | true }

Specify whether to enable or disable maintenance mode. To enable, set to true.

Must be one of the following:

- **false**
- **true**

Default Value: false.

Usage Guidelines Use this command to configure Geo Admin Controller to enable or disable maintenance mode.

geo reset-role

Configures Geo Admin Controller for reset role.

Command Modes Exec

Syntax Description **geo reset-role instance-id** *instance_id* **role** *new_role*

instance-id *instance_id*

Specify the instance ID for geo command.

role *new_role*

Specify the new role for the specified site.

Usage Guidelines Use this command to configure Geo Admin Controller for reset role.

geo switch-role

Configures Geo Admin Controller for reset role.

Command Modes Exec

Syntax Description **switch-role failback-interval** *failback_interval* **instance-id** *instance_id* **role** *new_role*

failback-interval *failback_interval*

Specify, in seconds, the interval between notify failover and actual failover.

Must be a string.

instance-id *instance_id*

Specify the instance ID for geo command.

role *new_role*

Specify the new role for the specified site.

Usage Guidelines Use this command to configure Geo Admin Controller for reset role.

geomonitor podmonitor pods

Configures configuration of pods to be monitored.

Command Modes Exec > Global Configuration (config)

Syntax Description

geomonitor podmonitor pods *pod_name* **retryCount** *retry_count* **retryInterval** *retry_interval* **retryFailOverInterval** *retry_interval* **failedReplicaPercent** *failed_replica_precentage*

failedReplicaPercent ***failed_replica_precentage***

Specify the percentage of failed replica after which GR failover will get triggered.

Must be an integer in the range of 10-100.

pods ***pod_name***

Specify the name of the pod to be monitored.

Must be a string.

retryCount ***retry_count***

Specify the counter value to retry if pod failed to ping after which pod is marked as down.

Must be an integer in the range of 1-10.

retryFailOverInterval ***retry_interval***

Specify, in milliseconds, the retry interval if pod ping fails.

Must be an integer in the range of 200-10000.

retryInterval ***retry_interval***

Specify, in milliseconds, the retry interval if pod ping is successful.

Must be an integer in the range of 200-10000.

Usage Guidelines

Use this command to configure configuration of pods to be monitored.

geomonitor remoteclustermonitor

Configures remote cluster monitoring parameters.

Command Modes

Exec > Global Configuration (config)

Syntax Description

remoteclustermonitor retryCount *retry_count* **retryInterval** *retry_interval*

retryCount ***retry_count***

Specify the counter value to retry if remote clsuter is not reachable. To discable, set to 0.

Must be an integer in the range of 0-10.

Default Value: 3.

retryInterval ***retry_interval***

Specify, in milliseconds, the retry interval after which the remote site's status will be fetched.

Must be an integer in the range of 200-50000.

Default Value: 3000.

Usage Guidelines Use this command to configure remote cluster monitoring parameters.

geomonitor trafficMonitor

Configures traffic monitoring parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **`trafficMonitor thresholdCount`** *`threshold_count`* **`thresholdInterval`** *`threshold_interval`*

thresholdCount *threshold_count*

Specify, in milliseconds, the maximum duration window to hit the threshold count value.

Must be an integer in the range of 0-10000.

Default Value: 0.

thresholdInterval *threshold_interval*

Specify, in milliseconds, the maximum duration window to hit the threshold count value.

Must be an integer in the range of 100-10000.

Default Value: 3000.

Usage Guidelines Use this command to configure traffic monitoring parameters.

geomonitor vipmonitor instance

Configures VIPs to be monitored.

Command Modes Exec > Global Configuration (config)

Syntax Description **`vipmonitor instance instance-id`** *`instance_id`*

instance-id *instance_id*

Specify the instance ID.

Must be an integer in the range of 1-8.

Usage Guidelines Configuration of VIPs to be monitored. Use this command to configure the instance ID.

geomonitor vipmonitor instance vips

Configures VIP interface parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **vips vipInterface** *vip_interface* **vipIp** *vip_ip* **vipPort** *vip_port* **retryCount** *retry_count* **retryInterval** *retry_interval* **retryFailOverInterval** *retry_failover_interval*

retryCount ***retry_count***

Specify the counter value to retry if VIP failed to ping after which VIP is marked as down.

Must be an integer in the range of 1-10.

retryFailOverInterval ***retry_failover_interval***

Specify, in milliseconds, the retry interval if VIP ping fails.

Must be an integer in the range of 200-10000.

retryInterval ***retry_interval***

Specify, in milliseconds, the retry interval if VIP ping is successful.

Must be an integer in the range of 200-10000.

vipInterface ***vip_interface***

Specify the name of the interface to monitor.

Must be a string.

vipIp ***vip_ip***

Specify the IPv4 address.

Must be a string.

vipPort ***vip_port***

Specify the diagnostic port number.

Must be an integer.

Usage Guidelines Use this command to configure VIP interface parameters.

infra metrics experimental

Configures the experimental configuration parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **infra metrics experimental version** *experimental_metrics_version*

version ***experimental_metrics_version***

Specify the experimental metrics version to be enabled.

Must be an integer in the range of 0-4.

Default Value: 0.

Usage Guidelines Use this command to configure the experimental configuration parameters.

infra metrics verbose verboseLevels

Configures verbose configuration parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **infra metrics verbose podType** *pod_type* **level** *verbose_level*

level *verbose_level*

Specify the verbosity level.

Must be one of the following:

- **debug**
- **production**
- **trace**

Default Value: trace.

podType *pod_type*

Specify the pod type.

Must be one of the following:

- **load-balancer**
- **protocol**
- **service**

Usage Guidelines Use this command to configure verbose configuration parameters.

infra transaction limit

Configures the maximum stage limit per transaction.

Command Modes Exec > Global Configuration (config)

Syntax Description **infra transaction limit stage** *max_stage_limit*

stage *max_stage_limit*

Specify the maximum stage limit per transaction.

Must be an integer.

Default Value: 100.

Usage Guidelines Use this command to configure the maximum stage limit per transaction.

infra transaction limit consecutive same

Configures the maximum consecutive stage limit per transaction.

Command Modes Exec > Global Configuration (config)

Syntax Description **infra transaction limit consecutive same stage** *max_consecutive_stage_limit*

stage *max_consecutive_stage_limit*

Specify the maximum consecutive stage limit per transaction.

Must be an integer.

Default Value: 10.

Usage Guidelines Use this command to configure the maximum consecutive stage limit per transaction.

infra transaction loop

Configures the transaction loop detection parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **infra transaction loop detection** *detection_status*

detection *detection_status*

Specify to enable or disable loop detection.

Must be one of the following:

- **disable**
- **enable**

Default Value: disable.

Usage Guidelines Use this command to configure the transaction loop detection parameter.

infra transaction loop category

Configures the loop category.

Command Modes Exec > Global Configuration (config)

Syntax Description **infra transaction loop category** *loop_category*

category *loop_category*

Specify the category.

Usage Guidelines Use this command to configure the loop category.

infra transaction loop category threshold

Configures the loop detection interval parameter.

Command Modes Exec > Global Configuration (config)

Syntax Description **infra transaction threshold interval** *loop_detect_interval*

interval *loop_detect_interval*

Specify, in seconds, the loop detection interval.

Must be an integer.

Default Value: 5.

Usage Guidelines Use this command to configure the loop detection interval parameter.

infra transaction loop category threshold thresholds

Configures thresholds.

Command Modes Exec > Global Configuration

Syntax Description **thresholds** *threshold_level* **count** *max_transactions* **action** *threshold_action*

action *threshold_action*

Specify the action to take on threshold breach.

Must be one of the following:

- **kill-session**
- **log-event**
- **noop**

Default Value: noop.

count *max_transactions*

Specify the maximum number of transactions for the threshold interval.

Must be an integer.

Default Value: 100.

thresholds *threshold_level*

Specify the threshold level.

Must be one of the following:

- **high**
- **low**

Usage Guidelines Use this command to configure thresholds.

instance instance-id

Configures instance ID.

Command Modes Exec > Global Configuration (config)

Syntax Description **instance instance-id** *instance_id*

id *instance_id*

Specify the instance ID.

Usage Guidelines Use this command to configure the instance ID. The CLI prompt changes to the Instance ID Configuration mode (config-instance-id-<instance_id>).

instance instance-id endpoint ep

Configures endpoint parameters.

Command Modes Exec > Global Configuration (config) > Instance ID Configuration (config-instance-id-*instance_id*)

Syntax Description **endpoint** *endpoint_type* **[instancetype** *instance_type* **| loopbackEth** *interface_name_host_ip* **| loopbackPort** *port_number* **| nodes** *node_replicas_for_resiliency* **| replicas** *replicas_per_node* **]**

certificate-name *certificate_alias_name*

Specify the alias name for the certificate.

dscp *dscp_value*

Specify the DSCP value.

enable-cpu-optimization { false | true }

Specify whether to enable CPU optimization in PFCP and GTP protocol message handling. By default, it is disabled.

Must be one of the following:

- **false**
- **true**

Default Value: false.

endpoint *endpoint_type*

Specify the endpoint type.

instancetype *instance_type*

Specify the endpoint local interface type.

Must be one of the following:

- **Dual**
- **IPv4**
- **IPv6**

Default Value: IPv4.

internal-vip *internal_vip*

Specify the internal VIP.

Must be a string.

loopbackEth *interface_name_host_ip*

Specify the endpoint local interface name or host IP address.

Must be a string.

loopbackPort *port_number*

Specify the endpoint local port number.

Must be an integer.

nodes *node_replicas_for_resiliency*

Specify the number of node replicas for resiliency.

Must be an integer.

Default Value: 1.

replicas *replicas_per_node*

Specify the number of replicas per node.

Must be an integer.

Default Value: 1.

storage *persistent_volume_storage_size*

Specify the storage size of the persistent volume in gibibyte (GiB).

Must be an integer in the range of 1-20.

Default Value: 1.

uri-scheme *uri_scheme*

Specify the URI scheme.

Must be one of the following:

- **http**
- **https**

Default Value: http.

Usage Guidelines Use this command to configure endpoint parameters.

instance instance-id endpoint ep cpu

Configures K8 pod CPU configuration.

Command Modes Exec > Global Configuration

Syntax Description **cpu request** *cpu_resource_request* **max-process** *max_processes*

max-process *max_processes*

Specify the maximum number of parallel OS threads to use.

Must be an integer in the range of 1-32.

request *cpu_resource_request*

Specify the CPU resource request in millicores.

Must be an integer in the range of 100-1000000.

Usage Guidelines Use this command to configure the K8 pod CPU configuration.

instance instance-id endpoint ep extended-service

Enables service pod to run on Session VM.

Command Modes Exec > Global Configuration

Syntax Description **extended-service replicas** *replicas_per_node* **nodes** *node_replicas*

nodes *node_replicas*

Specify the number of node replicas for resiliency.

Must be an integer.

Default Value: 2.

replicas *replicas_per_node*

Specify the number of replicas per node.

Must be an integer.

Default Value: 2.

Usage Guidelines Use this command to enable service pod to run on session VM. Service pods are spawned in Session VM.

instance instance-id endpoint ep heartbeat

Configures PFCP path management.

Command Modes Exec > Global Configuration

Syntax Description **heartbeat interval** *heartbeat_interval* **max-retransmissions** *max_retransmissions* **retransmission-timeout** *retransmission_timeout*

interval *heartbeat_interval*

Specify the heartbeat interval in seconds.

Must be an integer from the following: 0, 60-360.

Default Value: 60.

max-retransmissions *max_retransmissions*

Specify the maximum number of retries for PFCP heartbeat request.

Must be an integer in the range of 0-10.

Default Value: 3.

retransmission-timeout *retransmission_timeout*

Specify the heartbeat retransmission timeout in seconds.

Must be an integer in the range of 1-20.

Default Value: 5.

Usage Guidelines Use this command to configure PFCP path management.

instance instance-id endpoint ep interface

Configures the endpoint interface.

Command Modes Exec > Global Configuration (config) > Instance ID Configuration (config-instance-id-*instance_id*) > Endpoint *endpoint_type* Configuration (config-endpoint-*endpoint_type*)

Syntax Description **`interface`** *`interface_type`*

certificate-name *certificate_alias_name*

Specify the alias name for certificate.

dscp *dscp_value*

Specify the DSCP value.

instancetype *ep_local_interface_type*

Specify the endpoint local interface type.

Must be one of the following:

- **Dual**
- **IPv4**
- **IPv6**

Default Value: IPv4.

interface *interface_type*

Specify the interface type.

loopbackEth *pod_interface*

Specify the pod interface.

Must be a string.

loopbackPort *port_number*

Specify the port number.

Must be an integer.

uri-scheme *uri_scheme*

Specify the URI scheme.

Must be one of the following:

- **http**
- **https**

Default Value: http.

Usage Guidelines Use this command to configure the interface.

instance instance-id endpoint ep interface dispatcher

Displays the dispatcher queue support details for the interface.

Command Modes Exec > Global Configuration (config) > Instance ID Configuration (config-instance-id-*instance_id*) > Endpoint *endpoint_type* Configuration (config-endpoint-*endpoint_type*) > Interface *interface_type* Configuration (config-interface-*interface_type*)

Syntax Description **dispatcher { cache { false | true } | capacity** *queue_capacity* **| count** *dispatcher_queues_count* **| expiry** *cache_entry_expiry_duration* **| nonresponsive** *cache_entry_expiry_duration* **| outbound { false | true } |rate-limit** *queue_rate_limit* **| threshold** *outstanding_requests_per_queue_cache* **}**

cache { false | true }

Specify to enable or disable disable retransmission cache support.

Must be one of the following:

- **false**
- **true**

Default Value: false.

capacity *queue_capacity*

Specify the capacity of each queue.

Must be an integer.

Default Value: 5000.

count *dispatcher_queues_count*

Specify the count of dispatcher queues.

Must be an integer.

Default Value: 0.

expiry *cache_entry_expiry_duration*

Specify, in milliseconds, the responded cache entry expiry duration.

Must be an integer.

Default Value: 60000.

nonresponsive *cache_entry_expiry_duration*

Specify, in milliseconds, the non-responsive cache entry expiry duration.

Must be an integer.

Default Value: 30000.

outbound { false | true }

Specify to enable or disable queue support for outbound messages.

Must be one of the following:

- **false**
- **true**

Default Value: true.

rate-limit *queue_rate_limit*

Specify the rate limit for each queue.

Must be an integer.

Default Value: 0.

threshold *outstanding_requests_per_queue_cache*

Specify the outstanding requests per queue cache.

Must be an integer.

Default Value: 30000.

Usage Guidelines Use this command to view dispatcher queue support details for the interface.

instance instance-id endpoint ep interface echo

Configures GTP-C path management.

Command Modes Exec > Global Configuration

Syntax Description **echo interval** *echo_interval* **retransmission-timeout** *retransmission_timeout* **max-retransmissions** *max_retransmissions*

interval *echo_interval*

Specify the echo interval in seconds.

Must be an integer in the range of 60-3600.

Default Value: 60.

max-retransmissions *max_retransmissions*

Specify the maximum number of retries for GTP echo request.

Must be an integer in the range of 0-15.

Default Value: 3.

retransmission-timeout *retransmission_timeout*

Specify the echo retransmission timeout in seconds.

Must be an integer in the range of 1-20.

Default Value: 5.

Usage Guidelines Use this command to configure GTP-C path management.

instance instance-id endpoint ep interface heartbeat

Enables PFCP path management.

Command Modes Exec > Global Configuration

Syntax Description **heartbeat interval** *heartbeat_interval* **retransmission-timeout** *retransmission_timeout* **max-retransmissions** *max_retransmissions*

interval *heartbeat_interval*

Specify the heartbeat interval in seconds. To disable, configure to 0.

Must be an integer from the following: 0, 1-3600.

Default Value: 60.

max-retransmissions *max_retransmissions*

Specify the maximum number of retries for PFCP heartbeat request.

Must be an integer in the range of 0-15.

Default Value: 4.

retransmission-timeout *retransmission_timeout*

Specify the heartbeat retransmission timeout in seconds.

Must be an integer in the range of 1-20.

Default Value: 5.

Usage Guidelines Use this command to enable PFCP path management.

instance instance-id endpoint ep interface internal base-port

Configures the internal base-port to start endpoint parameter.

Command Modes Exec > Global Configuration (config) > Instance ID Configuration (config-instance-id-*instance_id*) > Endpoint *endpoint_type* Configuration (config-endpoint-*endpoint_type*)

Syntax Description **`internal base-port start`** *`base_port_to_start_ep`*

start *base_port_to_start_ep*

Specify the base port to start endpoint.

Must be an integer in the range of 1024-65535.

Usage Guidelines Use this command to configure the internal base-port to start endpoint parameter.

instance instance-id endpoint ep interface overload-control client threshold critical

Configures critical threshold parameters for overload control protection.

Command Modes Exec > Global Configuration

Syntax Description **`critical`** *`critical_threshold`* **`action`** *`critical_threshold_action`*

action *critical_threshold_action*

Specify the action to be taken when critical threshold limit is hit.

critical *critical_threshold*

Specify the critical threshold limit for outstanding requests.

Must be an integer in the range of 10-100000.

Usage Guidelines Use this command to configure critical threshold parameters for overload control protection.

instance instance-id endpoint ep interface overload-control client threshold high

Configures high threshold parameters for overload control protection.

Command Modes Exec > Global Configuration

Syntax Description **high** *high_threshold* **action** *high_threshold_action*

action *high_threshold_action*

Specify the action to be taken when high threshold limit is hit.

high *high_threshold*

Specify the high threshold limit for outstanding requests.

Must be an integer in the range of 10-100000.

Usage Guidelines Use this command to configure high threshold parameters for overload control protection.

instance instance-id endpoint ep interface overload-control client threshold low

Configures low threshold parameters for overload control protection.

Command Modes Exec > Global Configuration

Syntax Description **low** *low_threshold* **action** *low_threshold_action*

action *low_threshold_action*

Specify the action to be taken when low threshold limit is hit.

low *low_threshold*

Specify the low threshold limit for outstanding requests.

Must be an integer in the range of 10-100000.

Usage Guidelines Use this command to configure low threshold parameters for overload control protection.

instance instance-id endpoint ep interface overload-control endpoint threshold critical

Configures critical threshold parameters for overload control protection.

Command Modes Exec > Global Configuration

Syntax Description **critical** *critical_threshold* **action** *critical_threshold_action*

action *critical_threshold_action*

Specify the action to be taken when critical threshold limit is hit.

critical *critical_threshold*

Specify the critical threshold limit for outstanding requests.

Must be an integer in the range of 10-100000.

Usage Guidelines Use this command to configure critical threshold parameters for overload control protection.

instance instance-id endpoint ep interface overload-control endpoint threshold high

Configures high threshold parameters for overload control protection.

Command Modes Exec > Global Configuration

Syntax Description **high** *high_threshold* **action** *high_threshold_action*

action *high_threshold_action*

Specify the action to be taken when high threshold limit is hit.

high *high_threshold*

Specify the high threshold limit for outstanding requests.

Must be an integer in the range of 10-100000.

Usage Guidelines Use this command to configure high threshold parameters for overload control protection.

instance instance-id endpoint ep interface overload-control endpoint threshold low

Configures low threshold parameters for overload control protection.

Command Modes Exec > Global Configuration

Syntax Description **low** *low_threshold* **action** *low_threshold_action*

action *low_threshold_action*

Specify the action to be taken when low threshold limit is hit.

low *low_threshold*

Specify the low threshold limit for outstanding requests.

Must be an integer in the range of 10-100000.

Usage Guidelines Use this command to configure low threshold parameters for overload control protection.

instance instance-id endpoint ep interface overload-control msg-type messageConfigs

Configures the message configuration parameters.

Command Modes

Exec > Global Configuration (config)

Syntax Description

messageConfigs msg-type *message_type* **msg-priority** *message_priority* **pending-request** *pending_requests* **priority** *message_priority* **queue-size** *queue_size* **rate-limit** *rate_limit* **reject-threshold** *reject_threshold*

msg-priority *message_priority*

Specify the priority of the message.

Must be one of the following:

- **high**
- **low**

msg-type *message_type*

Specify the message type.

pending-request *pending_requests*

Specify the pending requests count in virtual queue.

Must be an integer.

priority *message_priority*

Specify the priority of messages to start rejecting if overload is reached.

Must be an integer.

queue-size *queue_size*

Specify the capacity of each virtual queue.

Must be an integer.

rate-limit *rate_limit*

Specify the rate limit for virtual queue.

Must be an integer.

reject-threshold *reject_threshold*

Specify the limit to reject incoming messages if this threshold percentage of pending requests are present.

Must be an integer.

Usage Guidelines Use this command to configure the message configuration parameters.

instance instance-id endpoint ep interface overload-control msg-type messageConfigs discard-behavior

Configures the discard behavior to apply when the interface is overloaded.

Command Modes Exec > Global Configuration (config)

Syntax Description **`discard-behavior reject reject-code`** *`reject_status_code`* **`drop { false | true }`**

drop { false | true }

Specify whether to drop if interface is overloaded.

Must be one of the following:

- **false**
- **true**

Default Value: false.

reject-code *reject_status_code*

Specify the reject status code if the interface is overloaded.

Must be an integer.

reject

Specify to reject the incoming message if the interface is overloaded.

Usage Guidelines Use this command to configure the discard behavior to apply when the interface is overloaded.

instance instance-id endpoint ep interface path-failure

Configures the GTP Path Failure Detection Policy profile.

Command Modes Exec > Global Configuration

Syntax Description **`path-failure detection-policy`** *`detection_policy_name`*

detection-policy *detection_policy_name*

Specify the failure detection policy name.

Must be a string.

Usage Guidelines Use this command to configure the GTP Path Failure Detection Policy profile.

instance instance-id endpoint ep interface retransmission

Configures retransmission parameters.

Command Modes Exec > Global Configuration

Syntax Description **retransmission timeout** *retransmission_interval* **max-retry** *max_retry*

max-retry *max_retry*

Specify the maximum number of times to request retry attempts. To disable retransmission, set to 0.

Must be an integer in the range of 0-5.

timeout *retransmission_interval*

Specify the retransmission interval in seconds. To disable retransmission, set to 0.

Must be an integer in the range of 0-10.

Usage Guidelines Use this command to configure retransmission parameters.

instance instance-id endpoint ep interface secondary-ip

Configures secondary IP address used in FTIED creation for new requests.

Command Modes Exec > Global Configuration

Syntax Description **secondary-ip list-entry** *secondary_ip_addresses*

list-entry *secondary_ip_addresses*

Specify the list of secondary IP addresses.

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

-Or-

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

Usage Guidelines Use this command to configure secondary IP address used in FTIED creation for new requests.

instance instance-id endpoint ep interface sla

Configures the SLA parameters.

Command Modes Exec > Global Configuration

Syntax Description **sla response** *response_time* **procedure** *procedure_time*

procedure *procedure_time*

Specify, in milliseconds, the procedure time.

Must be an integer in the range of 1000-120000.

response *response_time*

Specify, in milliseconds, the response time.

Must be an integer in the range of 1000-180000.

Usage Guidelines Use this command to configure the SLA parameters.

instance instance-id endpoint ep interface supported-features

Enables supported features.

Command Modes Exec > Global Configuration

Syntax Description **supported-features load-control overload-control**

load-control

Specify to enable load control.

overload-control

Specify to enable overload control.

Usage Guidelines Use this command to enable supported features.

instance instance-id endpoint ep interface sx-path-failure

Configures the SX Path Failure Detection Policy profile.

Command Modes Exec > Global Configuration

Syntax Description **sx-path-failure sx-detection-policy** *policy_profile_name*

sx-detection-policy *policy_profile_name*

Specify name of the SX Path Failure Detection Policy profile.

Must be a string.

Usage Guidelines Use this command to configure the SX Path Failure Detection Policy profile.

instance instance-id endpoint ep interface vip

Configures the virtual IP address (VIP) parameters.

Command Modes Exec > Global Configuration

Syntax Description **vip { vip-ip** *host_address* **| vip-port** *port_number* **} offline**

offline

Specify when the virtual IP address (VIP) is offline.

vip-interface *interface_name*

Specify the interface name to advertise BGP router.

Must be a string.

vip-ip *host_address*

Specify the host address.

Must be a string.

vip-port *port_number*

Specify the port number.

Must be an integer.

Usage Guidelines Use this command to configure the VIP address parameters.

instance instance-id endpoint ep interface vip6

Configures VIP IP6 parameters.

Command Modes Exec > Global Configuration

Syntax Description **vip6 vip-ip6** *vip_ip6* **vip-ipv6-port** *port_number* **offline**

offline

Specify the VIP IP as offline.

vip-ip6 *vip_ip6*

Specify the host detail.

Must be a string.

vip-ipv6-port *port_number*

Specify the port number.

Must be an integer.

Usage Guidelines Use this command to configure VIP IP6 parameters.

instance instance-id endpoint ep internal base-port

Configures the internal base-port to start endpoint parameter.

Command Modes Exec > Global Configuration (config) > Instance ID Configuration (config-instance-id-*instance_id*) > Endpoint *endpoint_type* Configuration (config-endpoint-*endpoint_type*)

Syntax Description **`internal base-port start`** *`base_port_to_start_ep`*

start *base_port_to_start_ep*

Specify the base port to start endpoint.

Must be an integer in the range of 1024-65535.

Usage Guidelines Use this command to configure the internal base-port to start endpoint parameter.

instance instance-id endpoint ep labels pod-config

Configures K8 node affinity label configuration.

Command Modes Exec > Global Configuration

Syntax Description **`pod-config key`** *`label_key`* **`value`** *`label_value`*

key *label_key*

Specify the key for the label.

Must be a string.

value *label_value*

Specify the value of the label.

Must be a string.

Usage Guidelines Use this command to configure the K8 node affinity label configuration.

instance instance-id endpoint ep memory

Configures K8 pod memory configuration.

Command Modes Exec > Global Configuration

Syntax Description **memory request** *memory_request* **limit** *memory_limit*

limit *memory_limit*

Specify the maximum memory resource in use, in megabytes.

Must be an integer in the range of 100-200000.

request *memory_request*

Specify the memory resource request, in megabytes.

Must be an integer in the range of 100-200000.

Usage Guidelines Use this command to configure the K8 pod memory configuration.

instance instance-id endpoint ep overload-control client threshold critical

Configures critical threshold parameters for overload control protection.

Command Modes Exec > Global Configuration

Syntax Description **critical** *critical_threshold* **action** *critical_threshold_action*

action *critical_threshold_action*

Specify the action to be taken when critical threshold limit is hit.

critical *critical_threshold*

Specify the critical threshold limit for outstanding requests.

Must be an integer in the range of 10-100000.

Usage Guidelines Use this command to configure critical threshold parameters for overload control protection.

instance instance-id endpoint ep overload-control client threshold high

Configures high threshold parameters for overload control protection.

Command Modes Exec > Global Configuration

Syntax Description **high** *high_threshold* **action** *high_threshold_action*

action *high_threshold_action*

Specify the action to be taken when high threshold limit is hit.

high *high_threshold*

Specify the high threshold limit for outstanding requests.

Must be an integer in the range of 10-100000.

Usage Guidelines Use this command to configure high threshold parameters for overload control protection.

instance instance-id endpoint ep overload-control client threshold low

Configures low threshold parameters for overload control protection.

Command Modes Exec > Global Configuration

Syntax Description **low** *low_threshold* **action** *low_threshold_action*

action *low_threshold_action*

Specify the action to be taken when low threshold limit is hit.

low *low_threshold*

Specify the low threshold limit for outstanding requests.

Must be an integer in the range of 10-100000.

Usage Guidelines Use this command to configure low threshold parameters for overload control protection.

instance instance-id endpoint ep overload-control endpoint threshold critical

Configures critical threshold parameters for overload control protection.

Command Modes Exec > Global Configuration

Syntax Description **critical** *critical_threshold* **action** *critical_threshold_action*

action *critical_threshold_action*

Specify the action to be taken when critical threshold limit is hit.

critical *critical_threshold*

Specify the critical threshold limit for outstanding requests.

Must be an integer in the range of 10-100000.

Usage Guidelines Use this command to configure critical threshold parameters for overload control protection.

instance instance-id endpoint ep overload-control endpoint threshold high

Configures high threshold parameters for overload control protection.

Command Modes Exec > Global Configuration

Syntax Description **high** *high_threshold* **action** *high_threshold_action*

action *high_threshold_action*

Specify the action to be taken when high threshold limit is hit.

high *high_threshold*

Specify the high threshold limit for outstanding requests.

Must be an integer in the range of 10-100000.

Usage Guidelines Use this command to configure high threshold parameters for overload control protection.

instance instance-id endpoint ep overload-control endpoint threshold low

Configures low threshold parameters for overload control protection.

Command Modes Exec > Global Configuration

Syntax Description **low** *low_threshold* **action** *low_threshold_action*

action *low_threshold_action*

Specify the action to be taken when low threshold limit is hit.

low *low_threshold*

Specify the low threshold limit for outstanding requests.

Must be an integer in the range of 10-100000.

Usage Guidelines Use this command to configure low threshold parameters for overload control protection.

instance instance-id endpoint ep overload-control msg-type messageConfigs

Configures the message configuration parameters.

Command Modes

Exec > Global Configuration (config)

Syntax Description

messageConfigs msg-type *message_type* **msg-priority** *message_priority* **pending-request** *pending_requests* **priority** *message_priority* **queue-size** *queue_size* **rate-limit** *rate_limit* **reject-threshold** *reject_threshold*

msg-priority *message_priority*

Specify the priority of the message.

Must be one of the following:

- **high**
- **low**

msg-type *message_type*

Specify the message type.

pending-request *pending_requests*

Specify the pending requests count in virtual queue.

Must be an integer.

priority *message_priority*

Specify the priority of messages to start rejecting if overload is reached.

Must be an integer.

queue-size *queue_size*

Specify the capacity of each virtual queue.

Must be an integer.

rate-limit *rate_limit*

Specify the rate limit for virtual queue.

Must be an integer.

reject-threshold *reject_threshold*

Specify the limit to reject incoming messages if this threshold percentage of pending requests are present.

Must be an integer.

Usage Guidelines Use this command to configure the message configuration parameters.

instance instance-id endpoint ep overload-control msg-type messageConfigs discard-behavior

Configures the discard behavior to apply when the interface is overloaded.

Command Modes Exec > Global Configuration (config)

Syntax Description **`discard-behavior reject reject-code`** *`reject_status_code`* **`drop { false | true }`**

drop { false | true }

Specify whether to drop if interface is overloaded.

Must be one of the following:

- **false**
- **true**

Default Value: false.

reject-code *reject_status_code*

Specify the reject status code if the interface is overloaded.

Must be an integer.

reject

Specify to reject the incoming message if the interface is overloaded.

Usage Guidelines Use this command to configure the discard behavior to apply when the interface is overloaded.

instance instance-id endpoint ep path-failure

Configures GTP path failure detection policy profile.

Command Modes Exec > Global Configuration

Syntax Description **`path-failure detection-policy`** *`detection_policy`*

detection-policy *detection_policy*

Specify the detection policy profile.

Must be a string.

Usage Guidelines Use this command to configure the GTP path failure detection policy profile.

instance instance-id endpoint ep retransmission

Configures retransmission parameters.

Command Modes Exec > Global Configuration

Syntax Description **retransmission max-retry** *max_retry* **timeout** *retransmission_interval*

max-retry *max_retry*

Specify the maximum number of times to request retry attempts. To disable retransmission, set to 0.

Must be an integer in the range of 0-5.

Default Value: 3.

timeout *retransmission_interval*

Specify the retransmission interval in seconds. To disable retransmission, set to 0.

Must be an integer in the range of 0-10.

Default Value: 2.

Usage Guidelines Use this command to configure retransmission parameters.

instance instance-id endpoint ep secondary-ip

Configures secondary IP address used in FTIED creation for new requests.

Command Modes Exec > Global Configuration

Syntax Description **secondary-ip list-entry** *secondary_ip_addresses*

list-entry *secondary_ip_addresses*

Specify the list of secondary IP addresses.

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

-Or-

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

Usage Guidelines Use this command to configure secondary IP address used in FTIED creation for new requests.

instance instance-id endpoint ep sla

Configures the response and procedure duration parameters.

Command Modes Exec > Global Configuration

Syntax Description **sla response** *response_duration* **procedure** *procedure_duration*

procedure *procedure_duration*

Specify the procedure duration in milliseconds.

Must be an integer in the range of 1000-120000.

response *response_duration*

Specify the response duration in milliseconds.

Must be an integer in the range of 1000-120000.

Usage Guidelines Use this command to configure the response and procedure duration parameters.

instance instance-id endpoint ep sx-path-failure

Configures Sx Path Failure Detection Policy Profile parameter.

Command Modes Exec > Global Configuration

Syntax Description **sx-path-failure sx-detection-policy** *sx_detection_policy_name*

sx-detection-policy *sx_detection_policy_name*

Specify name of the Sx Path Failure Detection policy.

Must be a string.

Usage Guidelines Use this command to configure the Sx Path Failure Detection Policy Profile parameter.

instance instance-id endpoint ep system-health-level crash

Configures system health crash parameters.

Command Modes Exec > Global Configuration

Syntax Description **crash cpu-percent** *cpu_percentage* **memory-in-mbs** *memory* **num-of-goroutine** *goroutine_per_core*

cpu-percent *cpu_percentage*

Specify the CPU percentage.

Must be an integer.

Default Value: 80.

memory-in-mbs *memory*

Specify the memory in MBs.

Must be an integer.

Default Value: 2048.

num-of-goroutine *goroutine_per_core*

Specify the number of goroutine per core.

Must be an integer.

Default Value: 45000.

Usage Guidelines Use this command to configure system health crash parameters.

instance instance-id endpoint ep system-health-level critical

Configures system health critical parameters.

Command Modes Exec > Global Configuration

Syntax Description **critical cpu-percent** *cpu_percentage* **memory-in-mbs** *memory* **num-of-goroutine** *goroutine_per_core*

cpu-percent *cpu_percentage*

Specify the CPU percentage.

Must be an integer.

Default Value: 60.

memory-in-mbs *memory*

Specify the memory in MBs.

Must be an integer.

Default Value: 1024.

num-of-goroutine *goroutine_per_core*

Specify the number of goroutine per core.

Must be an integer.

Default Value: 35000.

Usage Guidelines Use this command to configure system health critical parameters.

instance instance-id endpoint ep system-health-level warn

Configures system health warning parameters.

Command Modes Exec > Global Configuration

Syntax Description **warn cpu-percent** *cpu_percentage* **memory-in-mbs** *memory* **num-of-goroutine** *goroutine_per_core*

cpu-percent *cpu_percentage*

Specify the CPU percentage.

Must be an integer.

Default Value: 50.

memory-in-mbs *memory*

Specify the memory in MBs.

Must be an integer.

Default Value: 512.

num-of-goroutine *goroutine_per_core*

Specify the number of goroutine per core.

Must be an integer.

Default Value: 25000.

Usage Guidelines Use this command to configure system health warning parameters.

instance instance-id endpoint ep vip

Configures virtual IP (VIP) parameters.

Command Modes Exec > Global Configuration (config) > Instance ID Configuration (config-instance-id-*instance_id*) > Endpoint *endpoint_type* Configuration (config-endpoint-*endpoint_type*)

Syntax Description **vip-ip** *vip_ipv4_detail* **[vip-port** *vip_port_number* **| vip-interface** *vip_interface_name* **| offline]**

offline

Specify the VIP-IP as offline.

vip-interface *vip_interface_name*

Specify the interface name to advertise BGP router.

Must be a string.

vip-ip *vip_ipv4_detail*

Specify the IPv4 detail.

Must be a string.

vip-port *vip_port_number*

Specify the VIP port number.

Must be an integer.

Usage Guidelines Use this command to configure VIP parameters.

instance instance-id endpoint ep vip6

Configures VIP IPv6 parameters.

Command Modes Exec > Global Configuration (config) > Instance ID Configuration (config-instance-id-*instance_id*) > Endpoint *endpoint_type* Configuration (config-endpoint-*endpoint_type*)

Syntax Description **vip-ipv6** *vip_ipv6_detail* **[vip-ipv6-port** *vip_ipv6_port_number* **| offline]**

offline

Specify the VIP-IP as offline.

vip-ipv6-port *vip_ipv6_port_number*

Specify the port number.

Must be an integer.

vip-ipv6 *vip_ipv6_detail*

Specify the IPv6 detail.

Must be a string.

Usage Guidelines Use this command to configure VIP IPv6 parameters.

instances instance

Configures instance configuration parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **instances instance** *instance_id* **system-id** *system_id* **cluster-id** *cluster_id* **slice-name** *slice_name*

cluster-id *cluster_id*

Specify the instance cluster ID.

Must be a string.

instance-id *instance_id*

Specify the instance ID.

Must be an integer in the range of 1-8.

slice-name *slice_name*

Specify the CDL slice name associated with instance ID.

Must be a string.

system-id *system_id*

Specify the instance system ID.

Must be a string.

Usage Guidelines Use this command to configure instance configuration parameters.

k8 ccg

Configures coverage build parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description

```
k8 ccg coverage-build { false | true }
```

coverage-build { false | true }

Specify whether to enable or disable coverage build.

Must be one of the following:

- **false**
- **true**

Default Value: false.

Usage Guidelines Use this command to configure the coverage build parameters.

k8 ccg coverage

Configures Code Coverage Utils parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **k8 ccg coverage container-stop** *container_stop*

container-stop *container_stop*

Specify container stop.

Must be a string.

Default Value: false.

Usage Guidelines Use this command to configure the Code Coverage Utils parameters.

k8 label pod-group-config

Configures the K8 node affinity label parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **k8 label** *vm_group* **key** *label_key* **value** *label_value*

key *label_key*

Specify the label key.

Must be a string.

value *label_value*

Specify the label value.

Must be a string.

vm_group

Specify the VM group.

Must be one of the following:

- **cdl-layer**
- **oam-layer**
- **protocol-layer**
- **service-layer**

Usage Guidelines Use this command to configure the K8 node affinity label parameters.

local-instance

Configures local instance parameters.

Command Modes Exec > Global Configuration

Syntax Description **`local-instance instance`** *`instance_id`*

instance *instance_id*

Specify the local instance ID.

Usage Guidelines Use this command to configure local instance parameters.

logging async application enable

Enables async logging.

Command Modes Exec > Global Configuration

Syntax Description **`enable buffer-size`** *`buffer_size`*

buffer-size *buffer_size*

Specify the buffer size for async logging.

Must be an integer.

Usage Guidelines Use this command to enable async logging.

logging async monitor-subscriber enable

Enables async logging.

Command Modes Exec > Global Configuration

Syntax Description **`enable buffer-size`** *`buffer_size`*

buffer-size *buffer_size*

Specify the buffer size for async logging.

Must be an integer.

Usage Guidelines Use this command to enable async logging.

logging async tracing enable

Enables async logging.

Command Modes Exec > Global Configuration

Syntax Description **`enable buffer-size`** *`buffer_size`*

buffer-size *buffer_size*

Specify the buffer size for async logging.

Must be an integer.

Usage Guidelines Use this command to enable async logging.

logging async transaction enable

Enables async logging.

Command Modes Exec > Global Configuration

Syntax Description **`enable buffer-size`** *`buffer_size`*

buffer-size *buffer_size*

Specify the buffer size for async logging.

Must be an integer.

Usage Guidelines Use this command to enable async logging.

logging error

Configures error logging parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **`logging error stack`** *`status`*

stack *status*

Specify to enable or disable error stack.

Must be one of the following:

- **disable**
- **enable**

Default Value: enable.

Usage Guidelines Use this command to configure error logging parameters.

logging level

Configures the logging level.

Command Modes Exec > Global Configuration (config)

Syntax Description **logging level { application** *application_log_level* **| monitor-subscriber** *monitor_subscriber_log_level* **| tracing** *tracing_log_level* **| transaction** *transaction_log_level* **}**

application *application_log_level*

Specify the log level for application log type.

Must be one of the following:

- **debug**
- **error**
- **info**
- **off**
- **trace**
- **warn**

monitor-subscriber *monitor_subscriber_log_level*

Specify the log level for subscriber monitoring.

Must be one of the following:

- **debug**
- **error**
- **info**
- **off**
- **trace**
- **warn**

tracing *tracing_log_level*

Specify the log level for tracing log type.

Must be one of the following:

- **debug**
- **error**
- **info**
- **off**
- **trace**
- **warn**

transaction *transaction_log_level*

Specify the log level for transaction log type.

Must be one of the following:

- **debug**
- **error**
- **info**
- **off**
- **trace**
- **warn**

Usage Guidelines Configures logging parameters. Use this command to configure the logging level.

logging logger

Configures logger parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **logging name** *logger_name*

logger_name

Specify the logger name in the format "module.component.interface".

Must be a string.

Usage Guidelines Use this command to configure logger parameters.

logging logger level

Configures the logging level.

Command Modes Exec > Global Configuration

Syntax Description **logging name** *logger_name* **level { application** *application_log_level* **| tracing** *tracing_log_level* **| transaction** *transaction_log_level* **}**

application *application_log_level*

Specify the log level for application log type.

Must be one of the following:

- **debug**
- **error**

- **info**
- **off**
- **trace**
- **warn**

monitor-subscriber *monitor_subscriber_log_level*

Specify the log level for subscriber monitoring.

Must be one of the following:

- **debug**
- **error**
- **info**
- **off**
- **trace**
- **warn**

tracing *tracing_log_level*

Specify the log level for tracing log type.

Must be one of the following:

- **debug**
- **error**
- **info**
- **off**
- **trace**
- **warn**

transaction *transaction_log_level*

Specify the log level for transaction log type.

Must be one of the following:

- **debug**
- **error**
- **info**
- **off**
- **trace**

- **warn**

Usage Guidelines Use this command to configure the logging level type.

logging transaction

Configures the transaction logging parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **`logging transaction { duplicate { enable | disable } | max-file-size`** *`max_file_size`* **`| max-rotation`** *`max_rotations`* **`| message { enable | disable } | persist { enable | disable } }`**

duplicate { enable | disable }

Specify whether to enable or disable duplicate logs in transaction logging.

Must be one of the following:

- **disable**
- **enable**

Default Value: disable.

max-file-size *max_file_size*

Specify the maximum transaction file size in MB.

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

Default Value: 50.

max-rotation *max_max_rotations*

Specify the maximum number of file rotations.

Must be an integer in the range of 2-1000.

Default Value: 10.

message { enable | disable }

Specify whether to enable or disable messages in transaction logging.

Must be one of the following:

- **disable**
- **enable**

Default Value: disable.

persist { enable | disable }

Specify whether to enable or disable file-based transaction logging.

Must be one of the following:

- **disable**
- **enable**

Default Value: disable.

Usage Guidelines Use this command to configure the transaction logging parameters.

peers all

Displays the peer configuration information.

Command Modes Exec

Syntax Description `show peers [ all ]`

Usage Guidelines Use this command to view peer configuration information.

resource pod

Configures Pod resource parameter.

Command Modes Exec > Global Configuration (config)

Syntax Description `pod podtype pod_type`

podtype *pod_type*

Specify the pod type.

Usage Guidelines Use this command to configure Pod resource parameter.

resource pod cpu

Configures CPU resource request parameter.

Command Modes Exec > Global Configuration (config) > Pod Resource Configuration (config-resource-*pod_type*)

Syntax Description `cpu request cpu_resource_request`

request *cpu_resource_request*

Specify the CPU resource request in millicores.

Must be an integer in the range of 100-1000000.

Usage Guidelines Use this command to configure CPU resource request parameter.

resource pod labels

Configures K8 Node Affinity label configuration.

Command Modes Exec > Global Configuration (config) > Pod Resource Configuration (config-resource-*pod_type*)

Syntax Description **labels key** *label_key* **value** *label_value*

key *label_key*

Specify the key for the label.

Must be a string.

value *label_value*

Specify the value for the label.

Must be a string.

Usage Guidelines Use this command to configure K8 Node affinity label configuration.

resource pod memory

Configures memory resource request parameter.

Command Modes Exec > Global Configuration (config) > Pod Resource Configuration (config-resource-*pod_type*)

Syntax Description **memory request** *memory_resource_request*

request *memory_resource_request*

Specify the memory resource request in megabytes.

Must be an integer in the range of 100-200000.

Usage Guidelines Use this command to configure memory resource request parameter.

resources info

Displays resource information.

Command Modes Exec

Syntax Description **show resources [info]**

Usage Guidelines Use this command to view information about the configured resources.

router bgplist

Configures BGP speaker configuration.

Command Modes Exec > Global Configuration (config)

Syntax Description **router bgp** *bgp* **[learnDefaultRoute { false | true } | loopbackBFDPort** *bfd_local_port_number* **| loopbackPort** *bgp_local_port_number* **]**

bgp *bgp*

Specify the BGP.

Must be an integer.

learnDefaultRoute { false | true }

Specify whether to enable or disable learning default route and adding it in kernel space.

Must be one of the following:

- **false**
- **true**

Default Value: false.

loopbackBFDPort *bfd_local_port_number*

Specify the BFD local port number.

Must be an integer.

Default Value: 3784.

loopbackPort *bgp_local_port_number*

Specify the BGP local port number.

Must be an integer.

Default Value: 179.

Usage Guidelines Use this command to configure the BGP speaker configuration.

router bgplist bfd

Configures BFD configuration.

Command Modes Exec > Global Configuration (config) > Router Configuration (config-router-*router*)

Syntax Description **bfd { interval** *bfd_interval* **| min_rx** *bfd_min_rx* **| multiplier** *bfd_interval_multiplier* **}**

interval *bfd_interval*

Specify, in microseconds, the BFD interval.

Must be an integer.

Default Value: 250000.

min_rx *bfd_min_rx*

Specify, in microseconds, the BFD minimum RX.

Must be an integer.

Default Value: 250000.

multiplier *bfd_interval_multiplier*

Specify the BFD interval multiplier.

Must be an integer.

Default Value: 3.

Usage Guidelines Use this command to configure the BFD configuration.

router bgplist interfaceList

Configures bonding interface configuration.

Command Modes Exec > Global Configuration (config) > Router Configuration (config-router-*router*)

Syntax Description **interface** *bgp_local_interface*

interface *bgp_local_interface*

Specify the BGP local interface.

Must be a string.

Usage Guidelines Use this command to configure the bonding interface configuration.

router bgplist interfaceList bondingInterfaces

Configures bonding interface configuration.

Command Modes Exec > Global Configuration (config) > Router Configuration (config-router-*router*) > Router Interface Configuration (config-router-*interface*)

Syntax Description **bondingInterface** *linked_bonding_interface*

bondingInterface *linked_bonding_interface*

Specify the linked bonding interface.

Must be a string.

Usage Guidelines Use this command to configure the bonding interface configuration.

router bgplist interfaceList neighbors

Configures neighbor parameters.

Command Modes Exec > Global Configuration (config) > Router Configuration (config-router-*router*) > Router Interface Configuration (config-router-*interface*)

Syntax Description **neighbor** *neighbor_ip_address* **[fail-over** *failover_type* **| remote-as** *remote_as_number* **]**

fail-over *failover_type*

Specify the failover type.

Must be one of the following:

- **bfd**

neighbor *neighbor_ip_address*

Specify the IP address of the neighbor.

Must be a string.

remote-as *remote_as_number*

Specify the Autonomous System (AS) number of the BGP neighbor.

Must be an integer.

Default Value: 65000.

Usage Guidelines Use this command to configure the neighbor parameters.

router bgplist policies

Configures policy parameters.

Command Modes Exec > Global Configuration (config) > Router Configuration (config-router-*router*)

Syntax Description **policy-name** *policy_name* **[as-path-set** *as_path_set* **| gateWay** *gateway_address* **| interface** *interface* **| ip-prefix** *ip_prefix* **| isStaticRoute { false | true } | mask-range** *mask_range* **| modifySourceIp { false | true }]**

as-path-set *as_path_set*

Specify the Autonomous System (AS) path set.

Must be a string.

gateWay *gateway_address*

Specify the gateway address.

Must be a string.

interface *interface*

Specify the interface to set as source ip.

Must be a string.

ip-prefix *ip_prefix*

Specify the IP prefix.

Must be a string.

isStaticRoute { false | true }

Specify whether to enable or disable adding static route into kernel space.

Must be one of the following:

- **false**
- **true**

Default Value: false.

mask-range *mask_range*

Specify the mask range.

Must be a string.

modifySourceIp { false | true }

Specify whether to enable or disable modifying source IP of incoming route.

Must be one of the following:

- **false**
- **true**

Default Value: false.

policy-name *policy_name*

Specify name of the policy.

Must be a string.

source-prefix *source_ip_prefix*

Specify the source IP prefix.

Must be a string.

Usage Guidelines Use this command to configure the policy parameters.

rpc all

Displays RPC configuration information.

Command Modes Exec

Syntax Description `show rpc [ all ]`

Usage Guidelines Use this command to view RPC configuration information for all RPCs.

running-status info

Displays the system's current status information.

Command Modes Exec

Syntax Description `show running-status [ info ]`

Usage Guidelines Use this command to view the system's current status information.

sessions affinity

Displays the affinity count per instance.

Command Modes Exec

Syntax Description `show sessions affinity`

Usage Guidelines Use this command to view the affinity count per instance.

sessions commit-pending

Displays information for sessions for which the commits are in pending state.

Command Modes Exec

Syntax Description `show sessions commit-pending`

Usage Guidelines Use this command to view information for sessions that are pending commits.

show bfd-neigbor

Displays BFD status of neighbors.

Command Modes Exec

Syntax Description `show bfd-neigbor [ ip ip_address ]`

ip *ip_address*

Specify the IP address of the neighbor.

Must be a string.

Usage Guidelines Use this command to view BFD status of neighbors.

show bgp-global

Displays BGP global configuration.

Command Modes Exec

Syntax Description `show bgp-global`

Usage Guidelines Use this command to view BGP global configuration.

show bgp-kernel-route

Displays BGP kernel-configured routes.

Command Modes Exec

Syntax Description `show bgp-kernel-route [ application { false | true } ]`

application { false | true }

Specify whether to display application added routes.

Must be one of the following:

- **false**
- **true**

Default Value: false.

Usage Guidelines Use this command to view BGP kernel-configured routes.

show bgp-neighbors

Displays BGP neighbor's status.

Command Modes Exec

Syntax Description **show bgp-neighbors [ip** *ip_address* **]**

ip *ip_address*

Specify the IP address of the neighbor.

Must be a string.

Usage Guidelines Use this command to view BGP neighbor's status.

show bgp-route-summary

Displays BGP route summary.

Command Modes Exec

Syntax Description **show bgp-route-summary**

Usage Guidelines Use this command to view BGP route summary.

show bgp-routes

Displays BGP routes information.

Command Modes Exec

Syntax Description **show bgp-routes**

Usage Guidelines Use this command to view BGP routes information.

show edr

Displays EDR Transaction Procedure Event fields.

Command Modes Exec

Syntax Description **show edr { [event** *transaction_procedure_event* **] [transaction-procedure** *transaction_procedure* **] }**

event *transaction_procedure_event*

Specify the transaction procedure event name/id/all.

Must be a string.

transaction-procedure *transaction_procedure*

Specify the transaction procedure name/id/all.

Must be a string.

Usage Guidelines Use this command to view EDR Transaction Procedure Event fields.

show georeplication

Displays ETCD/Cache checksum.

Command Modes Exec

Syntax Description **`show georeplication checksum instance-id`** *`instance_id`*

checksum

Specify checksum.

instance-id *instance_id*

Specify the instance ID for which checksum will be displayed.

Must be a string.

Usage Guidelines Use this command to view ETCD/Cache checksum.

show role

Displays current role for the specified instance.

Command Modes Exec

Syntax Description **`show role instance-id`** *`instance_id`*

instance-id *instance_id*

Specify the instance ID for which role must be displayed.

Usage Guidelines Use this command to view current role for the specified instance.

show subscriber

Displays subscriber information.

Command Modes Exec

Syntax Description **show subscriber { [all] [gr-instance** *gr_instance* **] [imei** *imei_id* **] [nf-service** *nf_service* **] [supi** *supi_id* **] [** *config_specific_options* **] }**

all

Specify all SUPIs or IMEIs.

gr-instance *gr_instance*

Specify the network function service under which to search.

imei *imei_id*

Specify the International Mobile Equipment Identity.

Must be a string of 15-16 characters.

namespace *namespace*

NOTE: This keyword is deprecated, use nf-service instead. Specify the product namespace under which to search.

Default Value: cisco-mobile-infra:none.

nf-service *nf_service*

Specify the network function service under which to search.

Default Value: cisco-mobile-infra:none.

supi *supi_id*

Specify the subscriber's SUPI ID.

Must be a string.

Usage Guidelines Use this command to view subscriber information by SUPI, IMEI, or all.

show userplane userplane

Displays userplane information.

Command Modes Exec

Syntax Description **show userplane all**

all

Specify all.

Usage Guidelines Use this command to view userplane information.

aaa

Configures AAA-based user management parameters.

Command Modes Exec

Syntax Description **aaa { authentication { users** *list_of_local_users* **admin change-password old-password** *user_password* **new-password** *user_password* **confirm-password** *user_password* **} }**

users *list_of_local_users*

Specify the user name.

Must be a string.

old-password *user_password*

Specify the user's current password.

Must be a string.

new-password *user_password*

Specify the user's new password.

Must be a string.

confirm-password *user_password*

Reenter the user's new password.

Must be a string.

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

cd

Configures the change directory command.

Command Modes Exec

Syntax Description **cd** *directory***.ssh**

directory

Specify the directory path.

Must be an alphanumeric string.

Usage Guidelines Use this command to configure the change directory command.

cdl clear

Configures the Cisco Common Data Layer (CDL) parameters to delete the database sessions.

Command Modes Exec

Syntax Description **cdl clear sessions [db-name** *db_name* **| filter { condition { ends-with | match | starts-with } key** *key_value* **} | map-id** *map_id* **]**

db-name *db_name*

Specifies the database name to be queried for deleting the data.

Must be a string of 1 to 16 characters.

key *key_value*

Specifies the query value.

Must be a string of 0 to 512 characters.

map-id *map_id*

Specifies the map ID to delete the data for a map.

Must be an integer in the range of 0-1024.

filter condition { ends-with | match | starts-with }

Specify the query expression to filter the results of query.

Usage Guidelines Use this command to delete the CDL database sessions.

cdl show sessions

Configures the CDL parameters to display the session details.

Command Modes Exec

Syntax Description **cdl show sessions count { detailed { db-name** *db_name* **| filter { condition { ends-with | match | starts-with } | key** *key_value* **} | limit** *limit* **| map-id** *map_id* **} | summary { db-name** *db_name* **| filter { condition { ends-with | match | starts-with } | key** *key_value* **} | limit** *limit* **| map-id** *map_id* **}**

count

Display the session count information.

detailed

Display the session details with data.

summary

Display the session details without data.

db-name *db_name*

Specifies the database name to be queried for displaying the session details.

Must be a string of 1 to 16 characters.

key *key_value*

Specifies the query value.

Must be a string of 0 to 512 characters.

map-id *map_id*

Specifies the map ID to display the data for a map.

Must be an integer in the range of 0-1024.

limit *limit*

Specifies the maximum number of records to display.

Must be an integer in the range of 1 to 500 characters.

filter condition { ends-with | match | starts-with }

Specify the query expression to filter the results of query.

Usage Guidelines Use this command to display the session details.

cdl show status

Configures the CDL parameters to display the status of the database.

Command Modes Exec

Syntax Description **`cdl status db-name`** *`db_name`*

db-name *db_name*

Specifies the database name for displaying the corresponding status.

Must be a string of 1 to 16 characters.

Usage Guidelines Use this command to display the status of the queried database.

clear ipam

Clears the IPAM operational data.

Privilege Security Administrator, Administrator

Command Modes Exec

Syntax Description **`clear ipam`**

Usage Guidelines Use this command to clear the IPAM operational data.

clear subscriber

Clears the subscriber data.

Privilege Security Administrator, Administrator

Command Modes Exec

Syntax Description **`clear subscriber`**

Usage Guidelines Use this command to clear the subscriber data.

commit

Configures the commit parameters.

Command Modes Exec

Syntax Description **`commit [ abort { persist-id`** *`persist_id`* **} | confirm { persist-id** *`persist_id`* **} | persist-id** *`persist_id`* **]**

abort persist-id *persist_id*

Specify to abort commit. Specify the persistence ID for the commit operation.

Must be an integer.

confirm persist-id *persist_id*

Specify to confirm commit. Specify the persistence ID for the commit operation.

Must be an integer.

persist-id *persist_id*

Specify the persistence ID for the commit operation.

Must be an integer.

Usage Guidelines Use this command to configure the commit parameters.

compare

Compares the running configuration to another configuration or a file.

Command Modes Exec

Syntax Description **`compare file {`** *`filename`***`[.kube | .ssh/] |`** *`configuration`* **`}`**

***filename*[.kube | .ssh/]**

Specify the file name or the directory path of the file to be compared.

Must be a string.

configuration

Specify the desired configuration to be compared against.

Must be a string.

Usage Guidelines Use this command to compare the files.

config

Manipulates the software configuration information.

Command Modes Exec

Syntax Description **`config [ exclusive | no-confirm | shared | terminal ]`**

exclusive

Specify to enter the exclusive configuration mode.

no-confirm

Specify to apply the command without asking for confirmation.

shared

Specify to enter the shared configuration mode.

terminal

Specify to enter the terminal configuration mode.

Usage Guidelines Use this command to manipulate the software configuration information.

describe

Displays the command information.

Command Modes Exec

Syntax Description **describe** *command*

command

Specify the command name to display detailed information about the command.

The command must be one of the following:

- **aaa**
- **cd**
- **cdl**
- **commit**
- **compare**
- **config**
- **describe**
- **dump**
- **exit**
- **help**
- **history**
- **id**
- **idle-timeout**
- **ignore-leading-space**
- **job**
- **leaf-prompting**
- **license**
- **logout**
- **monitor**
- **no**

- **paginate**
- **quit**
- **rcm**
- **screen-length**
- **screen-width**
- **send**
- **show**
- **show-defaults**
- **smiuser**
- **system**
- **terminal**
- **timestamp**
- **who**

Usage Guidelines Use this command to display the command specific information.

dump

Removes the transaction history.

Privilege Security Administrator, Administrator

Command Modes Exec

Syntax Description `dump transactionhistory`

Usage Guidelines Use this command to remove the transaction history.

exit

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

Command Modes Exec

Syntax Description `exit`

Usage Guidelines Use this command to exit the current configuration mode and return to the previous configuration mode. When used in the Exec mode, exits the management session.

help

Displays help information for a specified command.

Command Modes

Exec

Syntax Description

help *command*

command

Specify the command name to display the corresponding help information.

The command must be one of the following:

- **aaa**
- **cd**
- **cdl**
- **commit**
- **compare**
- **config**
- **describe**
- **dump**
- **exit**
- **help**
- **history**
- **id**
- **idle-timeout**
- **ignore-leading-space**
- **job**
- **leaf-prompting**
- **license**
- **logout**
- **monitor**
- **no**
- **paginate**
- **quit**
- **rcm**

- **screen-length**
- **screen-width**
- **send**
- **show**
- **show-defaults**
- **smiuser**
- **system**
- **terminal**
- **timestamp**
- **who**

Usage Guidelines Use this command to view help information for a specified command.

history

Configures the command history cache size.

Command Modes Exec

Syntax Description **history** *history_size*

history_size

Specify the command history cache size.

Must be an integer in the range of 0-1000.

Usage Guidelines Use this command to configure the command history cache size.

id

Displays user ID information.

Command Modes Exec

Syntax Description **id**

Usage Guidelines Use this command to view the user ID information.

idle-timeout

Configures the maximum duration a command can remain idle in seconds after which the system automatically terminates the connection.

Command Modes Exec

Syntax Description **idle-timeout** *duration*

duration

Specify the idle timeout duration in seconds.

Must be an integer in the range of 1-8192.

Usage Guidelines Use this command to configure the maximum duration a command can remain idle.

ignore-leading-space

Configures whether to ignore or consider the leading whitespace at the beginning of a command.

Command Modes Exec

Syntax Description **ignore-leading-space { false | true }**

{ false | true }

Specify false to ignore the leading whitespace, and true to consider it.

Must be either "false" or "true".

Usage Guidelines Use this command to configure whether to ignore or consider leading whitespace at the beginning of a command.

job

Suspends the jobs that are running in the background.

Command Modes Exec

Syntax Description **job stop** *job_id*

job_id

Specify the job ID for suspending the corresponding job.

Must be an integer.

Usage Guidelines Use this command to suspend the jobs that are running in the background.

leaf-prompting

Enables or disables automatic querying for leaf values.

Command Modes Exec

Syntax Description `leaf-prompting { false | true }`

{ false | true }

Specify false to disable leaf prompting, and true to enable.

Must be either "false" or "true".

Usage Guidelines Use this command to automatically query for leaf values.

license smart deregister

Configures the license parameters for the VNF deregistration.

Command Modes Exec

Syntax Description `license smart deregister`

deregister

Specify to deregister the VNF for smart licensing.

Usage Guidelines Use this command to configure the license parameters for the VNF deregistration.

license smart register

Configures the license parameters for the VNF registration.

Command Modes Exec

Syntax Description `license smart register force idtoken` *`token_id`*

register

Specify to register the VNF for Smart Licensing.

force

Specify to enable the force registration of the agent.

idtoken *token_id*

Specify the ID token to register the agent with.

Must be an integer.

Usage Guidelines Use this command to configure the license parameters for the VNF registration.

license smart renew

Configures the license parameters for the VNF renewal.

Command Modes Exec

Syntax Description `license smart renew { ID | auth }`

renew

Renew the smart agent IDs and authentication.

ID

Specify to renew the smart agent license registration information.

auth

Initiate the manual update of the license usage information with Cisco.

Usage Guidelines Use this command to configure the license parameters for the VNF renewal.

logout

Logout a specific session or a specific user from all sessions.

Command Modes Exec

Syntax Description `logout [ session session_id | user user_name ]`

session *session_id*

Specify the session ID from the possible completion options.

Must be a string.

user *user_name*

Specify the user name or the user process from the possible completion options.

Must be a string.

Usage Guidelines Use this command to log out a specific session or a specific user from all sessions.

monitor protocol

Configures the SMF to monitor the protocol.

Command Modes Exec

Syntax Description **monitor protocol interface** *interface_name* **[capture-duration** *duration* **]**

interface *interface_name*

Specify the name of interface on which PCAP is captured.

Must be a string.

capture-duration *duration*

Specify the duration, in seconds, during which PCAP is captured. The default value is 300 seconds.

Must be an integer.

Usage Guidelines Use this command to monitor the protocol.

monitor subscriber

Configures the SMF to monitor the subscribers.

Command Modes Exec

Syntax Description **monitor subscriber supi** *supi* **[capture-duration** *duration* **] | subscriber-dump filename** *file_name* **| subscriber-list**

supi *supi*

Specify the subscriber identifier.

Must be a string.

capture-duration *duration*

Specify the duration, in seconds, during which PCAP is captured. The default value is 300 seconds.

Must be an integer.

filename *file_name*

Specify the path of the file name to be dumped.

Must be a string.

Usage Guidelines Use this command to monitor the subscribers.

no

Restores the command history cache size to its default setting. See the history command.

Command Modes Exec

Syntax Description `no history`

Usage Guidelines Use this command to configure the command history cache size to its default setting. For more details, see the history command.

paginate

Configures whether or not to paginate CLI command output.

Command Modes Exec

Syntax Description `paginate { false | true }`

{ false | true }

Specify false to disable paginating CLI command output, and true to enable.

Must be either "false" or "true".

Usage Guidelines Use this command to paginate the command output.

quit

Exits the management session.

Command Modes Exec

Syntax Description `quit`

Usage Guidelines Use this command to exit the management session.

rcm switchover

Configures Redundancy and Configuration Manager (RCM) switchover operation.

Command Modes Exec

Syntax Description `rcm switchover source` *ip_address* `destination` *ip_address*

source *ip_address*

Specify the source IP address.

Must be an IP address.

destination *ip_address*

Specify the destination IP address.

Must be an IP address.

Usage Guidelines Use this command to configure RCM switchover operation.

screen-length

Configures the number of rows of text that the terminal screen displays.

Command Modes Exec

Syntax Description **`screen-length`** *`number_of_rows`*

number_of_rows

Specify the number of rows that the terminal screen displays.

Must be an integer.

Usage Guidelines Use this command to set the number of rows that the terminal screen displays.

screen-width

Configures the number of columns that the terminal screen displays.

Command Modes Exec

Syntax Description **`screen-width`** *`number_of_columns`*

number_of_columns

Specify the number of columns that the terminal screen displays.

Must be an integer.

Usage Guidelines Use this command to set the number of columns that the terminal screen displays.

send

Sends messages to the terminal of a specific user or all users.

Command Modes Exec

Syntax Description **send** *user message*

user

Specify the user to whom the message must be sent.

Must be a string. Select from the possible completion options.

message

Specify the message that must be sent.

Must be a string.

Usage Guidelines Use this command to send messages to the terminal of a specific user or to all users.

show

Displays the system information.

Command Modes Exec

Syntax Description **show** *system_component*

system_component

Specify the component to view the information.

Must be a string. Select from the possible completion options.

Usage Guidelines Use this command to view the system information.

show-defaults

Displays the default configuration.

Command Modes Exec

Syntax Description **show-defaults { false | true }**

{ false | true }

Specify whether to display or hide the default values. To display, select true. Otherwise, select false.

Must be either "false" or "true".

Usage Guidelines Use this command to view the default configuration.

smiuser

Configures the Subscriber Microservices Infrastructure (SMI) user account parameters.

Command Modes

Exec

Syntax Description

smiuser { add-group groupname *group_name* **| add-user { username** *username* **| password** *password* **} | change-password { username** *username* **| current_password** *current_password* **| new_password** *new_password* **| confirm_password** *new_password* **| password_expire_days** *expire_days* **} | change-self-password { current_password** *current_password* **| new_password** *new_password* **| confirm_password** *new_password* **| password_expire_days** *expire_days* **} | delete-group groupname** *group_name* **| delete-user username** *username* **| unassign-user-group { groupname** *groupname_pam* **| username** *username_pam* **} | update-password-length length** *password_length* **}**

username *username*

Specify the username.

Must be a string.

password *password*

Specify the user password.

Must be a string.

confirm_password *new_password*

Confirm the new password.

Must be a string.

current_password *current_password*

Specify the current password.

Must be a string.

new_password *new_password*

Specify the new password.

Must be a string.

password_expire_days *expire_days*

Specify the number of days before the password expires.

Must be an integer.

groupname *group_name*

Specify the group name.

Must be a string.

groupname *groupname_pam*

Specify the group name in PAM.

Must be a string.

username *username_pam*

Specify the user name in PAM.

Must be a string.

length *password_length*

Specify the minimum password length.

Must be an integer.

Usage Guidelines Use this command to configure the smiuser parameters.

system

Configures the NF's system operations.

Command Modes Exec

Syntax Description **`system { ops-center stop | synch { start | stop } | upgrade | uuid-override new-uuid`** *`uuid_value`* **`}`**

ops-center stop

Stop the synching of configuration.

synch { start | stop }

Starts or stops the synching of configuration,

upgrade

Initiates the upgrade of a product.

uuid-override new-uuid *uuid_value*

Change the Universally Unique Identifier (UUID) to a new value.

Must be a string.

Usage Guidelines Use this command to display the NF's system operations.

terminal

Configures the type of terminal.

Command Modes Exec

Syntax Description **terminal** *terminal_type*

terminal_type

Specify the terminal type.

Must be one of the following:

- ansi
- generic
- linux
- vt100
- xterm

Usage Guidelines Use this command to configure the terminal type.

timestamp

Configures the timestamp parameters.

Command Modes Exec

Syntax Description **timestamp { disable | enable }**

{ disable | enable }

Enable or disable the timestamp display.

Usage Guidelines Use this command to configure the timestamp.

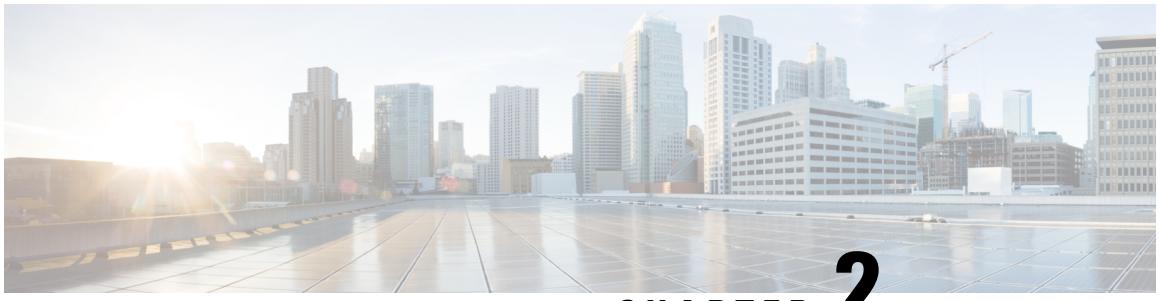
who

Displays information on currently logged on users.

Command Modes Exec

Syntax Description **who**

Usage Guidelines Use this command to view information on currently logged on users. The command output displays the Session, User, Context, From (IP address), Protocol, Date, and Mode information.



CHAPTER 2

Input Pattern Types

arg-type

```
Pattern:
'[^\*].*|..+'; // must not be single '*'

Pattern:
'\*'
```

This statement can be used to hide a node from some, or all, northbound interfaces. All nodes with the same value are considered a hide group and are treated the same with regards to being visible or not in a northbound interface.

A node with an hidden property is not shown in the northbound user interfaces (CLI and Web UI) unless an 'unhide' operation is performed in the user interface.

The hidden value 'full' indicates that the node must be hidden from all northbound interfaces, including programmatical interfaces such as NETCONF. The value '*' is not valid. A hide group can be unhidden only if this is explicitly allowed in the confd.conf(5) daemon configuration.

Multiple hide groups can be specified by giving this statement multiple times. The node is shown if any of the specified hide groups is given in the 'unhide' operation. If a mandatory node is hidden, a hook callback function (or similar) might be needed in order to set the element

crypt-hash

```
Pattern:
'$0$.*'
  '|$1$[a-zA-Z0-9./]{1,8}$[a-zA-Z0-9./]{22}'
  '|$5$(rounds=\d+$)?[a-zA-Z0-9./]{1,16}$[a-zA-Z0-9./]{43}'
  '|$6$(rounds=\d+$)?[a-zA-Z0-9./]{1,16}$[a-zA-Z0-9./]{86}'
```

The **crypt-hash** type is used to store passwords using a hash function. The algorithms for applying the hash function and encoding the result are implemented in various UNIX systems as the function crypt(3).

A value of this type matches one of the forms:

- 0<clear text password>
- $<id>$<salt>$<password hash>
- $<id>$<parameter>$<salt>$<password hash>

The '0' prefix signals that the value is clear text. When such a value is received by the server, a hash value is calculated, and the string '$<id>$<salt>$' or $<id>$<parameter>$<salt>$ is prepended to the result. This value is stored in the configuration data store.

If a value starting with '$<id>$', where <id> is not '0', is received, the server knows that the value already represents a hashed value, and stores it as is in the data store.

When a server needs to verify a password given by a user, it finds the stored password hash string for that user, extracts the salt, and calculates the hash with the salt and given password as input. If the calculated hash value is the same as the stored value, the password given by the client is accepted.

This type defines the following hash functions:

Id	Hash Function	Feature
1	MD5	crypt-hash-md5
5	SHA-256	crypt-hash-sha-256
6	SHA-512	crypt-hash-sha-512

The server indicates support for the different hash functions by advertising the corresponding feature.

Reference:

- IEEE Std 1003.1-2008 - crypt() function
- RFC 1321: The MD5 Message-Digest Algorithm
- FIPS.180-3.2008: Secure Hash Standard

date-and-time

```
Pattern:
'\d{4}-\d{2}-\d{2}T\d{2}:\d{2}:\d{2}(\.\d+)?'
 '(Z|[\+\-]\d{2}:\d{2})'
```

The date-and-time type is a profile of the ISO 8601 standard for representation of dates and times using the Gregorian calendar. The profile is defined by the date-time production in Section 5.6 of RFC 3339. The date-and-time type is compatible with the dateTime XML schema type with the following notable exceptions:

1. The date-and-time type does not allow negative years.
2. The date-and-time time-offset -00:00 indicates an unknown time zone (see RFC 3339) while -00:00 and +00:00 and Z all represent the same time zone in dateTime.
3. The canonical format (see below) of data-and-time values differs from the canonical format used by the dateTime XML schema type, which requires all times to be in UTC using the time-offset 'Z'.

This type is not equivalent to the DateAndTime textual convention of the SMIv2 since RFC 3339 uses a different separator between full-date and full-time and provides higher resolution of time-secfrac. The canonical format for date-and-time values with a known time zone uses a numeric time zone offset that is calculated using the device's configured known offset to UTC time.

A change of the device's offset to UTC time will cause date-and-time values to change accordingly. Such changes might happen periodically in case a server follows automatically daylight saving time (DST) time zone offset changes. The canonical format for date-and-time values with an unknown time zone (usually referring to the notion of local time) uses the time-offset -00:00.

Reference:

- RFC 3339: Date and Time on the Internet: Timestamps
- RFC 2579: Textual Conventions for SMIv2
- XSD-TYPES: XML Schema Part 2: Datatypes Second Edition

domain-name

```
Pattern:
'((([a-zA-Z0-9_]([a-zA-Z0-9\-_]){0,61})?[a-zA-Z0-9]\.)*'
 '([a-zA-Z0-9_]([a-zA-Z0-9\-_]){0,61})?[a-zA-Z0-9]\.?)'
 '|\.'
```

The domain-name type represents a DNS domain name. The name must fully qualified whenever possible. Internet domain names are only loosely specified. Section 3.5 of RFC 1034 recommends a syntax (modified in Section 2.1 of RFC 1123). The Pattern above is intended to allow for current practice in domain name use, and some possible future expansion. It is designed to hold various types of domain names, including names used for A or AAAA records (host names) and other records, such as SRV records.

The Internet host names have a stricter syntax (described in RFC 952) than the DNS recommendations in RFCs 1034 and 1123, and that systems that want to store host names in schema nodes using the domain-name type are recommended to adhere to this stricter standard to ensure interoperability.

The encoding of DNS names in the DNS protocol is limited to 255 characters. Since the encoding consists of labels prefixed by a length bytes and there is a trailing NULL byte, only 253 characters can appear in the textual dotted notation.

The description clause of schema nodes using the domain-name type must describe when and how these names are resolved to IP addresses. The resolution of a domain-name value may require to query multiple DNS records. For example, A for IPv4 and AAAA for IPv6. The order of the resolution process and which DNS record takes precedence can either be defined explicitly or may depend on the configuration of the resolver.

Domain-name values use the US-ASCII encoding. Their canonical format uses lowercase US-ASCII characters. Internationalized domain names MUST be A-labels as per RFC 5890.

Reference:

- RFC 952: DoD Internet Host Table Specification
- RFC 1034: Domain Names - Concepts and Facilities
- RFC 1123: Requirements for Internet Hosts -- Application and Support
- RFC 2782: A DNS RR for specifying the location of services (DNS SRV)
- RFC 5890: Internationalized Domain Names in Applications (IDNA): Definitions and Document Framework

dotted-quad

Pattern:

```
'(([0-9]|[1-9][0-9]|1[0-9][0-9]|2[0-4][0-9]|25[0-5])\.){3}'
 '([0-9]|[1-9][0-9]|1[0-9][0-9]|2[0-4][0-9]|25[0-5])'
```

An unsigned 32-bit number expressed in the dotted-quad notation, that is, four octets written as decimal numbers and separated with the '.' (full stop) character.

hex-list

Pattern:

```
'(([0-9a-fA-F]){2}(:([0-9a-fA-F]){2})*)?'
```

DEPRECATED: Use yang:hex-string instead. There are no plans to remove tailf:hex-list. A list of colon-separated hexa-decimal octets, for example '4F:4C:41:71'.

The statement tailf:value-length can be used to restrict the number of octets. Using the 'length' restriction limits the number of characters in the lexical representation

hex-string

Pattern:
'([0-9a-fA-F]{2}(:[0-9a-fA-F]{2})*)?'

A hexadecimal string with octets represented as hex digits separated by colons. The canonical representation uses lowercase characters.

ipv4-address

Pattern:
'(([0-9]|[1-9][0-9]|1[0-9][0-9]|2[0-4][0-9]|25[0-5])\.){3}'
'([0-9]|[1-9][0-9]|1[0-9][0-9]|2[0-4][0-9]|25[0-5])'
'(%[\p{N}\p{L}]+)?'

The ipv4-address type represents an IPv4 address in dotted-quad notation. The IPv4 address may include a zone index, separated by a % sign. The zone index is used to disambiguate identical address values. For link-local addresses, the zone index will typically be the interface index number or the name of an interface. If the zone index is not present, the default zone of the device will be used. The canonical format for the zone index is the numerical format.

ipv4-address-and-prefix-length

Pattern:
'(([0-9]|[1-9][0-9]|1[0-9][0-9]|2[0-4][0-9]|25[0-5])\.){3}'
'([0-9]|[1-9][0-9]|1[0-9][0-9]|2[0-4][0-9]|25[0-5])'
'/(([0-9])|([1-2][0-9])|(3[0-2]))'

The ipv4-address-and-prefix-length type represents a combination of an IPv4 address and a prefix length. The prefix length is given by the number following the slash character and must be less than or equal to 32.

ipv4-address-no-zone

Pattern:
'[0-9\.]*'

An IPv4 address is without a zone index and derived from ipv4-address that is used in situations where the zone is known from the context and hence no zone index is needed.

ipv4-prefix

Pattern:
'(([0-9]|[1-9][0-9]|1[0-9][0-9]|2[0-4][0-9]|25[0-5])\.){3}'
'([0-9]|[1-9][0-9]|1[0-9][0-9]|2[0-4][0-9]|25[0-5])'
'/(([0-9])|([1-2][0-9])|(3[0-2]))'

The ipv4-prefix type represents an IPv4 address prefix. The prefix length is given by the number following the slash character and must be less than or equal to 32.

A prefix length value of 'n' corresponds to an IP address mask that has n contiguous 1-bits from the most significant bit (MSB) and all other bits set to 0.

The canonical format of an IPv4 prefix has all bits of the IPv4 address set to zero that are not part of the IPv4 prefix.

ipv6-address

```
Pattern:
'((:|[0-9a-fA-F]{0,4}):)([0-9a-fA-F]{0,4}:){0,5}'
  '((([0-9a-fA-F]{0,4}:)?(:|[0-9a-fA-F]{0,4}))|'
  '(((25[0-5]|2[0-4][0-9]|[01]?[0-9]?[0-9])\.){3}'Pattern:
  '(25[0-5]|2[0-4][0-9]|[01]?[0-9]?[0-9])))'
  '(%[\p{N}\p{L}]+)?'
```

```
Pattern:
'(([^:]+:){6}(([^:]+:[^:]+)|(.*\..*))|'
 '((([^:]+:)*[^:]+)?::(([^:]+:)*[^:]+)?)'
 '(%.+)?'
```

The ipv6-address type represents an IPv6 address in full, mixed, shortened, and shortened-mixed notation. The IPv6 address may include a zone index, separated by a % sign.

The zone index is used to disambiguate identical address values. For link-local addresses, the zone index will typically be the interface index number or the name of an interface. If the zone index is not present, the default zone of the device will be used.

The canonical format of IPv6 addresses uses the textual representation defined in Section 4 of RFC 5952. The canonical format for the zone index is the numerical format as described in Section 11.2 of RFC 4007.

Reference:

- RFC 4291: IP Version 6 Addressing Architecture
- RFC 4007: IPv6 Scoped Address Architecture
- RFC 5952: A Recommendation for IPv6 Address Text Representation

ipv6-address-and-prefix-length

```
Pattern:
'((:|[0-9a-fA-F]{0,4}):)([0-9a-fA-F]{0,4}:){0,5}'
 '((([0-9a-fA-F]{0,4}:)?(:|[0-9a-fA-F]{0,4}))|'
 '(((25[0-5]|2[0-4][0-9]|[01]?[0-9]?[0-9])\.){3}'
 '(25[0-5]|2[0-4][0-9]|[01]?[0-9]?[0-9])))'
 '(/(([0-9])|([0-9]{2})|(1[0-1][0-9])|(12[0-8])))'
```

```
Pattern:
'(([^:]+:){6}(([^:]+:[^:]+)|(.*\..*))|'
```

```
'((([^:]+:)*[^:]+)?::(([^:]+:)*[^:]+)?)'
'(/.+)'
```

The ipv6-address-and-prefix-length type represents a combination of an IPv6 address and a prefix length. The prefix length is given by the number following the slash character and must be less than or equal to 128.

ipv6-address-no-zone

Pattern:

```
'[0-9a-fA-F:\.]*'
```

An IPv6 address without a zone index. This type, derived from ipv6-address, may be used in situations where the zone is known from the context and hence no zone index is needed.

Reference:

- RFC 4291: IP Version 6 Addressing Architecture
- RFC 4007: IPv6 Scoped Address Architecture
- RFC 5952: A Recommendation for IPv6 Address Text Representation

ipv6-prefix

Pattern:

```
'((:|[0-9a-fA-F]{0,4}):)([0-9a-fA-F]{0,4}:){0,5}'
 '((([0-9a-fA-F]{0,4}:)?(:|[0-9a-fA-F]{0,4}))|'
 '(((25[0-5]|2[0-4][0-9]|[01]?[0-9]?[0-9])\.){3}'Pattern:
 '(25[0-5]|2[0-4][0-9]|[01]?[0-9]?[0-9])))'
 '(/(([0-9])|([0-9]{2})|(1[0-1][0-9])|(12[0-8])))';
```

Pattern:

```
'(([^:]+:){6}(([^:]+:[^:]+)|(.*\..*))|'
 '((([^:]+:)*[^:]+)?::(([^:]+:)*[^:]+)?)'
 '(/.+)'
```

The ipv6-prefix type represents an IPv6 address prefix. The prefix length is given by the number following the slash character and must be less than or equal to 128.

A prefix length value of n corresponds to an IP address mask that has n contiguous 1-bits from the most significant bit (MSB) and all other bits set to 0.

The IPv6 address should have all bits that do not belong to the prefix set to zero. The canonical format of an IPv6 prefix has all bits of the IPv6 address set to zero that are not part of the IPv6 prefix. Furthermore, the IPv6 address is represented as defined in Section 4 of RFC 5952

Reference:

- RFC 5952: A Recommendation for IPv6 Address Text Representation

mac-address

Pattern:
'[0-9a-fA-F]{2}(:[0-9a-fA-F]{2}){5}'

The mac-address type represents an IEEE 802 MAC address. The canonical representation uses lowercase characters. In the value set and its semantics, this type is equivalent to the MacAddress textual convention of the SMIv2.

Reference:

- IEEE 802: IEEE Standard for Local and Metropolitan Area Networks: Overview and Architecture
- RFC 2579: Textual Conventions for SMIv2

object-identifier

Pattern:
'(([0-1](\.[1-3]?[0-9]))|(2\.(0|([1-9]\d*))))'
'(\.(0|([1-9]\d*)))*'

The object-identifier type represents administratively assigned names in a registration-hierarchical-name tree. The values of this type are denoted as a sequence of numerical non-negative sub-identifier values. Each sub-identifier value MUST NOT exceed 2^32-1 (4294967295). The Sub-identifiers are separated by single dots and without any intermediate whitespace.

The ASN.1 standard restricts the value space of the first sub-identifier to 0, 1, or 2. Furthermore, the value space of the second sub-identifier is restricted to the range 0 to 39 if the first sub-identifier is 0 or 1. Finally, the ASN.1 standard requires that an object identifier has always at least two sub-identifiers. The pattern captures these restrictions.

Although the number of sub-identifiers is not limited, module designers should realize that there may be implementations that stick with the SMIv2 limit of 128 sub-identifiers.

This type is a superset of the SMIv2 OBJECT IDENTIFIER type since it is not restricted to 128 sub-identifiers. Hence, this type SHOULD NOT be used to represent the SMIv2 OBJECT IDENTIFIER type; the object-identifier-128 type SHOULD be used instead.

Reference:

- ISO9834-1: Information technology - Open Systems
- Interconnection - Procedures for the operation of OSI
- Registration Authorities: General procedures and top arcs of the ASN.1 Object Identifier tree

object-identifier-128

Pattern:
'\d*(\.\d*){1,127}'

This type represents object-identifiers restricted to 128 sub-identifiers. In the value set and its semantics, this type is equivalent to the OBJECT IDENTIFIER type of the SMIv2.

Reference:

- RFC 2578: Structure of Management Information Version 2 (SMIv2)

octet-list

Pattern:
'(\d*(.\d*)*)?'

A list of dot-separated octets, for example '192.168.255.1.0'. The statement tailf:value-length can be used to restrict the number of octets. Using the 'length' restriction limits the number of characters in the lexical representation.

phys-address

Pattern:
'([0-9a-fA-F]{2}(:[0-9a-fA-F]{2})*)?'

Represents media- or physical-level addresses represented as a sequence octets, each octet represented by two hexadecimal numbers. Octets are separated by colons. The canonical representation uses lowercase characters. In the value set and its semantics, this type is equivalent to the PhysAddress textual convention of the SMIv2.

Reference:

- RFC 2579: Textual Conventions for SMIv2

sha-256-digest-string

Pattern:
'0.*'
'|5(rounds=\d+$)?[a-zA-Z0-9./]{1,16}$[a-zA-Z0-9./]{43}'

The sha-256-digest-string type automatically computes a SHA-256 digest for a value adhering to this type. A value of this type matches one of the forms:

- 0<clear text password>
- 5<salt>$<password hash>
- 5rounds=<number>$<salt>$<password hash>

The '0' prefix signals that this is plain text. When a plain text value is received by the server, a SHA-256 digest is calculated, and the string '5<salt>$' is prepended to the

result, where <salt> is a random 16 character salt used to generate the digest. This value is stored in the configuration data store. The algorithm can be tuned through the /confdConfig/cryptHash/rounds parameter, which if set to a number other than the default will cause '5rounds=<number>$<salt>$' to be prepended instead of only '5<salt>$'.

If a value starting with '5' is received, the server knows that the value already represents a SHA-256 digest, and stores it as is in the data store.

If a default value is specified, it must have a '5' prefix.

The digest algorithm used is the same as the SHA-256 crypt function used for encrypting passwords for various UNIX systems.

Reference:

- IEEE Std 1003.1-2008 - crypt() function FIPS.180-3.2008: Secure Hash Standard

sha-512-digest-string

Pattern:

```
'$0$.*'
 '|$6$(rounds=\d+$)?[a-zA-Z0-9./]{1,16}$[a-zA-Z0-9./]{86}'
```

The sha-512-digest-string type automatically computes a SHA-512 digest for a value adhering to this type. A value of this type matches one of the forms

- 0<clear text password>
- 6<salt>$<password hash>
- 6rounds=<number>$<salt>$<password hash>

The '0' prefix signals that this is plain text. When a plain text value is received by the server, a SHA-512 digest is calculated, and the string '6<salt>$' is prepended to the

result, where <salt> is a random 16 character salt used to generate the digest. This value is stored in the configuration data store. The algorithm can be tuned through the

/confdConfig/cryptHash/rounds parameter, which if set to a number other than the default will cause '6rounds=<number>$<salt>$' to be prepended instead of only '6<salt>$'.

If a value starting with '6' is received, the server knows that the value already represents a SHA-512 digest, and stores it as is in the data store.

If a default value is specified, it must have a '6' prefix. The digest algorithm used is the same as the SHA-512 crypt function used for encrypting passwords for various UNIX systems.

Reference:

- IEEE Std 1003.1-2008 - crypt() function FIPS.180-3.2008: Secure Hash Standard

size

Pattern:

```
'S(\d+G)?(\d+M)?(\d+K)?(\d+B)?'
```

A value that represents a number of bytes. An example could be S1G8M7K956B; meaning 1GB + 8MB + 7KB + 956B = 1082138556 bytes.

The value must start with an S. Any byte magnifier can be left out, for example, S1K1B equals 1025 bytes. The order is significant though, that is S1B56G is not a valid byte size.

In ConfD, a 'size' value is represented as an uint64.

uuid

Pattern:
```
'[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-'
 '[0-9a-fA-F]{4}-[0-9a-fA-F]{12}'
```

A Universally Unique IDentifier in the string representation defined in RFC 4122. The canonical representation uses lowercase characters. The following is an example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6.

Reference:

- RFC 4122: A Universally Unique IDentifier (UUID) URN Namespace

yang-identifier

Pattern:
```
'[a-zA-Z_][a-zA-Z0-9\-_.]*'
```

Pattern:
```
'.|..|[^xX].*|.[^mM].*|..[^lL].*'
```

A YANG identifier string as defined by the 'identifier' rule in Section 12 of RFC 6020. An identifier must start with an alphabetic character or an underscore followed by an arbitrary sequence of alphabetic or numeric characters, underscores, hyphens, or dots. A YANG identifier MUST NOT start with any possible combination of the lowercase or uppercase character sequence 'xml'.

Reference:

- RFC 6020: YANG - A Data Modeling Language for the Network Configuration Protocol (NETCONF)