Cloud Native BNG Control Plane Command Reference Guide, Release 2021.01.0

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CONTENTS

cnBNG CP Commands

This guide describes the CLI commands that are used to configure a control plane in cnBNG.

Some keywords and commands are common across multiple commands and configuration modes respectively. Use the information in the Command Modes section only as a reference to navigate to the command in the applicable configuration modes.

clear subscriber

Clears BNG subscriber data.

Command Modes   Exec

Syntax Description   `clear subscriber [force] type { [ipv4-pool ipv4_pool_name] [ipv4-range ipv4_address_range] [ipv6-addr-pool ipv6_address_pool_name] [ipv6-addr-range ipv6_address_range] [ipv6-pfx-pool ipv6_prefix_pool_name] [ipv6-pfx-range ipv6_prefix_range] [mac mac_address] [port-id upf_port_id] [sublabel subscriber_label] [upf upf_name] }`

force

Specify to force session deletion, even if UP is down.

ipv4-pool *ipv4_pool_name*

Specify the IPv4 address pool name.

Must be a string.

ipv4-range *ipv4_address_range*

Specify the IPv4 address range in the format "*poolName*/*start-ip*".

Must be a string.

ipv6-addr-pool *ipv6_address_pool_name*

Specify the IPv6 address pool name.

Must be a string.

ipv6-addr-range *ipv6_address_range*

Specify the IPv6 address range in the format "*poolName*/*start-ip*".

Must be a string.

ipv6-pfx-pool *ipv6_prefix_pool_name*

Specify the IPv6 prefix pool name.

Must be a string.

ipv6-pfx-range *ipv6_prefix_range*

Specify the IPv6 prefix range in the format "*poolName*/*start-pfx*".

Must be a string.

mac *mac_address*

Specify the MAC address in the format "aabb.ccdd.eeff".

Must be a string.

port-id *upf_port_id*

Specify the user plane function port ID in the format "*upf*/*port-id*".

Must be a string.

sublabel *subscriber_label*

Specify the subscriber label.

Must be a string.

upf *upf_name*

Specify the user plane function name.

Must be a string.

type

Specify the type.

Must be one of the following:

- **dhcp**

- **pppoe**

• **sessmgr**

Usage Guidelines Use this command to clear BNG subscriber data.

endpoint ep

Configures endpoint parameters.

Command Modes Exec > Global Configuration

Syntax Description `endpoint` *endpoint_type* `{ replicas` *replicas_per_node* `| nodes` *node_replicas_for_resiliency*
`| loopbackEth` *loopbackEth* `| loopbackPort` *loopbackPort* `}`

eptype *endpoint_type*

Specify the endpoint type.

loopbackEth *loopbackEth*

Specify the endpoint local interface name or host IP.

Must be a string.

loopbackPort *loopbackPort*

Specify the endpoint local port.

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.

Usage Guidelines Use this command to configure endpoint parameters.

endpoint ep interface

Configures the interface type.

Command Modes Exec > Global Configuration

Syntax Description	`endpoint ep interface` *interface_type*

loopbackEth *loopback_eth*

Specify the loopback Eth.

Must be a string.

loopbackPort *loopback_port*

Specify the loopback port.

Must be an integer.

interface_type

Specify the interface type.

Usage Guidelines	Use this command to configure the interface type.

endpoint ep interface sla

Configures SLA parameters.

Command Modes	Exec > Global Configuration
Syntax Description	`endpoint ep interface sla { response` *response_time* `| procedure` *procedure_time* `}`

procedure *procedure_time*

Specify the procedure time in milliseconds.

Must be an integer in the range of 1000-120000.

response *response_time*

Specify the response time in milliseconds.

Must be an integer in the range of 1000-180000.

Usage Guidelines	Use this command to configure SLA parameters.

endpoint ep interface vip

Configures VIP IP parameters.

Command Modes	Exec > Global Configuration
Syntax Description	`endpoint ep interface vip { vip-ip` *vip_ip* `| vip-port` *vip_port* `| offline }`

offline

Specify to mark the vip-ip as offline.

vip-ip *vip_ip*

Specify the host IP address.

Must be a string.

vip-port *vip_port*

Specify the port number.

Must be an integer.

Usage Guidelines   Use this command to configure VIP IP parameters.

endpoint ep vip

Configures VIP parameters.

Command Modes   Exec > Global Configuration > Endpoint Confgiuration

Syntax Description   **vip-ip** *vip_ip_address* **[[vip-port** *port_number* **] [offline]]**

offline

Specify the VIP-IP as offline.

vip-ip *vip_ip_address*

Specify the VIP IP address.

Must be a string.

vip-port *port_number*

Specify the port number.

Must be an integer.

Usage Guidelines   Use this command to configure VIP parameters.

helm

Configures Helm configuration parameters.

Command Modes   Exec > Global Configuration (config)

Syntax Description   **helm default-repository** *default_repository_name*

default-repository *default_repository_name*

Specify the name of the default Helm repository.

Usage Guidelines   Use this command to configure Helm configuration parameters.

helm charts

Displays Helm release details.

Command Modes   Exec > Global Configuration (config)

Syntax Description   `charts`

Usage Guidelines   Use this command to view Helm release details.

helm repository

Configures Helm repository parameters.

Command Modes   Exec > Global Configuration (config)

Syntax Description   `helm repository` *helm_repo_name* `[ [ access-token` *access_token* `] [ url` *helm_repo_url* `] [ username` *helm_repo_username* `] [ password` *helm_repo_password* `] ]`

access-token *helm_repo_access_token*

Specify the access token for the Helm repository.

Must be a string.

password *helm_repo_password*

Specify the password for the Helm repository.

Must be an aes-cfb-128-encrypted string.

url *helm_repo_url*

Specify the URL for the Helm repository.

Must be a string.

username *helm_repo_username*

Specify the username for the Helm repostiory.

Must be a string.

helm_repo_name

Specify the name of the Helm repository.

Must be a string.

Use this command to configure the Helm repository parameters.

ipam address-pool

Configures IPAM address pools.

Command Modes Exec > Global Configuration (config) > IPAM Configuration (config-ipam)

Syntax Description `address-pool` *pool_name* `[ static | offline | vrf-name` *vrf_name* `]`

address-quarantine-timer *address_quarantine_timer_interval*

Specify the address quarantine timer interval in seconds.

Must be an integer in the range of 4-60.

Default Value: 4.

default-gateway *ip_address*

Specify the default gateway IP address for static pool.

Must be an IPv4 address.

offline

Specify the pool as an offline pool.

prefix-length *prefix_length*

Specify the prefix length.

Must be an integer in the range of 1-64.

Default Value: 64.

vrf-name *vrf_name*

Specify the VRF name.

Must be a string.

pool_name

Specify the address pool's name.

Must be a string.

Usage Guidelines Use this command to configure IPAM address pools.

ipam address-pool ipv4 address-range

Configures IPv4 address ranges.

Command Modes   Exec > Global Configuration (config) > IPAM Configuration (config-ipam) > Address Pool Configuration

Syntax Description   `address-range` *start_ipv4_address end_ipv4_address* `[ offline ]`

default-gateway *ip_address*

Specify the default gateway IP address for static pool.

Must be an IPv4 address.

offline

Specify the IPv4 address range as offline.

end_ipv4_address

Specify the end address of the IPv4 address range.

Must be an IPv4 address.

start_ipv4_address

Specify the start address of the IPv4 address range.

Must be an IPv4 address.

Usage Guidelines   Use this command to configure IPv4 address ranges.

ipam address-pool ipv4 split-size

Configures chunk split size.

Command Modes   Exec > Global Configuration > IPAM Configuration

Syntax Description   `split-size [ per-cache` *number_of_addresses* `] [ per-dp` *number_of_addresses* `]`

no-split

Specify not to split the address range into smaller chunks.

per-cache *number_of_addresses*

Specify the number of addresses per chunk for IPAM cache allocation. Specify in power of 2.

Must be an integer in the range of 2-262144.

per-dp *number_of_addresses*

Specify the number of addresses per chunk for data-plane allocation. Specify in power of 2.

Must be an integer in the range of 2-262144.

Usage Guidelines   Use this command to configure chunk split sizes.

ipam address-pool ipv4 threshold

Configures pool thresholds.

Command Modes   Exec > Global Configuration > IPAM Configuration

Syntax Description   `threshold upper-threshold` *upper_threshold*

upper-threshold *upper_threshold*

Specify the upper threshold value in percentage.

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

Usage Guidelines   Use this command to configure pool thresholds.

ipam address-pool ipv6 address-ranges address-range

Configures IPv6 address ranges.

Command Modes   Exec > Global Configuration (config) > IPAM Configuration (config-ipam) > Address Pool Configuration > Address Ranges Configuration

Syntax Description   `address-range` *start_ipv6_address end_ipv6_address* `[ offline ]`

default-gateway *ip_address*

Specify the default gateway IP address for static pool.

Must be an IPv4 address.

offline

Specify the IPv6 address range as offline.

end_ipv6_address

Specify the end address of the IPv6 address range.

Must be an IPv6 address.

start_ipv6_address

Specify the start address of the IPv6 address range.

Must be an IPv6 address.

| **Usage Guidelines** | Use this command to configure IPv6 address ranges. |

ipam address-pool ipv6 address-ranges split-size

Configures chunk split size.

| **Command Modes** | Exec > Global Configuration > IPAM Configuration |

Syntax Description   `split-size [ per-cache` *number_of_addresses* `] [ per-dp` *number_of_addresses* `]`

no-split

Specify not to split the address range into smaller chunks.

per-cache *number_of_addresses*

Specify the number of addresses per chunk for IPAM cache allocation. Specify in power of 2.

Must be an integer in the range of 2-262144.

per-dp *number_of_addresses*

Specify the number of addresses per chunk for data-plane allocation. Specify in power of 2.

Must be an integer in the range of 2-262144.

| **Usage Guidelines** | Use this command to configure chunk split sizes. |

ipam address-pool ipv6 address-ranges threshold

Configures pool thresholds.

| **Command Modes** | Exec > Global Configuration > IPAM Configuration |

Syntax Description   `threshold upper-threshold` *upper_threshold*

upper-threshold *upper_threshold*

Specify the upper threshold value in percentage.

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

| **Usage Guidelines** | Use this command to configure pool thresholds. |

ipam address-pool ipv6 prefix-ranges prefix-range

Configures IPv6 prefix ranges.

Command Modes	Exec > Global Configuration (config) > IPAM Configuration (config-ipam) > Address Pool Configuration > Prefix Ranges Configuration
Syntax Description	`prefix-range` *prefix_value* `length` *prefix_length* `[ offline ]`

length *prefix_length*

Specify the prefix length.

Must be an integer in the range of 1-63.

offline

Specify the IPv6 prefix range as offline.

prefix-range *prefix_value*

Specify the IPv6 prefix range.

Must be an IPv6 address.

Usage Guidelines	Use this command to configure IPv6 prefix ranges.

ipam address-pool ipv6 prefix-ranges split-size

Configures chunk split size.

Command Modes	Exec > Global Configuration > IPAM Configuration
Syntax Description	`split-size [ per-cache` *number_of_addresses* `] [ per-dp` *number_of_addresses* `]`

no-split

Specify not to split the address range into smaller chunks.

per-cache *number_of_addresses*

Specify the number of addresses per chunk for IPAM cache allocation. Specify in power of 2.

Must be an integer in the range of 2-262144.

per-dp *number_of_addresses*

Specify the number of addresses per chunk for data-plane allocation. Specify in power of 2.

Must be an integer in the range of 2-262144.

Usage Guidelines	Use this command to configure chunk split sizes.

ipam address-pool ipv6 prefix-ranges threshold

Configures pool thresholds.

| Command Modes | Exec > Global Configuration > IPAM Configuration |

| Syntax Description | `threshold upper-threshold` *upper_threshold* |

upper-threshold *upper_threshold*

Specify the upper threshold value in percentage.

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

| Usage Guidelines | Use this command to configure pool thresholds. |

ipam address-pool static

Configures static pool parameters.

| Command Modes | Exec > Global Configuration (config) > IPAM Configuration (config-ipam) > Address Pool Configuration |

| Syntax Description | `static { enable | user-plane` *user_plane* `}` |

enable

Specify to set pool as static.

user-plane *user_plane*

Specify to associate user plane for this static pool.

Must be a string.

| Usage Guidelines | Use this command to configure static pool parameters. |

ipam source

Configures pool-datastore source selection.

| Command Modes | Exec > Global Configuration (config) |

| Syntax Description | `ipam source local` |

local

Specify to use local address pool datastore.

| Usage Guidelines | Use this command to configure pool-datastore source selection. Enters the IPAM Configuration mode"; |

ipam threshold

Configures global thresholds.

Command Modes   Exec > Global Configuration (config) > IPAM Configuration (config-ipam)

Syntax Description
```
threshold [ [ ipv4-addr ipv4_address_threshold ] | [ ipv6-addr
ipv6_address_threshold ] | [ ipv6-prefix ipv6_prefix_threshold ] ]
```

ipv4-addr *ipv4_address_threshold*

Specify the IPv4 address threshold in percentage.

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

ipv6-addr *ipv6_address_threshold*

Specify the IPv6 address threshold in percentage.

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

ipv6-prefix *ipv6_prefix_threshold*

Specify the IPv6 prefix threshold in percentage.

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

Usage Guidelines   Use this command to configure global thresholds.

k8 bng

Configures k8 BNG parameters.

Command Modes   Exec > Global Configuration

Syntax Description
```
bng etcd-endpoint etcd_endpoint datastore-endpoint datastore_endpoint
coverage-build { false | true }
```

etcd-endpoint *etcd_endpoint*

Specify the Etcd endpoint configuration. For example, *hostname*:*port*

Default Value: "etcd:2379".

datastore-endpoint *datastore_endpoint*

Specify the Datastore endpoint configuration. For example, *hostname*:*port*

etcd-endpoint *etcd_endpoint*

Specify the Etcd endpoint configuration. For example, *hostname*:*port*

Default Value: "datastore-ep-session:8882".

coverage-build { false | true }

Specify to enable or disable coverage build.

Must be one of the following:

• **false**

• **true**

Default Value: false.

datastore-endpoint *datastore_endpoint*

Specify the Datastore endpoint configuration. For example, *hostname:port*

etcd-endpoint *etcd_endpoint*

Specify the Etcd endpoint configuration. For example, *hostname:port*

Usage Guidelines   Use this command to configure k8 BNG parameters.

k8 label pod-group-config

Configures K8 node affinity label pod group configuration.

Command Modes   Exec > Global Configuration

Syntax Description   `k8 label pod-group-config pod-group` *pod_group* `key` *label_key* `value` *label_value*

key *label_key*

Specify the key for the label.

Must be a string.

pod-group *pod_group*

Specify the pod group for the VMs.

Must be one of the following:

• **cdl-layer**

• **oam-layer**

• **protocol-layer**

• **service-layer**

value *label_value*

Specify the value for the label.

Must be a string.

Usage Guidelines   Use this command to configure K8 node affinity label pod group configuration.

kubernetes

Configures Kubernetes parameters.

Command Modes   Exec > Global Configuration (config)

Syntax Description   **k8s name** *k8s_cluster_name* **[[image-pull-secrets** *image_pull_secrets* **] [ingress-host-name** *ingress_host_name* **] [namespace** *k8s_namespace* **] [nf-name** *nf_name* **] [registry** *image_registry* **] [single-node { false | true }] [use-volume-claims { false | true }]]**

image-pull-secrets *image_pull_secrets*

Specify the image pull secrets stored within K8s.

Must be a string.

ingress-host-name *ingress_host_name*

Specify the generic ingress host name.

Must be a string.

name *k8s_cluster_name*

Specify the K8s cluster name.

Must be a string.

namespace *k8s_namespace*

Specify the K8s namespace for the network function.

Must be a string.

nf-name *nf_name*

Specify the NF deployed in this k8s namespace.

Must be a string.

registry *image_registry*

This keyword is deprecated.

Must be a string.

single-node { false | true }

Specify to enable or disable single node deployment.

Must be one of the following:

- **false**

- **true**

Default Value: false.

use-volume-claims { false | true }

Specify to enable or disable using volume claims when deploying.

Must be one of the following:

- **false**

- **true**

Default Value: false.

Usage Guidelines Use this command to configure Kubernetes parameters.

kubernetes nodes

Configures list of k8s nodes.

Command Modes Exec > Global Configuration (config)

Syntax Description `k8s nodes` *k8s_node_name* `[ [ node-type` *node_type* `] [ worker-type` *worker_type* `] ]`

node-type *node_type*

Specify the K8s node type.

Must be a string.

worker-type *worker_type*

Specify the k8s worker type.

Must be a string.

k8s_node_name

Specify the K8s node name.

Must be a string.

Usage Guidelines Use this command to configure the list of k8s nodes.

logging level

Configures the logging level.

Command Modes Exec > Global Configuration

Syntax Description `level` *log_level*

application *application_log_level*

Specify the application logging level.

Must be one of the following:

- **debug**

- **error**

- **info**

- **off**

- **trace**

- **warn**

monitor-subscriber *monitor_subscriber_log_level*

Specify the monitor subscriber logging level.

Must be one of the following:

- **debug**

- **error**

- **info**

- **off**

- **trace**

- **warn**

tracing *tracing_log_level*

Specify the tracing logging level.

Must be one of the following:

- **debug**

- **error**

- **info**

- **off**

- **trace**

- **warn**

transaction *transaction_log_level*

Specify the transaction logging level.

Must be one of the following:

- **debug**

- **error**

- **info**

- **off**

- **trace**

- **warn**

Usage Guidelines   Use this command to configure the logging level.

logging logger

Configures the log name.

Command Modes   Exec > Global Configuration

Syntax Description   **logger** *log_name*

log_name

Specify the log name in "module.component.interface" format.

Must be a string.

Usage Guidelines   Use this command to configure the log name.

logging logger level

Configures the logging level.

Command Modes   Exec > Global Configuration

Syntax Description   **logger level** *log_type_options*

application *application_log_level*

Specify the application logging level.

Must be one of the following:

- **debug**

- **error**

- **info**

- **off**

- **trace**

- **warn**

monitor-subscriber *monitor_subscriber_log_level*

Specify the monitor subscriber logging level.

Must be one of the following:

- **debug**

- **error**

- **info**

- **off**

- **trace**

- **warn**

tracing *tracing_log_level*

Specify the tracing logging level.

Must be one of the following:

- **debug**

- **error**

- **info**

- **off**

- **trace**

- **warn**

transaction *transaction_log_level*

Specify the transaction logging level.

Must be one of the following:

- **debug**

- **error**

- **info**

- **off**

- **trace**

- **warn**

Usage Guidelines   Use this command to configure the logging level.

logging transaction

Configures the transaction logging parameters.

Command Modes   Exec > Global Configuration

Syntax Description   **transaction** *transaction_log_parameters*

duplicate

Specify to enable duplicate in transaction logging.

Must be one of the following:

  • **disable**

  • **enable**

Default Value: disable.

message

Specify to enable messages in transaction logging.

Must be one of the following:

  • **disable**

  • **enable**

Default Value: disable.

Usage Guidelines   Use this command to configure the transaction logging parameters.

profile aaa

Configures AAA profiles.

Command Modes   Exec > Global Configuration (config)

Syntax Description   **profile aaa** *aaa_profile_name*

aaa_profile_name

Specify the AAA profile name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

Usage Guidelines   Use this command to configure AAA profiles. Enters the AAA Profile Configuration mode.

profile aaa accounting

Configures accounting configuration parameters.

Command Modes   Exec > Global Configuration (config) > AAA Profile Configuration (config-aaa-*aaa_profile_name*)

Syntax Description   `accounting method-order` *method_list_order*

method-order *method_list_order*

Specify the method list order.

Must be one of the following:

- **radius**

Usage Guidelines   Use this command to configure accounting parameters.

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

profile aaa authentication

Configures authentication parameters.

Command Modes   Exec > Global Configuration (config) > AAA Profile Configuration (config-aaa-*aaa_profile_name*)

Syntax Description   `authentication [ method-order` *method_list_order* `]`

method-order *method_list_order*

Specify the method list order.

Must be one of the following:

- **radius**

Usage Guidelines   Use this command to configure authentication parameters.

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

profile aaa authorization

Configures authorization parameters.

Command Modes   Exec > Global Configuration (config) > AAA Profile Configuration (config-aaa-*aaa_profile_name*)

Syntax Description   `authorization [ password` *default_password* `]`

password *default_password*

Specify the default password.

Must be a string.

Usage Guidelines   Use this command to configure authorization parameters. Enters the Authorization Configuration mode.

profile aaa authorization type subscriber

Configures authorization type subscriber.

Command Modes   Exec > Global Configuration (config) > AAA Profile Configuration (config-aaa-*aaa_profile_name*) > Authorization Configuration (config-authorization)

Syntax Description   `type subscriber method-order` *method_list_order*

method-order *method_list_order*

Specify the method list order.

Must be one of the following:

> • **radius**

Usage Guidelines   Use this command to configure authorization type subscriber.

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

profile aaa authorization username

Configures the default user name.

Command Modes   Exec > Global Configuration (config) > AAA Profile Configuration (config-aaa-*aaa_profile_name*) > Authorization Configuration (config-authorization)

Syntax Description   `username { format` *attribute_format* `| identifier` *identifier_type* `| value` *user_name* `}`

format *attribute_format*

Specify the attribute format.

identifier *identifier_type*

Specify the identifier type.

value *user_name*

Specify the user name.

Must be a string.

Usage Guidelines Use this command to configure the default user name.

profile attribute-format

Configures AAA attribute templates.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile attribute-format** *profile_name* **[format-order** *attributes_list* **]**

format-order *attributes_list*

Specify the ordered list of attributes.

profile_name

Specify the profile name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

Must be a string.

Usage Guidelines Use this command to configure AAA attribute templates. Enters the Attribute Format Profile Configuration mode.

You can configure a maximum of 32 elements with this command.

profile coa

Configures RADIUS Dynamic-author/COA parameters.

Command Modes Exec > Global Configuration

Syntax Description **profile coa server-key** *server_shared_secret_key*

server-key *server_shared_secret_key*

Specify the COA server shared secret key.

Must be an aes-cfb-128-encrypted string.

Usage Guidelines Use this command to configure RADIUS Dynamic-author/COA parameters.

profile coa client

Configures RADIUS COA client parameters.

Command Modes Exec > Global Configuration

Syntax Description   `client ip` *client_ip_address* `server-key` *client_shared_secret_key*

ip *client_ip_address*

Specify the client IP address.

Must be an IP address.

server-key *client_shared_secret_key*

Specify the client shared secret key.

Must be an aes-cfb-128-encrypted string.

Usage Guidelines   Use this command to configure RADIUS COA client parameters.

profile dhcp

Configures DHCP profiles.

Command Modes   Exec > Global Configuration (config)

Syntax Description   `dhcp` *dhcp_profile_name*

dhcp_profile_name

Specify the DHCP profile name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

Usage Guidelines   Use this command to configure DHCP profiles. Enters the DHCP Profile Configuration mode.

profile dhcp ipv4

Configures DHCP IPv4 parameters.

Command Modes   Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*)

Syntax Description   `ipv4 [ mode` *dhcp_mode* `]`

mode *dhcp_mode*

Specify the DHCP server or proxy mode.

Default Value: server.

Usage Guidelines   Use this command to configure DHCP IPv4 parameters. Enters the DHCP IPv4 Configuration mode.

profile dhcp ipv4 class

Configures DHCP IPv4 class configuration parameters.

Command Modes   Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv4 Configuration (config-ipv4)

Syntax Description   `class` *dhcp_class_name*

dhcp_class_name

Specify the DHCP class name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

Usage Guidelines   Use this command to configure DHCP IPv4 class configuration parameters. Enters the DHCP Class Configuration mode.

profile dhcp ipv4 class matches

Configures the list of match values.

Command Modes   Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv4 Configuration (config-ipv4) > DHCP Class Configuration (config-class-*dhcp_class_name*)

Syntax Description   `matches [ match-type { all | any } ]`

match-type *match_type*

Specify the match type.

Usage Guidelines   Use this command to configure the list of match values. Enters the Matches Configuration mode.

profile dhcp ipv4 class matches match

Configures match key and value.

Command Modes   Exec > Global Configuration (config) > DHCP Configuration (config-dhcp-*dhcp_profile_name*) > DHCP Class Configuration (config-class-*dhcp_class_name*) > Matches Configuration (config-matches)

Syntax Description   `match` *match_key* `{ ascii` *ascii_string* `| hex` *hex_string* `}`

match_key

Specify the match key.

ascii *ascii_string*

Specify the ASCII strings.

Must be a string.

hex *hex_string*

Specify the hexadecimal strings.

Must be a string in the pattern ([0-9a-fA-F]{2}([0-9a-fA-F]{2})*)?.

match_key

Specify the match key.

You can configure a maximum of "8" elements with this command.

Usage Guidelines   Use this command to configure match key and value.

You can configure a maximum of "8" elements with this command.

profile dhcp ipv4 class server

Configures DHCP server mode.

Command Modes   Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv4 Configuration (config-ipv4)

Command Modes   Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv4 Configuration (config-ipv4) > DHCP Class Configuration (config-class-*dhcp_class_name*)

Syntax Description   **server [boot-filename** *boot_file_name* **| dns-servers** *ip_address* **| domain-name** *domain_name* **| netbios-name-server** *ip_address* **| next-server** *ip_address* **| ntp-servers** *ntp_servers* **| pool-name** *pool_name* **]**

boot-filename *boot_file_name*

Specify the boot file name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

dns-servers *ip_address*

Specify the DNS server IP addresses.

Must be an IPv4 address.

domain-name *domain_name*

Specify the domain name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

netbios-name-server *ip_address*

Specify the NetBIOS name server IP addresses.

Must be an IPv4 address.

next-server *ip_address*

Specify the TFTP server IP address to be used by the client.

Must be an IPv4 address.

ntp-servers *ntp_servers*

Specify the NTP servers.

Must be an IPv4 address.

pool-name *pool_name*

Specify the pool name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

Usage Guidelines   Use this command to configure the DHCP server mode. Enters the DHCP Server Configuration mode.

You can configure a maximum of "8" elements with this command.

profile dhcp ipv4 class server lease

Configures DHCP Server Lease parameters.

Command Modes   Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv4 Configuration (config-ipv4) > DHCP Server Configuration Mode (config-server)

Command Modes   Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv4 Configuration (config-ipv4) > DHCP Class Configuration (config-class-*dhcp_class_name*) > DHCP Server Configuration Mode (config-server)

Syntax Description   `lease { [ days` *days* `] [ hours` *hours* `] [ minutes` *minutes* `] }`

days *days*

Specify the number of days.

Must be an integer in the range of 0-365.

hours *hours*

Specify the hours.

Must be an integer in the range of 0-23.

minutes **minutes**

Specify the minutes.

Must be an integer in the range of 0-59.

Usage Guidelines   Use this command to configure the DHCP Server Lease parameters.

profile dhcp ipv4 class server netbios-node-type

Configures NetBIOS node type.

Command Modes   Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv4 Configuration (config-ipv4) > DHCP Server Configuration Mode (config-server)

Command Modes   Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv4 Configuration (config-ipv4) > DHCP Class Configuration (config-class-*dhcp_class_name*) > DHCP Server Configuration Mode (config-server)

Syntax Description   `netbios-node-type { broadcast-node | hexadecimal` *hex_number* `| hybrid-node | mixed-node | peer-to-peer-node }`

broadcast-node

Specify broadcast node.

hexadecimal *hex_number*

Specify the hexadecimal number.

Must be a string in the pattern ([0-9a-fA-F]{2}(:[0-9a-fA-F]{2})*)?.

hybrid-node

Specify hybrid node.

mixed-node

Specify mixed node.

peer-to-peer-node

Specify peer-to-peer node.

Usage Guidelines   Use this command to configure the NetBIOS node type.

profile dhcp ipv4 class server option-codes

Configures the OptionCode table.

Command Modes	Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv4 Configuration (config-ipv4) > DHCP Server Configuration Mode (config-server)
Command Modes	Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv4 Configuration (config-ipv4) > DHCP Class Configuration (config-class-*dhcp_class_name*) > DHCP Server Configuration Mode (config-server)
Syntax Description	`option-codes`
Usage Guidelines	Use this command to configure the OptionCode table. Enters the Option Codes Configuration mode.

profile dhcp ipv4 class server option-codes option-code

Configures a DHCP option code.

Command Modes	Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv4 Configuration (config-ipv4) > DHCP Server Configuration Mode (config-server) > Option Codes Configuration (config-option-codes)
Command Modes	Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv4 Configuration (config-ipv4) > DHCP Class Configuration (config-class-*dhcp_class_name*) > DHCP Server Configuration Mode (config-server) > Option Codes Configuration (config-option-codes)
Syntax Description	`option-code` *dhcp_option_code* `[ ascii-string` *ascii_string* `| force-insert { false	true }	hex-string` *hex_string* `| ip-address` *ip_address* `]`

ascii-string *ascii_string*

Specify the ASCII string.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

force-insert { false | true }

Specify whether to force insert this option.

Must be one of the following:

- **false**

- **true**

hex-string *hex_string*

Specify the hexadecimal string.

Must be a string in the pattern ([0-9a-fA-F]{2}([0-9a-fA-F]{2})*)?.

ip-address *ip_address*

Specify the server's IP addresses.

Must be an IPv4 address.

option-code *dhcp_option_code*

Specify the DHCP option code.

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

Usage Guidelines   Use this command to configure a DHCP option code. Enters the Option Code Configuration mode.

You can configure a maximum of "8" elements with this command.

profile dhcp ipv4 server

Configures DHCP server mode.

Command Modes   Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv4 Configuration (config-ipv4)

Command Modes   Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv4 Configuration (config-ipv4) > DHCP Class Configuration (config-class-*dhcp_class_name*)

Syntax Description   `server [ boot-filename` *boot_file_name* `| dns-servers` *ip_address* `| domain-name` *domain_name* `| netbios-name-server` *ip_address* `| next-server` *ip_address* `| ntp-servers` *ntp_servers* `| pool-name` *pool_name* `]`

boot-filename *boot_file_name*

Specify the boot file name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

dns-servers *ip_address*

Specify the DNS server IP addresses.

Must be an IPv4 address.

domain-name *domain_name*

Specify the domain name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

netbios-name-server *ip_address*

Specify the NetBIOS name server IP addresses.

Must be an IPv4 address.

next-server *ip_address*

Specify the TFTP server IP address to be used by the client.

Must be an IPv4 address.

ntp-servers *ntp_servers*

Specify the NTP servers.

Must be an IPv4 address.

pool-name *pool_name*

Specify the pool name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

Usage Guidelines   Use this command to configure the DHCP server mode. Enters the DHCP Server Configuration mode.

You can configure a maximum of "8" elements with this command.

profile dhcp ipv4 server lease

Configures DHCP Server Lease parameters.

Command Modes   Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) >
DHCP IPv4 Configuration (config-ipv4) > DHCP Server Configuration Mode (config-server)

Command Modes   Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) >
DHCP IPv4 Configuration (config-ipv4) > DHCP Class Configuration (config-class-*dhcp_class_name*) >
DHCP Server Configuration Mode (config-server)

Syntax Description   `lease { [ days` *days* `] [ hours` *hours* `] [ minutes` *minutes* `] }`

days *days*

Specify the number of days.

Must be an integer in the range of 0-365.

hours *hours*

Specify the hours.

Must be an integer in the range of 0-23.

minutes *minutes*

Specify the minutes.

Must be an integer in the range of 0-59.

Usage Guidelines   Use this command to configure the DHCP Server Lease parameters.

profile dhcp ipv4 server netbios-node-type

Configures NetBIOS node type.

Command Modes	Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv4 Configuration (config-ipv4) > DHCP Server Configuration Mode (config-server)
Command Modes	Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv4 Configuration (config-ipv4) > DHCP Class Configuration (config-class-*dhcp_class_name*) > DHCP Server Configuration Mode (config-server)
Syntax Description	`netbios-node-type { broadcast-node	hexadecimal` *hex_number* `| hybrid-node` `| mixed-node	peer-to-peer-node }`

broadcast-node

Specify broadcast node.

hexadecimal *hex_number*

Specify the hexadecimal number.

Must be a string in the pattern ([0-9a-fA-F]{2}(:[0-9a-fA-F]{2})*)?.

hybrid-node

Specify hybrid node.

mixed-node

Specify mixed node.

peer-to-peer-node

Specify peer-to-peer node.

Usage Guidelines	Use this command to configure the NetBIOS node type.

profile dhcp ipv4 server option-codes

Configures the OptionCode table.

Command Modes	Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv4 Configuration (config-ipv4) > DHCP Server Configuration Mode (config-server)
Command Modes	Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv4 Configuration (config-ipv4) > DHCP Class Configuration (config-class-*dhcp_class_name*) > DHCP Server Configuration Mode (config-server)
Syntax Description	`option-codes`
Usage Guidelines	Use this command to configure the OptionCode table. Enters the Option Codes Configuration mode.

profile dhcp ipv4 server option-codes option-code

Configures a DHCP option code.

Command Modes	Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv4 Configuration (config-ipv4) > DHCP Server Configuration Mode (config-server) > Option Codes Configuration (config-option-codes)
Command Modes	Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv4 Configuration (config-ipv4) > DHCP Class Configuration (config-class-*dhcp_class_name*) > DHCP Server Configuration Mode (config-server) > Option Codes Configuration (config-option-codes)
Syntax Description	`option-code` *dhcp_option_code* `[ ascii-string` *ascii_string* `| force-insert { false` `| true }	hex-string` *hex_string* `| ip-address` *ip_address* `]`

ascii-string *ascii_string*

Specify the ASCII string.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

force-insert { false | true }

Specify whether to force insert this option.

Must be one of the following:

- **false**

- **true**

hex-string *hex_string*

Specify the hexadecimal string.

Must be a string in the pattern ([0-9a-fA-F]{2}([0-9a-fA-F]{2})*)?.

ip-address *ip_address*

Specify the server's IP addresses.

Must be an IPv4 address.

option-code *dhcp_option_code*

Specify the DHCP option code.

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

Usage Guidelines	Use this command to configure a DHCP option code. Enters the Option Code Configuration mode.
	You can configure a maximum of "8" elements with this command.

profile dhcp ipv6

Configures DHCP IPv6 parameters.

Command Modes   Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*)

Syntax Description   `ipv6 [ mode` *dhcp_mode* `]`

mode *dhcp_mode*

Specify the DCHP mode server or proxy.

Default Value: server.

Usage Guidelines   Use this command to configure DHCP IPv6 parameters. Enters the DHCP IPv6 Configuration mode.

profile dhcp ipv6 class

Configures DHCP IPv6 class configuration parameters.

Command Modes   Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv6 Configuration (config-ipv6)

Syntax Description   `class` *dhcp_class_name*

dhcp_class_name

Specify the DHCP class name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

Usage Guidelines   Use this command to configure DHCP IPv6 class configuration parameters.

profile dhcp ipv6 class server

Configures DHCP server mode.

Command Modes   Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv6 Configuration (config-ipv6)

Command Modes   Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv6 Configuration (config-ipv6) > DHCP Class Configuration (config-class-*dhcp_class_name*)

Syntax Description   `server { aftr-name` *aftr_name* `| dns-servers` *ip_address* `| domain-name` *domain_name* `| iana-pool-name` *iana_pool_name* `| iapd-pool-name` *iapd_pool_name* `| preference` *server_preference* `| rapid-commit }`

aftr-name *aftr_name*

Specify the Address Family Transition Router (AFTR) name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

dns-servers *ip_address*

Specify the DNS server IP addresses.

Must be an IPv6 address.

domain-name *domain_name*

Specify the domain name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

iana-pool-name *iana_pool_name*

Specify the IANA pool name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

iapd-pool-name *iapd_pool_name*

Specify the IAPD pool name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

preference *server_preference*

Specify the DHCP server preference.

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

rapid-commit

Specify to allow rapid commit.

Usage Guidelines   Use this command to configure the DHCP server mode.

You can configure a maximum of "8" elements with this command.

profile dhcp ipv6 class server lease

Configures the lease parameters.

Command Modes   Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv6 Configuration (config-ipv6) > DHCP Server Configuration Mode (config-server)

Command Modes   Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv6 Configuration (config-ipv6) > DHCP Class Configuration (config-class-*dhcp_class_name*) > DHCP Server Configuration Mode (config-server)

Syntax Description

```
lease { [ days days ] [ hours hours ] [ minutes minutes ] }
```

days *days*

Specify the number of days.

Must be an integer in the range of 0-365.

hours *hours*

Specify the hours.

Must be an integer in the range of 0-23.

minutes *minutes*

Specify the minutes.

Must be an integer in the range of 1-59.

Usage Guidelines   Use this command to configure lease parameters.

profile dhcp ipv6 server

Configures DHCP server mode.

Command Modes   Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv6 Configuration (config-ipv6)

Command Modes   Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv6 Configuration (config-ipv6) > DHCP Class Configuration (config-class-*dhcp_class_name*)

Syntax Description

```
server { aftr-name aftr_name | dns-servers ip_address | domain-name domain_name
 | iana-pool-name iana_pool_name | iapd-pool-name iapd_pool_name | preference
server_preference | rapid-commit }
```

aftr-name *aftr_name*

Specify the Address Family Transition Router (AFTR) name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

dns-servers *ip_address*

Specify the DNS server IP addresses.

Must be an IPv6 address.

domain-name *domain_name*

Specify the domain name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

iana-pool-name *iana_pool_name*

Specify the IANA pool name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

iapd-pool-name *iapd_pool_name*

Specify the IAPD pool name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

preference *server_preference*

Specify the DHCP server preference.

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

rapid-commit

Specify to allow rapid commit.

Usage Guidelines   Use this command to configure the DHCP server mode.

You can configure a maximum of "8" elements with this command.

profile dhcp ipv6 server lease

Configures the lease parameters.

Command Modes   Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv6 Configuration (config-ipv6) > DHCP Server Configuration Mode (config-server)

Command Modes   Exec > Global Configuration (config) > DHCP Profile Configuration (config-dhcp-*dhcp_profile_name*) > DHCP IPv6 Configuration (config-ipv6) > DHCP Class Configuration (config-class-*dhcp_class_name*) > DHCP Server Configuration Mode (config-server)

Syntax Description   `lease { [ days days ] [ hours hours ] [ minutes minutes ] }`

days *days*

Specify the number of days.

Must be an integer in the range of 0-365.

hours *hours*

Specify the hours.

Must be an integer in the range of 0-23.

minutes *minutes*

Specify the minutes.

Must be an integer in the range of 1-59.

Usage Guidelines   Use this command to configure lease parameters.

profile feature-template

Configures feature templates.

Command Modes   Exec > Global Configuration (config)

Syntax Description   **feature-template** *feature_template_name* **[[vrf-name** *vrf_name* **] [httpr-policy** *httpr_policy_name* **]]**

httpr-policy *httpr_policy_name*

Specify the PBR HTTPR policy name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

vrf-name *vrf_name*

Specify the VRF name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

feature_template_name

Specify the feature template name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

Usage Guidelines   Use this command to configure feature templates. Enters the Feature Template Configuration mode.

profile feature-template ipv4

Configures IPv4 features.

Command Modes   Exec > Global Configuration (config) > Feature Template Profile Configuration (config-feature-template-*feature_template_name*)

Syntax Description   **ipv4 [[mtu** *maximum_transmission_unit* **] [ingress-acl** *ingress_ipv4_acl_name* **] [egress-acl** *egress_ipv4_acl_name* **] [disable-unreachables]]**

disable-unreachables

Specify to disable sending ICMP Unreachable messages.

egress-acl *egress_ipv4_acl_name*

Specify the egress IPV4 ACL name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

ingress-acl *ingress_ipv4_acl_name*

Specify the ingress IPV4 ACL name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

mtu *maximum_transmission_unit*

Specify the Maximum Transmission Unit in bytes.

Must be an integer in the range of 68-65535.

Usage Guidelines   Use this command to configure IPv4 features. Enters the IPv4 Configuration mode.

profile feature-template ipv4 verify-unicast-source

Enables per-packet validation for unicast.

Command Modes   Exec > Global Configuration (config) > Feature Template Profile Configuration
(config-feature-template-*feature_template_name*) > IPv4 Configuration (config-ipv4)

Syntax Description   `verify-unicast-source reachable-via-rx`

reachable-via-rx

Specify the source is reachable via interface on which packet was received.

Usage Guidelines   Use this command to enable per-packet validation for unicast.

profile feature-template ipv6

Configures IPv6 features.

Command Modes   Exec > Global Configuration (config) > Feature Template Profile Configuration
(config-feature-template-*feature_template_name*)

Syntax Description   `ipv6 [ [ mtu` *maximum_transmission_unit* `] [ ingress-acl` *ingress_ipv6_acl_name* `] [`
`egress-acl` *egress_ipv6_acl_name* `] ]`

disable-unreachables

Specify to disable sending ICMP Unreachable messages.

egress-acl *egress_ipv6_acl_name*

Specify the egress IPV6 ACL name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

ingress-acl *ingress_ipv6_acl_name*

Specify the ingress IPV6 ACL name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

mtu *maximum_transmission_unit*

Specify the Maximum Transmission Unit in bytes.

Must be an integer in the range of 1280-65535.

Usage Guidelines   Use this command to configure IPv6 features. Enters the IPv6 Configuration mode.

profile feature-template ipv6 verify-unicast-source

Configures per packet validation for unicast.

Command Modes   Exec > Global Configuration (config) > Feature Template Profile Configuration
(config-feature-template-*feature_template_name*) > IPv6 Configuration (config-ipv6)

Syntax Description   `verify-unicast-source reachable-via-rx`

reachable-via-rx

Specify source is reachable via interface on which packet was received.

Usage Guidelines   Use this command to configure per packet validation for unicast.

profile feature-template ppp

Configures PPP feature.

Command Modes   Exec > Global Configuration (config) > Feature Template Profile Configuration
(config-feature-template-*feature_template_name*)

Syntax Description   `ppp [ [ authentication` *authentication_method* `] [ max-bad-auth` *max_auth_failures*
`] [ max-configure` *max_configure* `] [ max-failure` *max_conf_naks* `] ]`

authentication *authentication_method*

Specify the authentication method.

Must be one of the following:

- **chap**

- **pap**

max-bad-auth *max_auth_failures*

Specify the maximum authentication failures to allow.

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

max-configure *max_configure*

Specify the maximum conf-reqs to send without response.

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

max-failure *max_conf_naks*

Specify the maximum conf-naks to receive.

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

Usage Guidelines   Use this command to configure the PPP feature. Enters the PPP Configuration mode.

You can configure a maximum of "2" elements with this command.

profile feature-template ppp chap

Configures Challenge Handshake Authentication Protocol (CHAP) parameters.

Command Modes   Exec > Global Configuration (config) > Feature Template Profile Configuration
(config-feature-template-*feature_template_name*) > PPP Configuration (config-ppp)

Syntax Description   `chap hostname` *chap_host_name* `[ password` *chap_password* `]`

hostname *chap_host_name*

Specify the CHAP host name.

hostname *chap_host_name*

Specify the CHAP host name.

password *chap_password*

Specify the CHAP password.

Must be an aes-cfb-128-encrypted string.

Usage Guidelines   Use this command to configure CHAP parameters.

profile feature-template ppp ipcp

Configures PPP IPCP negotiation parameters.

Command Modes   Exec > Global Configuration (config) > Feature Template Profile Configuration
(config-feature-template-*feature_template_name*) > PPP Configuration (config-ppp)

Syntax Description   `ipcp peer-address-pool` *peer_address_pool_name*

peer-address-pool *peer_address_pool_name*

Specify the peer-address pool name.

Usage Guidelines   Use this command to configure PPP IPCP negotiation parameters.

profile feature-template ppp ipcp dns

Configures DNS address to be used for peer.

Command Modes   Exec > Global Configuration (config) > Feature Template Profile Configuration
(config-feature-template-*feature_template_name*) > PPP Configuration (config-ppp)

Syntax Description   `ipcp dns primary-address` *primary_address* `secondary-address` *secondary_address*

primary-address *primary_address*

Specify the primary address. The first address is considered as Primary and second address as Secondary.

Must be an IPv4 address.

secondary-address *secondary_address*

Specify the secondary address.

Must be an IPv4 address.

Usage Guidelines   Use this command to configure DNS address to be used for peer.

profile feature-template ppp ipcp renegotiation

Configures renegotiation parameters.

Command Modes   Exec > Global Configuration (config) > Feature Template Profile Configuration
(config-feature-template-*feature_template_name*) > PPP Configuration (config-ppp)

Syntax Description   `ipcp renegotiation ignore`

ignore

Specify to ignore attempts by the peer to renegotiate LCP.

Usage Guidelines   Use this command to configure renegotiation parameters.

profile feature-template ppp ipcp wins

Configures WINS address to be used for peer.

Command Modes	Exec > Global Configuration (config) > Feature Template Profile Configuration (config-feature-template-*feature_template_name*) > PPP Configuration (config-ppp)

Syntax Description	**`ipcp wins primary-address`** *primary_ip_address* **`secondary-address`** *secondary_ip_address*

primary-address *primary_ip_address*

Specify the primary address.

Must be an IPv4 address.

secondary-address *secondary_ip_address*

Specify the secondary address.

Must be an IPv4 address.

Usage Guidelines	Use this command to configure WINS address to be used for peer.

profile feature-template ppp ipv6cp renegotiation

Configures IPv6CP renegotiation parameters.

Command Modes	Exec > Global Configuration (config) > Feature Template Profile Configuration (config-feature-template-*feature_template_name*) > PPP Configuration (config-ppp)

Syntax Description	**`ipv6cp renegotiation ignore`**

ignore

Specify to ignore attempts by the peer to renegotiate LCP.

Usage Guidelines	Use this command to configure IPv6CP renegotiation parameters.

profile feature-template ppp keepalive

Configures PPP Keepalive parameters.

Command Modes	Exec > Global Configuration (config) > Feature Template Profile Configuration (config-feature-template-*feature_template_name*) > PPP Configuration (config-ppp)

Syntax Description	**`keepalive { disable	interval`** *keepalive_interval* **`| retry`** *keepalive_retries* **`}`**

disable

Specify to disable PPP keepalive.

interval *keepalive_interval*

Specify the keepalive interval in minutes.

Must be an integer in the range of 10-120.

retry *keepalive_retries*

Specify the number of keepalive retries.

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

Usage Guidelines   Use this command to configure PPP Keepalive parameters.

profile feature-template ppp lcp delay

Configures the time to delay before starting active LCP negotiations.

Command Modes   Exec > Global Configuration (config) > Feature Template Profile Configuration
(config-feature-template-*feature_template_name*) > PPP Configuration (config-ppp)

Syntax Description   `lcp delay seconds` *delay_value* `milliseconds` *delay_value*

milliseconds *delay_value*

Specify the delay value in milliseconds.

Must be an integer in the range of 0-70000000.

seconds *delay_value*

Specify the delay value in seconds.

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

Usage Guidelines   Use this command to configure the time to delay before starting active LCP negotiations.

profile feature-template ppp lcp renegotiation

Configures LCP renegotiation feature.

Command Modes   Exec > Global Configuration (config) > Feature Template Profile Configuration
(config-feature-template-*feature_template_name*) > PPP Configuration (config-ppp)

Syntax Description   `lcp renegotiation ignore`

ignore

Specify to ignore attempts by the peer to renegotiate LCP.

Usage Guidelines   Use this command to configure LCP renegotiation feature.

profile feature-template ppp pap

Configures PAP parameters.

Command Modes Exec > Global Configuration (config) > Feature Template Profile Configuration
(config-feature-template-*feature_template_name*) > PPP Configuration (config-ppp)

Syntax Description `pap accept-null-password`

accept-null-password

Specify to accept null-password option.

Usage Guidelines Use this command to configure PAP parameters.

profile feature-template ppp timeout

Configures PPP timeout parameters.

Command Modes Exec > Global Configuration (config) > Feature Template Profile Configuration
(config-feature-template-*feature_template_name*) > PPP Configuration (config-ppp)

Syntax Description `timeout { [ authentication` *total_auth_complete_time* `] [ retry` *max_response_time* `]
}`

Command Modes Exec > Global Configuration (config) > Endpoint N4 Protocol Configuration (config-endpoint-n4-protocol)

Syntax Description `retransmission timeout` *total_auth_complete_time* `[ retry` *max_response_time* `]`

authentication *total_auth_complete_time*

Specify the total time to allow for authentication to complete.

Must be an integer in the range of 3-30.

retry *max_response_time*

Specify the maximum time to wait for a response to a Conf-Req in seconds.

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

Usage Guidelines Use this command to configure PPP timeout parameters.

profile feature-template ppp timeout absolute

Configures the absolute timeout period for a PPP session.

Command Modes   Exec > Global Configuration (config) > Feature Template Profile Configuration
(config-feature-template-*feature_template_name*) > PPP Configuration (config-ppp)

Syntax Description   `timeout absolute minutes` *timeout_minutes* `seconds` *timeout_seconds*

minutes *timeout_minutes*

Specify the timeout period in minutes.

Must be an integer in the range of 0-70000000.

Usage Guidelines   Use this command to configure the absolute timeout period for a PPP session.

profile feature-template qos

Configures QoS input policy parameters.

Command Modes   Exec > Global Configuration (config) > Feature Template Profile Configuration
(config-feature-template-*feature_template_name*)

Syntax Description   `qos [ in-policy` *in_policy_name* `| out-policy` *out_policy_name* `| merge-level`
merge_level `]`

in-policy *in_policy_name*

Specify the QOS input policy name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

merge-level *merge_level*

Specify the merge level. 0 = merge disabled, 0 = merge enabled + level.

Must be an integer.

out-policy *out_policy_name*

Specify the QOS output policy name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

Usage Guidelines   Use this command to configure QoS input policy parameters.

profile feature-template service-accounting

Configures service accounting parameters.

Command Modes   Exec > Global Configuration (config) > Feature Template Profile Configuration
(config-feature-template-*feature_template_name*)

Syntax Description   `service-accounting [ [ enable ] [ aaa-profile` *aaa_profile_name* `] [`
`periodic-interval` *interim_interval* `] ]`

aaa-profile *aaa_profile_name*

Specify the AAA profile to use for service accounting.

enable

Specify to enable service accounting.

periodic-interval *interim_interval*

Specify the interim interval in seconds.

Must be an integer in the range of 60-4320000.

Usage Guidelines   Use this command to configure service accounting parameters.

profile feature-template session-accounting

Configures session accounting parameters.

Command Modes   Exec > Global Configuration (config) > Feature Template Profile Configuration
(config-feature-template-*feature_template_name*)

Syntax Description   `session-accounting enable { aaa-profile` *aaa_profile_name* `| periodic-interval`
interim_interval `| dual-stack-delay` *dual_stack_delay_wait* `}`

aaa-profile *aaa_profile_name*

Specify the AAA profile to use for session accounting.

dual-stack-delay *dual_stack_delay_wait*

Specify the dual stack set delay wait in seconds.

Must be an integer in the range of 1-30.

enable

Specify to enable session accounting.

periodic-interval *interim_interval*

Specify the interim interval in seconds.

Must be an integer in the range of 60-4320000.

Usage Guidelines   Use this command to configure session accounting parameters.

profile pppoe

Configures PPPOE Subscriber profiles.

Command Modes   Exec > Global Configuration (config)

Syntax Description   `profile pppoe` *pppoe_profile_name* `[ [ ac-cookie` *ac_cookie* `] [ ac-name` *ac_name* `] [ ctrl-pkt-priority` *priority* `] [ service-name` *pppoe_service_names* `] [ service-selection-disable { false | true } ] [ timeout-completion` *session_completion_timeout* `] ]`

ctrl-pkt-priority *priority*

Specify the CoS bits to use in PADx packets.

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

Default Value: 0.

mtu *pppoe_mtu*

Specify the PPPOE MTU for LCP negotiation.

Must be an integer in the range of 500-2000.

Default Value: 1492.

service-name *pppoe_service_names*

Specify the supported PPPoE service names. You can simultaneously configure multiple service names.

service-selection-disable { false | true }

Specify to disable or enable the advertising of extra service names in PADO packets.

Must be one of the following:

   • **false**

   • **true**

Default Value: false.

pppoe_profile_name

Specify the PPPOE profile name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

ac-name *ac_name*

Specify the the AC-Name to use in PADO packets.

ctrl-pkt-priority *priority*

Specify the CoS bits to use in PADx packets.

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

Default Value: 0.

mtu *pppoe_mtu*

Specify the PPPOE MTU for LCP negotiation.

Must be an integer in the range of 500-2000.

Default Value: 1492.

service-name *pppoe_service_names*

Specify the supported PPPoE service names. You can simultaneously configure multiple service names.

service-selection-disable { false | true }

Specify to disable or enable the advertising of extra service names in PADO packets.

Must be one of the following:

   • **false**

   • **true**

Default Value: false.

pppoe_profile_name

Specify the PPPOE profile name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

ac-cookie *ac_cookie*

Specify the AC-Cookie to use in PADO packets.

ac-name *ac_name*

Specify the the AC-Name to use in PADO packets.

ctrl-pkt-priority *priority*

Specify the CoS bits to use in PADx packets.

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

Default Value: 0.

mtu *pppoe_mtu*

Specify the PPPOE MTU for LCP negotiation.

Must be an integer in the range of 500-2000.

Default Value: 1492.

service-name *pppoe_service_names*

Specify the supported PPPoE service names. You can simultaneously configure multiple service names.

service-selection-disable { false | true }

Specify to disable or enable the advertising of extra service names in PADO packets.

Must be one of the following:

- **false**

- **true**

Default Value: false.

pppoe_profile_name

Specify the PPPOE profile name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

ac-cookie *ac_cookie*

Specify the AC-Cookie to use in PADO packets.

ac-name *ac_name*

Specify the the AC-Name to use in PADO packets.

ctrl-pkt-priority *priority*

Specify the CoS bits to use in PADx packets.

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

Default Value: 0.

mtu *pppoe_mtu*

Specify the PPPOE MTU for LCP negotiation.

Must be an integer in the range of 500-2000.

Default Value: 1492.

service-name *pppoe_service_names*

Specify the supported PPPoE service names. You can simultaneously configure multiple service names.

service-selection-disable { false | true }

Specify to disable or enable the advertising of extra service names in PADO packets.

Must be one of the following:

- **false**

- **true**

Default Value: false.

timeout-completion *session_completion_timeout*

Specify the maximum wait time for session to be completed.

Must be an integer in the range of 3-600.

Default Value: 180.

pppoe_profile_name

Specify the PPPOE profile name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

Usage Guidelines   Use this command to configure PPPOE Subscriber profiles. Enters the PPPOE Profile Configuration mode.

profile pppoe max-payload

Configures a range for the ppp-max payload tag value.

Command Modes   Exec > Global Configuration (config) > PPPOE Profile Configuration (config-pppoe-*pppoe_profile_name*)

Syntax Description
```
max-payload { deny | minimum minimum_payload_value | maximum maximum_payload_value
 }
```

deny

Specify to deny the PPP-max payload value.

maximum *maximum_payload_value*

Specify the maximum payload value.

Must be an integer in the range of 1-40000.

Default Value: "1500".

minimum *minimum_payload_value*

Specify the minimum value for the payload.

Must be an integer in the range of 1-40000.

Default Value: "1492".

Usage Guidelines   Use this command to configure a range for the ppp-max payload tag value.

profile pppoe session-limit circuit-id

Configures the maximum number of sessions allowed per Circuit-ID.

Command Modes Exec > Global Configuration (config) > PPPOE Profile Configuration (config-pppoe-*pppoe_profile_name*)

Syntax Description `session-limit circuit-id` *value* `[ threshold` *threshold_count* `]`

threshold *threshold_count*

Specify the threshold count.

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

value *attribute_value*

Specify the attribute value.

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

Usage Guidelines Use this command to configure the maximum number of sessions allowed per Circuit-ID.

profile pppoe session-limit mac

Configures the maximum number of sessions allowed per peer MAC address.

Command Modes Exec > Global Configuration (config) > PPPOE Profile Configuration (config-pppoe-*pppoe_profile_name*)

Syntax Description `session-limit mac` *value* `[ threshold` *threshold_count* `]`

threshold *threshold_count*

Specify the threshold count.

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

value *attribute_value*

Specify the attribute value.

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

Usage Guidelines Use this command to configure the maximum number of sessions allowed per peer MAC address.

profile pppoe session-limit max

Configures the maximum number of sessions allowed under the PPPoE profile.

Command Modes Exec > Global Configuration (config) > PPPOE Profile Configuration (config-pppoe-*pppoe_profile_name*)

Syntax Description   `session-limit max` *value* `[ threshold` *threshold_count* `]`

threshold _threshold_count_

Specify the threshold count.

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

value _attribute_value_

Specify the attribute value.

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

Usage Guidelines   Use this command to configure the maximum number of sessions allowed under the PPPoE profile.

profile pppoe session-limit outer-vlan

Configures the maximum number of sessions allowed per outer-vlan, per access interface.

Command Modes   Exec > Global Configuration (config) > PPPOE Profile Configuration (config-pppoe-*pppoe_profile_name*)

Syntax Description   `session-limit outer-vlan` *value* `[ threshold` *threshold_count* `]`

threshold _threshold_count_

Specify the threshold count.

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

value _attribute_value_

Specify the attribute value.

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

Usage Guidelines   Use this command to configure the maximum number of sessions allowed per outer-vlan, per access interface.

profile radius

Configures RADIUS client profile parameters.

Command Modes   Exec > Global Configuration (config)

Syntax Description   `profile radius [ algorithm` *radius_server_selection_algorithm* `| deadtime` *dead_time*
`| max-retry` *max_retry* `| timeout` *retransmit_timeout_duration* `]`

algorithm _radius_server_selection_algorithm_

Specify the algorithm for selecting RADIUS server.

Must be one of the following:

- **first-server**: Highest priority first.

- **round-robin**: Round-robin.

deadtime *dead_time*

Specify the time to elapse, in minutes, between RADIUS server marked unreachable and when connection can be re-attempted.

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

max-retry *max_retry*

Specify the maximum number of times the system must attempt retry with the RADIUS server.

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

timeout *retransmit_timeout_duration*

Specify the time duration to wait for response from the RADIUS server before retransmitting.

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

Usage Guidelines   Use this command to configure RADIUS client parameters. Enters the RADIUS Client Profile Configuration mode.

profile radius accounting

Configures RADIUS accounting parameters.

Command Modes   Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius)

Syntax Description   `accounting [ algorithm` *radius_server_selection_algorithm* `| deadtime` *dead_time* `| max-retry` *max_retry* `| timeout` *retransmit_timeout_duration* `]`

algorithm *radius_server_selection_algorithm*

Specify the algorithm for selecting RADIUS server.

Must be one of the following:

- **first-server**: Highest priority first.

- **round-robin**: Round-robin.

deadtime *dead_time*

Specify the time to elapse, in minutes, between RADIUS server marked unreachable and when connection can be re-attempted.

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

max-retry *max_retry*

Specify the maximum number of times the system must attempt retry with the RADIUS server.

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

timeout *retransmit_timeout_duration*

Specify the time duration to wait for response from the RADIUS server before retransmitting.

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

Usage Guidelines   Use this command to configure RADIUS accounting parameters. Enters the RADIUS Accounting Configuration mode.

profile radius accounting attribute called-station-id

Configures the AAA called-station-id attribute.

Command Modes   Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius)

Command Modes   Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius) > RADIUS Accounting Configuration (config-accounting)

Syntax Description   `attribute called-station-id` *value*

value

Specify the value of the AAA called-station-id attribute.

Must be a string.

Usage Guidelines   Use this command to configure the AAA called-station-id attribute.

profile radius accounting attribute calling-station-id

Configures the AAA calling-station-id attribute.

Command Modes   Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius)

Command Modes   Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius) > RADIUS Accounting Configuration (config-accounting)

Syntax Description   `attribute calling-station-id` *value*

value

Specify the value of the AAA calling-station-id attribute.

Must be a string.

Usage Guidelines   Use this command to configure the AAA calling-station-id attribute.

profile radius accounting attribute nas-identifier-format

Configures the AAA nas-identifier-format attribute.

Command Modes   Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius)

Command Modes   Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius) > RADIUS Accounting Configuration (config-accounting)

Syntax Description   `attribute nas-identifier-format` *value*

Usage Guidelines   Use this command to configure the AAA nas-identifier-format attribute.

profile radius accounting attribute nas-port-id

Configures the AAA nas-port-id attribute.

Command Modes   Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius)

Command Modes   Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius) > RADIUS Accounting Configuration (config-accounting)

Syntax Description   `attribute nas-port-id` *value*

value

Specify value of the AAA nas-port-id attribute.

Must be a string.

Usage Guidelines   Use this command to configure the AAA nas-port-id attribute.

profile radius accounting detect-dead-server

Configures parameters to detect a dead RADIUS server.

Command Modes   Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius)

Command Modes   Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius) > RADIUS Accounting Configuration (config-accounting)

Syntax Description   `detect-dead-server response-timeout` *response_timeout_duration*

response-timeout response_timeout_duration

Specify the time duration, in seconds, for a response from the RADIUS server to mark it as unreachable.

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

Usage Guidelines   Use this command to configure parameters to detect a dead RADIUS server.

profile radius attribute called-station-id

Configures the AAA called-station-id attribute.

Command Modes   Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius)

Command Modes   Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius) > RADIUS Accounting Configuration (config-accounting)

Syntax Description   `attribute called-station-id` *value*

format-name *format_name*

Specify the attribute format name.

Must be a string.

value

Specify the value of the AAA called-station-id attribute.

Must be a string.

Usage Guidelines   Use this command to configure the AAA called-station-id attribute.

profile radius attribute called-station-id format

Configures node parameters.

Command Modes   Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius)

Command Modes   Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius) > RADIUS Accounting Configuration (config-accounting)

Syntax Description   `attribute` *attribute_name* `format nas-port-type` *nas_port_type* `format-name` *format_name*

nas-port-type *nas_port_type*

Specify the Nas-Port-Type value to apply format name on.

Must be an integer.

format-name *format_name*

Specify the attribute format name.

Must be a string.

nas-port-type *nas_port_type*

Specify the Nas-Port-Type value to apply format name on.

Must be an integer.

Usage Guidelines   Use this command to configure node parameters for nas-port-id, calling-station-id, called-station-id, nas-identifier-format.

profile radius attribute calling-station-id

Configures the AAA calling-station-id attribute.

Command Modes   Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius)

Command Modes   Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius) > RADIUS Accounting Configuration (config-accounting)

Syntax Description   `attribute calling-station-id` *value*

format-name *format_name*

Specify the attribute format name.

Must be a string.

value

Specify the value of the AAA calling-station-id attribute.

Must be a string.

Usage Guidelines   Use this command to configure the AAA calling-station-id attribute.

profile radius attribute calling-station-id format

Configures node parameters.

Command Modes   Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius)

Command Modes   Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius) > RADIUS Accounting Configuration (config-accounting)

Syntax Description   `attribute` *attribute_name* `format nas-port-type` *nas_port_type* `format-name` *format_name*

nas-port-type *nas_port_type*

Specify the Nas-Port-Type value to apply format name on.

Must be an integer.

format-name *format_name*

Specify the attribute format name.

Must be a string.

nas-port-type *nas_port_type*

Specify the Nas-Port-Type value to apply format name on.

Must be an integer.

Usage Guidelines Use this command to configure node parameters for nas-port-id, calling-station-id, called-station-id, nas-identifier-format.

profile radius attribute nas-identifier-format

Configures the AAA nas-identifier-format attribute.

Command Modes Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius)

Command Modes Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius) > RADIUS Accounting Configuration (config-accounting)

Syntax Description `attribute nas-identifier-format` *value*

format-name *format_name*

Specify the attribute format name.

Must be a string.

Usage Guidelines Use this command to configure the AAA nas-identifier-format attribute.

profile radius attribute nas-identifier-format format

Configures node parameters.

Command Modes Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius)

Command Modes Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius) > RADIUS Accounting Configuration (config-accounting)

Syntax Description `attribute` *attribute_name* `format nas-port-type` *nas_port_type* `format-name` *format_name*

nas-port-type *nas_port_type*

Specify the Nas-Port-Type value to apply format name on.

Must be an integer.

format-name *format_name*

Specify the attribute format name.

Must be a string.

nas-port-type *nas_port_type*

Specify the Nas-Port-Type value to apply format name on.

Must be an integer.

Usage Guidelines Use this command to configure node parameters for nas-port-id, calling-station-id, called-station-id, nas-identifier-format.

profile radius attribute nas-port-id

Configures the AAA nas-port-id attribute.

Command Modes Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius)

Command Modes Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius) > RADIUS Accounting Configuration (config-accounting)

Syntax Description `attribute nas-port-id` *value*

format-name *format_name*

Specify the attribute format name.

Must be a string.

value

Specify value of the AAA nas-port-id attribute.

Must be a string.

Usage Guidelines Use this command to configure the AAA nas-port-id attribute.

profile radius attribute nas-port-id format

Configures node parameters.

Command Modes Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius)

Command Modes Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius) > RADIUS Accounting Configuration (config-accounting)

Syntax Description `attribute` *attribute_name* `format nas-port-type` *nas_port_type* `format-name` *format_name*

nas-port-type *nas_port_type*

Specify the Nas-Port-Type value to apply format name on.

Must be an integer.

format-name *format_name*

Specify the attribute format name.

Must be a string.

nas-port-type *nas_port_type*

Specify the Nas-Port-Type value to apply format name on.

Must be an integer.

Usage Guidelines   Use this command to configure node parameters for nas-port-id, calling-station-id, called-station-id, nas-identifier-format.

profile radius detect-dead-server

Configures parameters to detect a dead RADIUS server.

Command Modes   Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius)

Command Modes   Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius) > RADIUS Accounting Configuration (config-accounting)

Syntax Description   `detect-dead-server response-timeout` *response_timeout_duration*

response-timeout *response_timeout_duration*

Specify the time duration, in seconds, for a response from the RADIUS server to mark it as unreachable.

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

Usage Guidelines   Use this command to configure parameters to detect a dead RADIUS server.

profile radius server

Configures RADIUS external server configuration.

Command Modes   Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius)

Syntax Description   `server` *radius_server_ip_address radius_server_port_number* `[ priority` *radius_server_priority* `| secret` *radius_server_secret* `| type` *server_type* `]`

priority *radius_server_priority*

Specify the priority of the RADIUS server.

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

secret *radius_server_secret*

Specify the secret of the RADIUS server.

Must be an aes-cfb-128-encrypted string.

type *server_type*

Specify the server type.

Must be one of the following:

- **acct**

- **auth**

Default Value: auth.

radius_server_ip_address

Specify the IP address of the RADIUS server.

Must be an IP address.

radius_server_port_number

Specify the port number of the RADIUS server.

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

Usage Guidelines   Use this command to configure RADIUS external server configuration.

profile radius server-group

Configures association of RADIUS servers to groups.

Command Modes   Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius)

Syntax Description   `server-group` *server_group_name*

server_group_name

Specify the server group name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

Usage Guidelines   Use this command to configure association of RADIUS servers to groups. Enters the Server Group Configuration mode.

profile radius server-group server

Configures RADIUS server information.

Command Modes
Exec > Global Configuration (config) > RADIUS Profile Configuration (config-radius) > RADIUS Server Group Configuration (config-server-group-*server_group_name*)

Syntax Description
server *radius_server_type* **ip** *radius_server_ip_address* **port** *radius_port_number*

ip *radius_server_ip_address*

Specify IP address of the RADIUS server.

port *radius_port_number*

Specify the port number of the RADIUS server.

radius_server_type

Specify the server type.

Must be one of the following:

- **acct**: Server used for accounting requests.

- **auth**: Server is used for authentication/authorization requests.

Usage Guidelines
Use this command to configure RADIUS server information.

profile server-group

Configures AAA custom server groups.

Command Modes
Exec > Global Configuration (config)

Syntax Description
server-group *server_group_name* **radius-group** *radius_server_group_name*

radius-group *radius_server_group_name*

Specify the RADIUS server group name.

aaa_server_group_name

Specify the AAA server group name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

Usage Guidelines
Use this command to configure AAA custom server groups.

profile subscriber

Configures subscriber profiles.

Command Modes
Exec > Global Configuration (config)

Syntax Description
```
profile subscriber subscriber_profile_name [ [ activate-feature-templates
template_names ] [ apply-all-class ] [ dhcp-profile dhcp_profile_name ] [
pppoe-profile pppoe_profile_name ] [ session-type session_type ] ]
```

activate-feature-templates *template_names*

Specify the list of feature templates to activate.

apply-all-class

Specify to apply all classes if enabled.

dhcp-profile *dhcp_profile_name*

Specify the DHCP-FSOL profile name.

pppoe-profile *pppoe_profile_name*

Specify the PPPOE-FSOL profile name.

session-type *session_type*

Specify the allowed session type.

Must be one of the following:

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

Default Value: ipv4v6.

subscriber_profile_name

Specify the subscriber profile name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

Usage Guidelines
Use this command to configure subscriber profiles. Enters the Subscriber Profile Configuration mode.

You can configure a maximum of "8" elements with this command.

profile subscriber aaa

Configures AAA operations.

Command Modes	Exec > Global Configuration (config) > Subscriber Profile Configuration (config-subscriber-*subscriber_profile_name*)
Command Modes	Exec > Global Configuration (config) > Subscriber Profile Configuration (config-subscriber-*subscriber_profile_name*) > Class Configuration (config-class-*class_name*)
Command Modes	Exec > Global Configuration (config) > Subscriber Profile Configuration (config-subscriber-*subscriber_profile_name*) > Event Configuration (config-event-*event_name*)
Command Modes	Exec > Global Configuration (config) > Subscriber Profile Configuration (config-subscriber-*subscriber_profile_name*) > Event Configuration (config-event-*event_name*) > Class Configuration (config-class-*class_name*)
Syntax Description	`aaa` *aaa_option aaa_profile_name*

aaa_option

Specify the AAA option.

Must be one of the following:

- **authenticate**

- **authorize**

aaa_profile_name

Specify the AAA profile name.

Usage Guidelines   Use this command to configure AAA operations.

profile subscriber class

Configures subscriber classification parameters.

Command Modes	Exec > Global Configuration (config) > Subscriber Profile Configuration (config-subscriber-*subscriber_profile_name*)
Command Modes	Exec > Global Configuration (config) > Subscriber Profile Configuration (config-subscriber-*subscriber_profile_name*) > Event Configuration (config-event-*event_name*)
Syntax Description	`class` *class_name* `[ activate-feature-templates` *feature_template_names* `]`

activate-feature-templates feature_template_names

Specify the list of feature template names to activate.

class_name

Specify the class name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

Usage Guidelines   Use this command to configure subscriber classification parameters. Enters the Subscriber Class Configuration mode.

You can configure a maximum of "8" elements with this command.

profile subscriber class aaa

Configures AAA operations.

Command Modes   Exec > Global Configuration (config) > Subscriber Profile Configuration
(config-subscriber-*subscriber_profile_name*) > Subscriber Class Configuration (config-class-*class_name*)

Syntax Description   `aaa` *aaa_option profile_name*

aaa_option

Specify the AAA option.

Must be one of the following:

- **authenticate**

- **authorize**

profile_name

Specify the AAA profile name.

Usage Guidelines   Use this command to configure AAA operations.

profile subscriber class matches

Configures the list of match values.

Command Modes   Exec > Global Configuration (config) > Subscriber Profile Configuration
(config-subscriber-*subscriber_profile_name*) > Class Configuration (config-class-*class_name*)

Command Modes   Exec > Global Configuration (config) > Subscriber Profile Configuration
(config-subscriber-*subscriber_profile_name*) > Event Configuration (config-event-*event_name*) > Class
Configuration (config-class-*class_name*)

Syntax Description   `matches [ match-type { all | any } ]`

match-type *match_type*

Specify the match type.

Usage Guidelines   Use this command to configure the list of match values. Enters the Matches Configuration mode.

profile subscriber class matches match

Configures match key and value.

Command Modes   Exec > Global Configuration (config) > Subscriber Profile Configuration
(config-subscriber-*subscriber_profile_name*) > Class Configuration (config-class-*class_name*) > Matches
Configuration (config-matches)

Command Modes   Exec > Global Configuration (config) > Subscriber Profile Configuration
(config-subscriber-*subscriber_profile_name*) > Event Configuration (config-event-*event_name*) > Class
Configuration (config-class-*class_name*) > Matches Configuration (config-matches)

Syntax Description   `match` *match_key* `{` *match_protocol* `|` `ascii` *ascii_string* `|` `regex` *regex_string* `}`

match_key

Specify the match key.

ascii *ascii_string*

Specify the ASCII string.

Must be a string.

regex *regex_string*

Specify the regular expression string.

Must be a string.

match_key

Specify the match key.

match_protocol

Specify the match protocol.

Must be one of the following:

- **dhcp**

- **ppp**

You can configure a maximum of "2" elements with this command.

You can configure a maximum of "8" elements with this command.

Usage Guidelines   Use this command to configure match key and value.

You can configure a maximum of "8" elements with this command.

profile subscriber event

Configures subscriber events.

Command Modes   Exec > Global Configuration (config) > Subscriber Profile Configuration
(config-subscriber-*subscriber_profile_name*) > Event Configuration (config-event-*event_name*)

Syntax Description   **event** *event_name* **[activate-feature-templates** *template_names* **| apply-all-class**
| deactivate-feature-templates *template_names* **]**

event *event_name*

Specify the event name.

activate-feature-templates *template_names*

Specify the list of feature templates to activate.

apply-all-class

Specify to apply all classes if enabled.

deactivate-feature-templates *template_names*

Specify the list of feature templates to deactivate.

event *event_name*

Specify the event name.

You can configure a maximum of "8" elements with this command.

Usage Guidelines   Use this command to configure subscriber events.

You can configure a maximum of "8" elements with this command.

profile subscriber event aaa

Configures AAA operations.

Command Modes   Exec > Global Configuration (config) > Subscriber Profile Configuration
(config-subscriber-*subscriber_profile_name*)

Command Modes   Exec > Global Configuration (config) > Subscriber Profile Configuration
(config-subscriber-*subscriber_profile_name*) > Class Configuration (config-class-*class_name*)

Command Modes	Exec > Global Configuration (config) > Subscriber Profile Configuration (config-subscriber-*subscriber_profile_name*) > Event Configuration (config-event-*event_name*)
Command Modes	Exec > Global Configuration (config) > Subscriber Profile Configuration (config-subscriber-*subscriber_profile_name*) > Event Configuration (config-event-*event_name*) > Class Configuration (config-class-*class_name*)
Syntax Description	`aaa` *aaa_option aaa_profile_name*

aaa_option

Specify the AAA option.

Must be one of the following:

- **authenticate**
- **authorize**

aaa_profile_name

Specify the AAA profile name.

Usage Guidelines	Use this command to configure AAA operations.

profile subscriber event class

Configures subscriber classification.

Command Modes	Exec > Global Configuration
Syntax Description	`class { class-name` *class_name* `| deactivate-feature-templates` *template_names* `| activate-feature-templates` *template_names* `}`

activate-feature-templates template_names

Specify the list of feature template names to activate.

class-name class_name

Specify the class name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

deactivate-feature-templates template_names

Specify the list of feature template names to deactivate.

You can configure a maximum of "8" elements with this command.

Usage Guidelines	Use this command to configure subscriber classification.
	You can configure a maximum of "8" elements with this command.

profile subscriber event class aaa

Configures AAA operations.

| **Command Modes** | Exec > Global Configuration (config) > Subscriber Profile Configuration (config-subscriber-*subscriber_profile_name*) > Subscriber Class Configuration (config-class-*class_name*) |

| **Syntax Description** | `aaa` *aaa_option* *profile_name* |

aaa_option

Specify the AAA option.

Must be one of the following:

- **authenticate**

- **authorize**

profile_name

Specify the AAA profile name.

| **Usage Guidelines** | Use this command to configure AAA operations. |

profile subscriber event class matches

Configures the list of match values.

| **Command Modes** | Exec > Global Configuration (config) > Subscriber Profile Configuration (config-subscriber-*subscriber_profile_name*) > Class Configuration (config-class-*class_name*) |

| **Command Modes** | Exec > Global Configuration (config) > Subscriber Profile Configuration (config-subscriber-*subscriber_profile_name*) > Event Configuration (config-event-*event_name*) > Class Configuration (config-class-*class_name*) |

| **Syntax Description** | `matches [ match-type { all | any } ]` |

match-type *match_type*

Specify the match type.

| **Usage Guidelines** | Use this command to configure the list of match values. Enters the Matches Configuration mode. |

profile subscriber event class matches match

Configures match key and value.

Command Modes	Exec > Global Configuration (config) > Subscriber Profile Configuration (config-subscriber-*subscriber_profile_name*) > Class Configuration (config-class-*class_name*) > Matches Configuration (config-matches)
Command Modes	Exec > Global Configuration (config) > Subscriber Profile Configuration (config-subscriber-*subscriber_profile_name*) > Event Configuration (config-event-*event_name*) > Class Configuration (config-class-*class_name*) > Matches Configuration (config-matches)
Syntax Description	**match** *match_key* **{** *match_protocol* **|** **ascii** *ascii_string* **|** **regex** *regex_string* **}**

match_key

Specify the match key.

ascii *ascii_string*

Specify the ASCII string.

Must be a string.

regex *regex_string*

Specify the regular expression string.

Must be a string.

match_key

Specify the match key.

match_protocol

Specify the match protocol.

Must be one of the following:

- **dhcp**
- **ppp**

Usage Guidelines	Use this command to configure match key and value.
	You can configure a maximum of "8" elements with this command.

show sessions

Displays pending session commits in the database.

Command Modes	Exec
Syntax Description	**show sessions**
Usage Guidelines	Use this command to view pending session commits in the database.

show sessions affinity

Displays instance-wise affinity count.

Command Modes	Exec
Syntax Description	`show sessions affinity`
Usage Guidelines	Use this command to view the instance-wise affinity count.

show sessions commit-pending

Displays all pending session commits.

Command Modes	Exec
Syntax Description	`show sessions commit-pending`
Usage Guidelines	Use this command to view all pending session commits.

show diagnostics

Displays diagnostics information.

Command Modes	Exec
Syntax Description	`show diagnostics`
Usage Guidelines	Use this command to view diagnostics information.

show diagnostics info

Displays diagnostics information.

Command Modes	Exec
Syntax Description	`show diagnostics info`
Usage Guidelines	Use this command to view diagnostics information.

show endpoint all

Displays endpoint status.

Command Modes	Exec
Syntax Description	`show endpoint all`
Usage Guidelines	Use this command to view endpoint status for all endpoints.

show endpoint info

Displays endpoint information.

Command Modes	Exec
Syntax Description	`show endpoint info`
Usage Guidelines	Use this command to view endpoint information.

show ipam dp

Displays IPAM data-plane allocations.

Command Modes	Exec
Syntax Description	`show ipam dp`
Usage Guidelines	Use this command to view IPAM data-plane allocations.

show ipam pool

Displays pool allocation information.

Command Modes	Exec
Syntax Description	`show ipam pool`
Usage Guidelines	Use this command to view pool allocation information.

show peers

Displays peer information.

Command Modes	Exec
Syntax Description	`show peers`
Usage Guidelines	Use this command to view peer information.

show peers all

Displays information for all peers.

Command Modes	Exec
Syntax Description	`show peers all`
Usage Guidelines	Use this command to view information for all peers.

show resources

Displays resources information.

Command Modes	Exec
Syntax Description	`show resources`
Usage Guidelines	Use this command to view resources information.

show resources info

Displays resources information.

Command Modes	Exec
Syntax Description	`show resources info`
Usage Guidelines	Use this command to view resources information.

show rpc

Displays RPC information.

Command Modes	Exec
Syntax Description	`show rpc`
Usage Guidelines	Use this command view RPC information.

show rpc all

Displays information for all RPCs.

Command Modes	Exec
Syntax Description	`show rpc all`
Usage Guidelines	Use this command to view information for all RPCs.

show running-status

Displays system running status information.

Command Modes	Exec
Syntax Description	`show running-status`
Usage Guidelines	Use this command to view system running status information.

show running-status info

Displays system running status information.

Command Modes	Exec
Syntax Description	`show running-status info`
Usage Guidelines	Use this command to view system running status information.

show subscriber

Displays BNG subscriber data.

Command Modes	Exec
Syntax Description	`show subscriber` *type* `[count	detail	sublabel` *subscriber_label* `]`

acct-sess-id *accounting_session_id*

Specify the accounting session ID.

Must be a string.

count

Specify to display the number of sessions.

debug

Specify debug information.

detail

Specify to display detailed information.

sublabel *subscriber_label*

Specify the subscriber label.

Must be a string.

sync *sync_info*

Specify synchronization information.

Must be one of the following:

- **synchronize**

upf *upf_info*

Specify UPF information.

Must be a string.

upmgr

Specify SMUP information.

type

Specify the type.

Must be one of the following:

- **charging**

- **dhcp**

- **pppoe**

- **session**

Usage Guidelines   Use this command to view BNG subscriber data.

show subscriber

Displays subscriber information.

Command Modes   Exec

Syntax Description   `show subscriber { all | supi` *supi_id* `}`

all

Specify all SUPI.

supi *supi_id*

Specify the SUPI.

Must be a string.

Usage Guidelines   Use this command to view summary and detailed subscriber information for all subscribers or specific subscribers based on SUPI.

show subscriber filter

Configures additional filters.

Command Modes   Exec

Syntax Description
```
show subscriber type filter [ afi address_family | iana-state-bound
iana_bound_state | iapd-state-bound iapd_bound_state | ipv4-addr ipv4_address |
ipv4-pool ipv4_pool_name | ipv4-range ipv4_address_range | ipv4-state-bound
ipv4_bound_state | ipv6-addr ipv6_address | ipv6-addr-pool ipv6_address_pool_name |
 ipv6-addr-range ipv6_address_range | ipv6-pfx ipv6_prefix | ipv6-pfx-pool
ipv6_prefix_pool | ipv6-pfx-range ipv6_prefix_range | mac mac_address | port-id
upf_port_id | state session_state | up-subs-id up_subscriber_id | upf upf_name |
upmgr sm_up_info | username session_user_name | vrf vrf_name ]
```

afi *address_family*

Specify the address family.

Must be one of the following:

- **dual**

- **ipv4**

- **ipv6**

- **pending**

iana-state-bound *iana_bound_state*

Specify the IANA bound state.

Must be one of the following:

- **iana-state-bound**

iapd-state-bound *iapd_bound_state*

Specify the IAPD bound state.

Must be one of the following:

- **iapd-state-bound**

ipv4-addr *ipv4_address*

Specify the IPv4 address in the format "*pool-name*/*ipv4-addr*".

Must be a string.

ipv4-pool *ipv4_pool_name*

Specify the IPv4 pool name.

Must be a string.

ipv4-range *ipv4_address_range*

Specify the IPv4 address range in the format "*poolName*/*start-ip*".

Must be a string.

ipv4-state-bound *ipv4_bound_state*

Specify the IPv4 bound state.

Must be one of the following:

   • **ipv4-state-bound**

ipv6-addr-pool *ipv6_address_pool_name*

Specify the IPv6 address pool name.

Must be a string.

ipv6-addr-range *ipv6_address_range*

Specify the IPv6 address range in the format "*poolName*/*start-ip*".

Must be a string.

ipv6-addr *ipv6_address*

Specify the IPv6 address in the format "*pool-name*/*ipv6-addr*".

Must be a string.

ipv6-pfx-pool *ipv6_prefix_pool*

Specify the IPv6 prefix pool name.

Must be a string.

ipv6-pfx-range *ipv6_prefix_range*

Specify the IPv6 prefix range in the format "*poolName*/*start-pfx*".

Must be a string.

ipv6-pfx *ipv6_prefix*

Specify the IPv6 prefix in the format "*pool-name*/*ipv6-pfx*".

Must be a string.

mac *mac_address*

Specify the MAC address in the format "aabb.ccdd.eeff".

Must be a string.

port-id *upf_port_id*

Specify the user plane function port ID in the format "*upf*/*portid*".

Must be a string.

smstate *sm_session_state*

Specify the state of the SM session.

Must be one of the following:

- **created**

- **deleted**

- **established**

smupstate *smup_session_state*

Specify the state of the SMUP session.

Must be one of the following:

- **smUpSessionCreated**

- **smUpSessionDeleted**

- **smUpSessionWait4SmCreate**

state *session_state*

Specify the session state.

Must be one of the following:

- **complete**

- **incomplete**

up-subs-id *up_subscriber_id*

Specify the UP subscriber ID.

Must be a string.

upf *upf_name*

Specify the user plane function name.

Must be a string.

upmgr *upmgr*

Specify the UPMgr.

Must be one of the following:

- **upmgr**

username *session_user_name*

Specify the user name of the session.

Must be a string.

Usage Guidelines   Use this command to configure additional filters.

subscriber route-synchronize

Synchronizes routes to UPF.

Command Modes   Exec

Syntax Description   `subscriber route-synchronize upf` *user_plane_name*

upf *user_plane_name*

Specify the user plane name.

Must be a string.

Usage Guidelines   Use this command to synchronize routes to UPF.

subscriber session-synchronize

Synchronizes sessions to UPF.

Command Modes   Exec

Syntax Description   `subscriber session-synchronize upf` *user_plane_name* `[ abort | timeout` *sla_timeout* `]`

abort

Specify to abort synchronization.

timeout *sla_timeout*

Specify the SLA timeout duration in seconds.

Must be an integer in the range of 10-1800.

upf *user_plane_name*

Specify the user plane name.

Must be a string.

Usage Guidelines Use this command to synchronize sessions to UPF.

user-plane

Configures the userplane configuration.

Command Modes Exec > Global Configuration (config)

Syntax Description **user-plane** *userplane_name* **[offline | subscriber-profile** *subscriber_profile* **]**

offline

Specify as offline.

subscriber-profile *subscriber_profile_name*

Specify the Subscriber Profile to associate at current level.

userplane_name

Specify the userplane name.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

Usage Guidelines Use this command to configure the userplane configuration. Enters the Userplane Configuration mode.

user-plane peer-address

Configures the userplane IP address.

Command Modes Exec > Global Configuration (config) > User Plane Configuration (config-user-plane-*userplane_name*)

Syntax Description **peer-address ipv4** *ipv4_address*

ipv4 *ipv4_address*

Specify the IPv4 address.

Must be an IPv4 address.

Usage Guidelines Use this command to configure the userplane IP address.

user-plane port-id

Configures Port Identifier parameters.

Command Modes   Exec > Global Configuration (config) > User Plane Configuration (config-user-plane-*userplane_name*)

Syntax Description   **port-id** *port_number* **[subscriber-profile** *subscriber_profile_name* **]**

subscriber-profile ***subscriber_profile_name***

Specify the Subscriber Profile to associate to the Port Identifier level.

port_number

Specify the port identifier.

Must be a string in the pattern ([a-zA-Z1-9_][^(\\s,\\t,\",')]*).

Usage Guidelines   Use this command to configure Port Identifier parameters.