BNG DHCP Commands

This module describes the Cisco IOS XR software commands used to configure the DHCP commands for Broadband Network Gateway (BNG) on the Cisco ASR 9000 Series Router. For details regarding the related configurations, refer to the *Cisco ASR 9000 Series Aggregation Services Router Broadband Network Gateway Configuration Guide*.

To use commands of this module, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using any command, contact your AAA administrator for assistance.

aaa dhcp-option force-insert

To enable the insertion of DHCP options while replying to the DHCP client, regardless of the request from the DHCP host, use the **aaa dhcp-option force-insert** command in DHCP IPv4 or IPv6 server profile configuration mode. To disable this functionality, use the **no** form of this command.

aaa dhcp-option force-insert

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

DHCP IPv4 server profile

DHCP IPv6 server profile

Command History

Release	Modification
Release 6.4.1	The command was extended for DHCP IPv6 server profile configuration mode.
Release 6.1.2	This command was introduced.

Usage Guidelines

If DHCP server profile is configured on BNG, the per-subscriber-based DHCP options get preference over that.

You can configure a maximum of 8 DHCPv6 options for a single user profile. The AAA server can send a maximum of 120 hexadecimal bytes and 240 ASCII characters (approximately) to the BNG router.

For more information on Rich DHCP Option on RADIUS VSA feature, see the *Establishing Subscriber Sessions* chapter in the *Cisco ASR 9000 Series Aggregation Services Router Broadband Network Gateway Configuration Guide*.

Task ID

Task ID	Operation
ip-services	read, write

This example shows how to enable rich DHCP option feature on BNG:

```
RP/0/RSP0/CPU0:router(config-dhcpv4-server-profile)#aaa dhcp-option force-insert
```

address-pool

To specify the name of an address pool by integrating the DHCPv6 sever with distributed address pool service (DAPS), use the **address-pool** command in the DHCP IPv6 server profile class configuration mode. To remove the address pool name, use the **no** form of this command.

address-pool *pool_name*

Syntax Description

pool_name	Specifies the name of a address pool.

Command Default

None

Command Modes

DHCP IPv6 server profile class configuration

Command History

Release	Modification
Release 4.3.0	This command was introduced.

Usage Guidelines

To enter the DHCP IPv6 server profile configuration, enter **profile** *profile_name* **server** command in the DHCPv6 configuration mode.

To enter the DHCP IPv6 server profile class configuration, enter **class** *class_name* command in the DHCPv6 server profile configuration mode.

Task ID

Task ID	Operations
ip-services	read, write

Examples

This is an example of creating a address-pool name using the **address-pool** command:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv6
RP/0/RSP0/CPU0:router(config-dhcpv6)# profile my_profile server
RP/0/RSP0/CPU0:router(config-dhcpv6-server-profile)# class class_dhcp
RP/0/RSP0/CPU0:router(config-dhcpv6-server-profile-class)# address-pool pool_addr
```

aftr-name

To set the Address Family Transition Router's (AFTR) name for Dual-stack Lite support, use the **aftr-name** command in DHCPv6 server profile configuration mode. To disable the AFTR-name, use the **no** form of this command.

aftr-name *aftr-name*

Syntax Description

aftr-name	Specifies the AFTR fully qualified domain name for the server profile.

Command Default

Dual-stack support is not enabled.

Command Modes

DHCPv6 server profile configuration

Command History

Release	Modification
Release 4.3.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
ip-services	read, write

This example shows how to configure the AFTR Fully Qualified Domain Name (FQDN) for a server profile:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv6
RP/0/RSP0/CPU0:router(config-dhcpv6)# profile my_profile server
RP/0/RSP0/CPU0:router(config-dhcpv6-server-profile)# aftr-name aftr-server.example.com
```

authentication username

To specify the username format of IPv4 or IPv6 subscriber for authentication with the AAA server (as part of enabling DHCP L3 snoop feature in BNG), use the **authentication username** command in DHCP IPv4 (or IPv6) proxy profile configuration mode. To remove this configuration, use the **no** form of this command.

For IPv4:

authentication username {**giaddr** | **mac**}

For IPv6:

authentication username DUID

Syntax Description

giaddr	Specifies gateway address as the username for IPv4 subscriber. A combination of gateway address and MAC address is used as the authorization username to enable DHCP L3 snooping in BNG.
mac	Specifies MAC address as the username for IPv4 subscriber.
DUID	Specifies DUID as the username for IPv6 subscriber.

Command Default

None

Command Modes

DHCP IPv4 proxy profile

DHCP IPv6 proxy profile

Command History

Release	Modification
Release 6.3.2	This command was introduced.

Usage Guidelines

This is supported only on Cisco IOS XR 64-bit operating system.

The **DUID** option is applicable only for IPv6 subscribers, and is available only in DHCP IPv6 proxy profile configuration mode. Similarly, the **giaddr** and **mac**options are applicable only for IPv4 subscribers, and are available only in DHCP IPv4 proxy profile configuration mode.

The **DUID** option is mainly useful in routed DHCPv6-initiated sessions in case the MAC information is not available to BNG through DHCP Option 79.

Task ID

Task ID	Operation
ip-services	read, write

This example shows how to specify the MAC address-gateway address combination as the authorization username of IPv4 subscriber, to enable DHCP L3 snoop feature in BNG:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile example-profile proxy
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile)# authentication username mac giaddr
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile)# commit
```

Related Commands

Command	Description
delayed authentication, on page 12	Delays the client authorization until DHCP REQUEST message is received from the client.

broadcast-flag policy check (BNG)

To configure Dynamic Host Configuration Protocol (DHCP) IPv4 Relay to broadcast only BOOTREPLY packets if the DHCP IPv4 broadacst flag is set in the DHCP IPv4 header, use the **broadcast-flag policy check** command in DHCP IPv4 relay profile configuration submode or DHCP IPv4 server profile configuration submode. By default, the DHCP IPv4 Relay always broadcasts BOOTREPLY packets. To restore the default, use the **no** form of this command.

broadcast-flag policy { **check** | **unicast-always** }

Syntax Description

check	Checks the broadcast flag in packets.
unicast-always	Sets the broadcast-flag policy to unicast-always.

Command Default

Relay agent always broadcasts DHCP IPv4 packets to a client.

Command Modes

DHCP IPv4 relay profile configuration

DHCP IPv4 server profile

Command History

Release	Modification
Release 3.7.0	This command was introduced.
Release 4.2.0	This command was supported for BNG.
Release 5.1	The **unicast-always** keyword was added.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
ip-services	read, write

Examples

This an example of the **broadcast-flag policy check** command:

```
RP/0/RSP0/CPU0:router# config
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile client relay
RP/0/RSP0/CPU0:router(config-dhcpv4-relay-profile)# broadcast-flag policy check
```

This an example of the **broadcast-flag policy** command:

```
RP/0/RSP0/CPU0:router# config
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile TEST server
```

```
RP/0/RSP0/CPU0:router(config-dhcpv4-server-profile)# broadcast-flag policy unicast-always
```

Related Commands

Command	Description
dhcp ipv4 (BNG), on page 13	Enables DHCP for IPv4 and enters DHCP IPv4 configuration mode.
helper-address	Configures the DHCP relay agent to relay packets to a specific DHCP server.
relay information check (BNG), on page 62	Configures a DHCP server to validate the relay agent information option in forwarded BOOTREPLY messages.
relay information option (BNG), on page 64	Enables the system to insert a DHCP relay agent information option in forwarded BOOTREQUEST messages to a DHCP server.
relay information option allow-untrusted (BNG), on page 66	Configures the DHCP component to not drop BOOTREQUEST messages that have the relay information option set and the giaddr set to zero.
relay information policy (BNG), on page 68	Configures how a relay agent processes BOOTREQUEST messages that already contain a relay information option.

class

To create a proxy profile class and to enter the proxy profile class sub configuration mode, use the **class** command in an appropriate configuration mode. To disable this feature and exit the profile mode, use the **no** form of this command.

class *class_name* {**helper-address** | **match**} {**address-pool** | **dns-server** | **domain-name** | **prefix-pool**}

Syntax Description

class_name	Specifies the class name.
helper-address	Specifies the server address to relay packets.
match	Inserts a match keyword.
address-pool	Specifies the name of the address pool
dns-server	Specifies the name of a dns server.
domain-name	Specifies the name of a domain.
prefix-pool	Specifies the name of the prefix pool.

Command Default

No class is specified.

Command Modes

DHCP IPv4 proxy profile configuration

DHCP IPv6 proxy profile configuration

DHCP IPv6 server profile configuration

Command History

Release	Modification
Release 4.2.0	This command was introduced.
Release 4.3.0	The support for IPv6 was added.

Usage Guidelines

The class submode is present in both DHCP IPv6 proxy profile configuration and DHCP IPv6 server profile configuration submodes. A class is associated with a match criterion, which is used to determine if the class is applied to a subscriber or not. The class name needs to be unique for the system.

Note The address-pool, dns-server, domain-name, and prefix-pool keywords appear only in the DHCP IPv6 server profile configuration mode. However, the helper-address keywords appears in both DHCP IPv4 proxy profile configuration and DHCP IPv6 proxy profile configuration modes.

Task ID

Task ID	Operation
ip-services	read, write

This example shows how to create a class in the DHCP IPv4 proxy profile configuration mode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile dhcp_profile proxy
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile)# class blue
```

This example shows how to create a class in the DHCP IPv6 proxy profile configuration mode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv6
RP/0/RSP0/CPU0:router(config-dhcpv6)# profile dhcp_profile1 proxy
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile)# class blue
```

This example shows how to create a class in the DHCP IPv6 server profile configuration mode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv6)# profile dhcp_profile2 server
RP/0/RSP0/CPU0:router(config-dhcpv4-server-profile)# class red
```

Related Commands

Command	Description
class-map type control subscriber	This topic describes the class-map type control subscriber command.

delayed authentication

To delay the client authorization until DHCP REQUEST message is received from the client, use the **delayed authentication** command in DHCP IPv4 proxy profile configuration mode. This is used while enabling DHCP L3 snooping feature in BNG. To disable this configuration, use the **no** form of this command.

delayed authentication

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

DHCP IPv4 proxy profile

Command History

Release	Modification
Release 6.3.2	This command was introduced.

Usage Guidelines

This command is supported only for DHCPv4; not for DHCPv6. Also, it is supported only on Cisco IOS XR 64-bit operating system.

Task ID

Task ID	Operation
ip-services	read, write

This example shows how to delay the client authorization while enabling DHCP L3 snooping in BNG:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile example-profile proxy
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile)# delayed authentication
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile)# commit
```

Related Commands

Command	Description
authentication username, on page 6	Specifies the username format of IPv4 or IPv6 subscriber for authentication with the AAA server, as part of enabling DHCP L3 snoop feature in BNG.

dhcp ipv4 (BNG)

To enable Dynamic Host Configuration Protocol (DHCP) for IPv4 and to enter DHCP IPv4 configuration mode, use the **dhcp ipv4** command in Global Configuration mode. To disable DHCP for IPv4 and exit the DHCP IPv4 configuration mode, use the **no** form of this command.

dhcp ipv4

Syntax Description

This command has no keywords or arguments.

Command Modes

None

Command Modes

Global Configuration mode

Command History

Release	Modification
Release 3.7.2	This command was introduced.
Release 4.2.0	This command was supported for BNG.

Usage Guidelines

Use the **dhcp ipv4** command to enter DHCP IPv4 configuration mode.

Task ID

Task ID	Operations
ip-services	read, write

Examples

This example shows how to enable DHCP for IPv4:

```
RP/0/RSP0/CPU0:router# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)#
```

dhcp ipv6 (BNG)

To enable Dynamic Host Configuration Protocol (DHCP) for IPv6 and to enter DHCP IPv6 configuration mode, use the **dhcp ipv6** command in Global Configuration mode. To disable the DHCP for IPv6, use the **no** form of this command.

dhcp ipv6

Syntax Description

This command has no keywords or arguments.

Command Modes

Global Configuration mode

Command History

Release	Modification
Release 4.1.0	This command was introduced.
Release 4.3.0	This command was supported for BNG.

Usage Guidelines

Use the **dhcp ipv6** command to enter DHCP IPv6 configuration mode.

Task ID

Task ID	Operations
ip-services	read, write

Examples

This example shows how to enable DHCP for IPv6:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv6
RP/0/RSP0/CPU0:router(config-dhcpv6)#
```

dhcp-to-aaa option list

To enable control over the subscriber DHCP options to be sent to the AAA server by the BNG router, use the **dhcp-to-aaa option list** command in DHCP IPv4 server profile or proxy profile configuration mode. To disable this feature, use the **no** form of this command.

dhcp-to-aaa option list {**all***option-value*}

Syntax Description

all	Enables the functionality to send all DHCPv4 options from the subscriber to the AAA server.
option-value	Specifies the particular DHCPv4 options from the subscriber to be sent to the AAA server.

Command Default

None

Command Modes

DHCP IPv4 proxy profile

DHCP IPv4 server profile

Command History

Release	Modification
Release 6.4.1	This command was introduced.

Usage Guidelines

The BNG router sends all or the specified DHCPv4 options to the AAA server, if this command is configured. You can send a maximum of 13 options (12 DHCP options and a DHCP header) to the AAA server. The header portion of the DHCP control packet is encoded as option type 0. The first 108 bytes of the header are sent to the AAA server.

Task ID

Task ID	Operation
ip-services	read, write

This example shows how to enable control over the subscriber DHCP options to be sent to the AAA server:

```
Router# configure
Router(config)# dhcp ipv4
Router(config-dhcpv4)# profile server-profile server
Router(config-dhcpv4-server-profile)# dhcp-to-aaa option list 90 50
Router(config-dhcpv4-server-profile)# commit
```

Related Commands

Command	Description
aaa dhcp-option force-insert, on page 3	Enables the insertion of DHCP options while replying to the DHCP client, regardless of the request from the DHCP host.

dhcpv6-to-aaa option list

To enable control over the subscriber DHCPv6 options to be sent to the AAA server by the BNG router, use the **dhcpv6-to-aaa option list all** command in DHCP IPv6 server profile or proxy profile configuration mode. To disable this feature, use the **no** form of this command.

dhcpv6-to-aaa option list {**all** | *option-value*}

Syntax Description

all	Enables the functionality to send all DHCPv6 options from the subscriber to the AAA server.
option-value	Specifies the particular DHCPv6 options from the subscriber to be sent to the AAA server.

Command Default

None

Command Modes

DHCP IPv6 proxy profile

DHCP IPv6 server profile

Command History

Release	Modification
Release 6.6.2	This command was introduced.

Usage Guidelines

The BNG router sends all or specified DHCPv6 options to the AAA server, if this command is configured. You can send a maximum of 13 options (12 DHCP options and a DHCP header) to the AAA server. The header portion of the DHCP control packet is encoded as option type 0. The first 108 bytes of the header are sent to the AAA server.

Task ID

Task ID	Operation
ip-services	read, write

This example shows how to enable control over the subscriber DHCP options to be sent to the AAA server:

```
Router# configure
Router(config)# dhcp ipv6
Router(config-dhcpv6)# profile server-profile server
Router(config-dhcpv6-server-profile)# dhcpv6-to-aaa option list 90 50
Router(config-dhcpv6-server-profile)# commit
```

dhcpv6 address-pool

To specify addresses for DHCPv6 when Radius does not provide IPv6 address, use the **dhcpv6 address-pool** command in the dynamic template configuration mode. To remove the IPv6 address pool name for DHCPv6, use the **no** form of this command.

dhcpv6 address-pool *pool_name*

Syntax Description

pool_name	Specifies the name of a IPv6 address pool name for DHCPv6.

Command Default

None

Command Modes

Dynamic template configuration

Command History

Release	Modification
Release 4.3.0	This command was introduced.

Usage Guidelines

To enter the dynamic template configuration mode, enter **dynamic-template** command in the Global Configuration mode.

The IPv6 address pool is used for both PPPoE and IPoE subscribers.

Task ID

Task ID	Operations
config-services	read, write

Examples

This is an example of creating an IPv6 address pool for PPPoE subscribers using the **dhcpv6 address-pool** command:

```
RP/0/RSP0/CPU0:router(config)# dynamic-template
RP/0/RSP0/CPU0:router(config-dynamic-template)# type ppp my-ipv6-pppoe-tempate
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# dhcpv6 address-pool my-pppoe-addr-pool
```

This is an example of creating an IPv6 address pool for IPoE subscribers using the **dhcpv6 address-pool** command:

```
RP/0/RSP0/CPU0:router(config)# dynamic-template
RP/0/RSP0/CPU0:router(config-dynamic-template)# type ppp my-ipv6-tempate
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# dhcpv6 address-pool my-ipsub-addr-pool
```

dhcpv6 delegated-prefix-pool

To specify the default pool name for (IA-PD) prefix delegation when no pool name or prefix is provided by the Radius, use the **dhcpv6 delegated-prefix-pool** command in the dynamic template configuration mode. To remove the delegated prefix pool name, use the **no** form of this command.

dhcpv6 delegated-prefix-pool *pool_name*

Syntax Description

pool_name	Specifies the name of a delegated prefix pool for DHCPv6.

Command Default

None

Command Modes

Dynamic template configuration

Command History

Release	Modification
Release 4.3.0	This command was introduced.

Usage Guidelines

To enter the dynamic template configuration mode, enter **dynamic-template** command in the Global Configuration mode.

Task ID

Task ID	Operations
config-services	read, write

Examples

This is an example of creating a delegated prefix-pool name using the **dhcpv6 delegated-prefix-pool** command:

```
RP/0/RSP0/CPU0:router(config)# dynamic-template
RP/0/RSP0/CPU0:router(config-dynamic-template)# type ipsubscriber ipsub1
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# dhcpv6 delegated-prefix-pool myPool
```

dns-server (BNG)

To specify the Domain Name System (DNS) IPv6 servers available to a Dynamic Host Configuration Protocol (DHCP) for IPv6 client, use the **dns-server** command in an appropriate configuration mode. To remove the DNS server list, use the **no** form of this command.

dns-server *ipv6-address*

Syntax Description

ipv6-address	IPv6 address of a DNS server. This argument must be in the form documented in RFC 2373, where the address is specified in hexadecimal using 16-bit values between colons.

Command Default

When a DHCP for IPv6 pool is first created, no DNS IPv6 servers are configured.

Command Modes

DHCP IPv6 server profile configuration

DHCP IPv6 server profile class configuration

Command History

Release	Modification
Release 4.3.0	This command was supported in DHCP IPv6 server profile and class configuration mode in BNG.

Usage Guidelines

Multiple Domain Name System (DNS) server addresses can be configured by issuing this command multiple times. New addresses do not overwrite old addresses.

To enter the DHCP IPv6 server profile configuration, enter **profile** *profile_name* **server** command in the DHCPv6 configuration mode.

To enter the DHCP IPv6 server profile class configuration, enter **class** *class_name* command in the DHCPv6 server profile configuration mode.

Task ID

Task ID	Operations
ip-services	read, write

Examples

This is an example of setting the DNS server name using the **dns-server** command:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv6 pool pool1
RP/0/RSP0/CPU0:router(config-dhcpv6-pool)# dns-server 10:10::10
```

This is an example of setting the DNS address - 2001:db8:1203::1 and 2001:db8:1204::1 - using the **dns-server** command in the DHCP IPv6 server profile configuration mode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv6
```

```
RP/0/RSP0/CPU0:router(config-dhcpv6)# profile my_profile server
RP/0/RSP0/CPU0:router(config-dhcpv6-server-profile)# dns-server 2001:db8:1203::1 and
2001:db8:1204::1
```

This is an example of setting the DNS address - 2001:db8:1203::1 and 2001:db8:1204::1 - using the **dns-server** command in the DHCP IPv6 server profile class configuration mode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv6
RP/0/RSP0/CPU0:router(config-dhcpv6)# profile my_profile server
RP/0/RSP0/CPU0:router(config-dhcpv6-server-profile)# class proxy-red
RP/0/RSP0/CPU0:router(config-dhcpv6-server-profile-class)# dns-server 2001:db8:1203::1 and
 2001:db8:1204::1
```

domain-name (DHCP IPv6 pool-BNG)

To configure a domain name for a Dynamic Host Configuration Protocol (DHCP) for IPv6 client, use the **domain-name** command in an appropriate configuration mode. To remove the domain name, use the **no** form of this command.

domain-name *domain*

Syntax Description

domain	Specifies the domain name string to be used by the client.

Command Default

When a DHCP for IPv6 pool is first created, no domain name for clients is configured.

Command Modes

DHCP IPv6 server profile configuration

DHCP IPv6 server profile class configuration

Command History

Release	Modification
Release 4.3.0	This command was supported in DHCP IPv6 server profile and class configuration mode in BNG.

Usage Guidelines

Multiple Domain Name System (DNS) domain names can be configured by issuing the **domain-name** command multiple times. The new domain name does not overwrite existing domain names.

To enter the DHCP IPv6 server profile configuration, enter **profile** *profile_name* **server** command in the DHCPv6 configuration mode.

To enter the DHCP IPv6 server profile class configuration, enter **class** *class_name* command in the DHCPv6 server profile configuration mode.

The domain name is defined in DHCP IPv6 server profile and DHCP IPv6 server profile class configuration. If the same parameters are defined in the class scope, then the values defined in the class scope takes precedence.

Task ID

Task ID	Operations
ip-services	read, write

Examples

This is an example of setting the domain name using the **domain-name** command in the DHCP IPv6 server profile configuration mode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv6
RP/0/RSP0/CPU0:router(config-dhcpv6)# profile my_profile server
RP/0/RSP0/CPU0:router(config-dhcpv6-server-profile)# domain-name my.domain.com
```

This is an example of setting the domain name using the **domain-name** command in the DHCP IPv6 server profile class configuration mode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv6
RP/0/RSP0/CPU0:router(config-dhcpv6)# profile my_profile server
RP/0/RSP0/CPU0:router(config-dhcpv6-server-profile)# class proxy-red
RP/0/RSP0/CPU0:router(config-dhcpv6-server-profile-class)# domain-name my.domain.com
```

duid allowed-type

To specify the permitted DUID type for the incoming DHCP SOLICIT packets in BNG, use the **duid allowed-type** command in DHCP IPv6 server profile configuration mode. To disable this feature, use the **no** form of this command.

duid allowed-type *type*

Syntax Description

type	Specifies the permitted DUID type of the DHCP solicit packet.

Command Default

None

Command Modes

DHCP IPv6 server profile

Command History

Release	Modification
Release 6.4.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
ip-services	read, write

This example shows how to specify the permitted DUID type for the incoming DHCP SOLICIT packets, as part of enabling DHCP option 16 filtering feature in BNG :

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dhcp ipv6
RP/0/RSP0/CPU0:router(config-dhcpv6)# profile server-profile server
RP/0/RSP0/CPU0:router(config-dhcpv6-server-profile)# duid allowed-type 1
RP/0/RSP0/CPU0:router(config-dhcpv6-server-profile)# commit
```

Related Commands

Command	Description
match option (DHCPv6)	Enables DHCP option 16 filtering feature in BNG.

duplicate-mac-allowed

To allow duplicate client MAC addresses across different VLANs and interfaces, use the **duplicate-mac-allowed** command in the DHCP IPv4 configuration mode. To disallow duplicate client MAC addresses, use the **no** form of this command.

duplicate-mac-allowed [{**exclude-vlan** | **include-giaddr**}]

Syntax Description

exclude-vlan	Excludes VLANs from the client key; only MAC address and interface form the client key.
include-giaddr	Enables support for duplicate sessions having the same MAC address but different *gi-address* values, mainly in the case of routed sessions.

Command Default

By default, duplicate MAC address support is disabled.

Command Modes

DHCP IPv4 configuration

Command History

Release	Modification
Release 6.3.2	Modified the command to include **include-giaddr** option as part of DHCP L3 snooping feature in BNG.
Release 6.1.2	This command was introduced in BNG, with an addition of **exclude-vlan** option to exclude VLANs from the client key.
Release 4.3.2	This command was introduced.

Usage Guidelines

You can enable duplicate MAC addresses on relay, proxy, server, and snoop DHCP modes.

Do not enable the **duplicate-mac-allowed** command for mobile subscribers.

With **exclude-vlan** option enabled, both inner and outer VLANs get excluded. You cannot exclude just one of them.

The **include-giaddr** option is used for DHCP L3 snooping feature in BNG. It is supported only on Cisco IOS XR 64-bit operating system.

Task ID

Task ID	Operation
ip-services	read, write

Example

This examples shows how to allow duplicate client MAC addresses across different VLANs and interfaces, using the **duplicate-mac-allowed** command:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# duplicate-mac-allowed exclude-vlan
```

This examples shows how to enable support for duplicate sessions having the same MAC address but different *gi-address* values, for DHCP L3 snooping in BNG:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# duplicate-mac-allowed include-giaddr
```

Related Commands

Command	Description
dhcp ipv4 (BNG), on page 13	Enables Dynamic Host Configuration Protocol (DHCP) for IPv4 and enters DHCP IPv4 configuration mode.

enable-vlan-intf-session-limit

To enable VLAN or interface session-limit, use the **enable-vlan-intf-session-limit** command.

enable-vlan-intf-session-limit

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

DHCP IPv4 server profile configuration

DHCP IPv6 server profile configuration

Command History

Release	Modification
Release 7.3.1	This command is introduced.

Usage Guidelines

None

Task ID

Task ID	Operation
ip-services	read, write

For DHCP IPv4 server sessions, use the **enable-vlan-intf-session-limit** command, as shown in this configuration snippet:

```
Router#configure
Router(config)#dhcp ipv4
Router(config-dhcpv4)#profile s1 server
Router(config-dhcpv4-server-profile)#enable-vlan-intf-session-limit
Router(config-dhcpv4-server-profile)#lease 1 0 0
Router(config-dhcpv4-server-profile)#exit
Router(config-dhcpv4)#interface bundle-ether 10.100 server profile s1
Router(config-dhcpv4)#commit
```

For DHCP IPv6 server sessions, use the **enable-vlan-intf-session-limit** command, as shown in this configuration snippet:

```
Router#configure
Router(config)#dhcp ipv6
Router(config-dhcpv6)#profile s1 server
Router(config-dhcpv6-server-profile)#enable-vlan-intf-session-limit
Router(config-dhcpv6-server-profile)#lease 1 0 0
Router(config-dhcpv6-server-profile)#exit
Router(config-dhcpv6)#interface bundle-ether 10.100 server profile s1
Router(config-dhcpv6)#commit
```

Related Commands

Command	Description
dhcp ipv4 (BNG), on page 13	To enable Dynamic Host Configuration Protocol (DHCP) for IPv4 and to enter DHCP IPv4 configuration mode
dhcp ipv6 (BNG), on page 14	To enable Dynamic Host Configuration Protocol (DHCP) for IPv6 and to enter DHCP IPv6 configuration mode
profile (BNG), on page 57	To specify a DHCP profile for the Dynamic Host Configuration Protocol (DHCP) IPv4 and IPv6 component and to enter the appropriate profile mode.

framed-prefix-pool

To specify the default pool name for ipv6 prefixes for assignment only from SLAAC (Stateless Address Auto-Configuration), use the **framed-prefix-pool** command in the dynamic template configuration mode. To remove the framed prefix pool name, use the **no** form of this command.

framed-prefix-pool *pool_name*

Syntax Description

pool_name	Specifies the name of a prefix pool.

Command Default

None

Command Modes

Dynamic template configuration

Command History

Release	Modification
Release 4.3.0	This command was introduced.

Usage Guidelines

To enter the dynamic template configuration mode, enter **dynamic-template** command in the Global Configuration mode.

The dynamic template configuration is used when Radius does not return pool name or prefix for the SLAAC.

Task ID

Task ID	Operations
config-services	read, write

Examples

This is an example of creating a framed prefix pool name using the **framed-prefix-pool** command:

```
RP/0/RSP0/CPU0:router(config)# dynamic-template
RP/0/RSP0/CPU0:router(config-dynamic-template)# type ipv6
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# framed-prefix-pool my-slaac-pool
```

giaddr policy keep

While in proxy mode, to retain the gateway address in the DHCP control packets received at BNG from the relay agent, use the **giaddr policy keep** command in DHCP IPv4 proxy profile configuration mode. This is used while enabling DHCP L3 snooping feature in BNG. To disable this configuration, use the **no** form of this command.

giaddr policy keep

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

DHCP IPv4 proxy profile

Command History

Release	Modification
Release 6.3.2	This command was introduced.

Usage Guidelines

This is supported only on Cisco IOS XR 64-bit operating system.

Without this configuration, the *gi-address* value received at BNG while in proxy mode, is modified and a new value is set based on the router configuration.

Task ID

Task ID	Operation
ip-services	read, write

This example shows how to retain the gateway address in the DHCP control packets received at BNG from the relay agent:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile example-profile proxy
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile)# giaddr policy keep
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile)# commit
```

Related Commands

Command	Description
initiator dhcp-snoop	Configures DHCP to pass the control packets from BNG to the DHCP server to enable DHCP L3 snooping for an IP subscriber.

helper-address (BNG)

To configure the Dynamic Host Configuration Protocol (DHCP) IPv4 or IPv6 relay agent to relay DHCP packets to a specific DHCP server, use the **helper-address** command in an appropriate configuration mode. Use the **no** form of this command to clear the address.

helper-address [**vrf** *vrf-name*] [*address*] [**giaddr** *gateway-address*]

Syntax Description

vrf-name	(Optional) Specifies the name of a particular VRF.
address	IPv4 and Pv6 address in four part, dotted decimal format.
giaddr *gateway-address*	(Optional) Specifies the gateway address to use in packets relayed to server. This keyword is applicable for IPv4 helper address.

Command Default

Helper address is not configured.

Command Modes

DHCP IPv6 proxy profile class configuration

DHCP IPv6 profile relay configuration

Command History

Release	Modification
Release 3.7.2	This command was introduced.
Release 4.2.0	This command was supported for BNG.
Release 4.3.0	The support for IPv6 was added in BNG.
Release 5.2.2	This command is supported in DHCPv6 profile relay configuration submode.

Usage Guidelines

A maximum of upto eight helper addresses can be configured.

Task ID

Task ID	Operations
ip-services	read, write

Examples

This example shows how to set the helper-address for a VRF using the **helper-address** command in DHCP IPv6 proxy profile class configuration mode:

```
RP/0/RSP0/CPU0:router# config
RP/0/RSP0/CPU0:router(config)# dhcp ipv6
RP/0/RSP0/CPU0:router(config-dhcpv6)# profile myprofile proxy
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile)# class myclass
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile-class)#  helper-address vrf my-server-vrf
 1:1:1::1
```

Related Commands

Command	Description
dhcp ipv4 (BNG), on page 13	Enables Dynamic Host Configuration Protocol (DHCP) for IPv4 and enters DHCP IPv4 configuration mode.
relay information check (BNG), on page 62	Configures a DHCP server to validate the relay agent information option in forwarded BOOTREPLY messages.
relay information option (BNG), on page 64	Enables the system to insert a DHCP relay agent information option in forwarded BOOTREQUEST messages to a DHCP server.
relay information option allow-untrusted (BNG), on page 66	Configures the DHCP component to not drop BOOTREQUEST messages that have the relay information option set and the giaddr set to zero.
relay information policy (BNG), on page 68	Configures how a relay agent processes BOOTREQUEST messages that already contain a relay information option.

inner-cos

To reset the default inner-cos value for DHCPv4 control packets sent on BNG subscriber interfaces, use the **inner-cos** command in DHCP IPv4 configuration mode. To set the inner-cos value back to the default value, use the **no** form of this command.

inner-cos *value*

Syntax Description

value	Value of inner-cos for DHCPv4 control packets. The range is from 0 to 7.

Command Default

None

Command Modes

DHCP IPv4 configuration

Command History

Release	Modification
Release 4.3.2	This command was introduced.
Release 5.3.1	This command was modified.

Usage Guidelines

The inner and outer Class of Service (CoS) values can be configured for DHCPv4 control packets. For broadcast packets, both the **inner-cos** and **outer-cos** commands can be used to configure CoS values. For unicast packets, the **inner-cos** command cannot be directly used. The outer CoS value configured using the **outer-cos** command is also set as the inner CoS value.

In the following example, for all broadcast DHCP control packets, the inner CoS value will be set as 5 and the outer CoS value will be set as 7. However, for unicast DHCP control packets, both inner and outer CoS values will be set as 7 (the **inner-cos 5** command does not affect the unicast packets).

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)#inner-cos 5
RP/0/RSP0/CPU0:router(config-dhcpv4)#outer-cos 7
RP/0/RSP0/CPU0:router(config-dhcpv4)#
```

Task ID

Task ID	Operation
ip-services	read, write

Example

This example shows how to reset the default inner-cos value for DHCPv4 control packets sent on BNG subscriber interfaces:

```
RP/0/RSP0/CPU0:router# configure
```

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# inner-cos 0
```

Related Commands

Command	Description
outer-cos, on page 55	Resets the default outer-cos value for DHCPv4 control packets sent on BNG subscriber interfaces.

interface (DHCP-BNG)

To enable Dynamic Host Configuration Protocol (DHCP) for IPv4 or IPv6 on an interface, use the **interface** command in the appropriate configuration mode. To disable DHCPv4 or DHCPv6 on an interface, use the **no** form of the command.

interface *type interface-path-id* { **base** | **proxy** | **relay** | **server** | **snoop** }
profile *profile-name*

Syntax Description

type	Interface type. For more information, use the question mark (?) online help function.
interface-path-id	Physical interface or virtual interface. **Note** Use the **show interfaces** command to see a list of all interfaces currently configured on the router. For more information about the syntax for the router, use the question mark (?) online help function.
server	Attaches a server profile for the specified interface.
relay	Attaches a relay profile for the specified interface.
snoop	Attaches a snoop profile for the specified interface.
proxy	Attaches the proxy profile to an interface.
base	Attaches a base profile for the specified interface.
profile *profile-name*	Specifies the profile name.

Command Default

None

Command Modes

DHCP IPv6 configuration

DHCP IPv4 configuration

Command History

Release	Modification
Release 4.1.0	This command was introduced.
Release 4.3.0	The support for IPv6 was added in BNG.
Release 5.1	Support for **server** profile was added.

Release	Modification
Release 5.2.2	Support for DHCP IPv6 relay was added. The keyword **base** was added as part of DHCPv4 Service Based Mode Selection feature.
Release 6.2.1	Support for DHCP IPv6 base profile was added.

Usage Guidelines

The support for **base** profile option for DHCP IPv6 is available in BNG from Release 6.2.1 and later. For more details, refer *PPP Class-based DHCPv6 Mode Selection* feature in *Cisco ASR 9000 Series Aggregation Services Router Broadband Network Gateway Configuration Guide*.

Task ID

Task ID	Operations
ip-services	read, write

Examples

This is an example of attaching a base profile to an interface:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# interface gigabitEthernet 0/0/0/0 base profile
BASE_PROFILE
```

This is an example of enabling the DHCP interface mode on a Packet over Sonet/SDH (POS) interface using the **interface** command:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv6
RP/0/RSP0/CPU0:router(config-dhcpv6)# interface POS 0/5/0/0 relay
```

This is an example of enabling the DHCP interface mode on a Packet over Sonet/SDH (POS) interface using the **interface** command:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# interface POS 0/5/0/0 server profile TEST
```

This example shows how to attach a base profile to an interface, in DHCPv6 mode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv6
RP/0/RSP0/CPU0:router(config-dhcpv6)# interface Bundle-Ether302.2501 base profile base_TEST
```

interface subscriber-pppoe profile

To enable the PPPoE subscribers to use a profile for all the PPPoE subscribers, use the **interface subscriber-pppoe profile** command in the DHCP IPv6 configuration mode. To disable this feature, use the **no** form of this command.

interface subscriber-pppoe profile *profile_name*

Syntax Description

profile_name	Specifies the name of the profile.

Command Default

VRF is disabled.

Command Modes

DHCP IPv6 configuration

Command History

Release	Modification
Release 4.3.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
ip-services	read, write

Examples

This is an example for enabling PPPoE subscribers to use the "my-def-pppoe-green" profile for all the PPPoE subscribers using the **interface subscriber-pppoe profile** command:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv6
RP/0/RSP0/CPU0:router(config-dhcpv6)#  interface subscriber-pppoe profile my-def-pppoe-green
```

lease

To set a client lease time at a global server profile level or class profile level, use the **lease** command in DHCPv6 server profile or class profile configuration mode. To disable the client lease time, use the **no** form of this command.

lease {*days* [*hours* *minutes*] | **infinite**}

Syntax Description

days	Specifies the number of days for the lease time. The value ranges from 1 to 365.
hours	Specifies the number of hours for the lease time. The value ranges from 0 to 23.
minutes	Specifies the number of minutes for the lease time. The value ranges from 0 to 59.
infinite	Specifies an infinite amount of lease.

Command Default

By default, the lease is 86400 seconds (one day).

Command Modes

DHCPv6 server profile configuration

DHCPv6 server class profile configuration

Command History

Release	Modification
Release 6.4.1	The command was extended for lease timer support for class profile as well.
Release 4.3.0	This command was introduced.

Usage Guidelines

The lease time is applied only to the class and not to the whole profile. When both profile and class lease time configurations are present, then the class lease time takes precedence. The default lease time is 1 day, if lease time is not configured.

The lease time is specified in seconds or date format.

Task ID

Task ID	Operation
ip-services	read, write

This example shows how to configure lease time for 1 day and 6 hours:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv6
RP/0/RSP0/CPU0:router(config-dhcpv6)# profile my_profile server
RP/0/RSP0/CPU0:router(config-dhcpv6-server-profile)# lease 1 6 0
```

This example shows how to configure infinite amount of lease time:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv6
```

```
RP/0/RSP0/CPU0:router(config-dhcpv6)# profile my_profile server
RP/0/RSP0/CPU0:router(config-dhcpv6-server-profile)# lease infinite
```

This example shows how to configure lease time for class profile:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv6
RP/0/RSP0/CPU0:router(config-dhcpv6)# profile server-profile server
RP/0/RSP0/CPU0:router(config-dhcpv6-server-profile)# class class1
RP/0/RSP0/CPU0:router(config-dhcpv6-server-profile-c)# lease 0 0 20
RP/0/RSP0/CPU0:router(config-dhcpv6-server-profile-c)# address-pool poolv6
RP/0/RSP0/CPU0:router(config-dhcpv6-server-profile-c)# dns-server 2001:DB8::1
```

lease proxy client-lease-time

To specify the lease limit each circuit id each interface, use the **lease proxy client-lease-time** command in the DHCP IPv4 sub configuration mode. To disable the lease proxy client-lease-time, use the **no** form of this command.

lease proxy client-lease-time *value*

Syntax Description

value	Specifies the time in seconds for the lease proxy client. The minimum value of lease proxy client-time is 600 seconds.

Command Default

If you set the default (no), then the lease proxy gets disabled.

Command Modes

DHCP IPv4 configuration

Command History

Release	Modification
Release 4.2.1	This command was introduced.

Usage Guidelines

When the binding is created, the client-lease-time is cached on a per-binding basis, thus, the changes to the profile client-lease-time does not cause any impact to any existing bindings. However, changes are effective only for subsequently created bindings.

Task ID

Task ID	Operation
ip-services	read, write

This is an example of configuring the **lease proxy client-lease-time** command in the DHCP IPv4 sub configuration mode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile myproxyprofile proxy
RP/0/RSP0/CPU0:router(config-dhcpv4)# lease proxy client-lease-time 600
```

Related Commands

Command	Description
dhcp ipv4 (BNG), on page 13	Enables the Dynamic Host Configuration Protocol (DHCP) for IPv4.

linkaddress-from-ra-enable

To enable DHCP IPv6 proxy mode Point to Point Protocol on Ethernet (PPPoE) session to send the link local address for SOLICIT message or renew request message, use the **linkaddress-from-ra-enable** command.

linkaddress-from-ra-enable

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

DHCP IPv6 proxy profile configuration

Command History

Release	Modification
Release 6.3.1	This command was introduced.

Usage Guidelines

By default this feature is disabled. You can use **show profile** *profile_name* **proxy** command to see if this feature is enabled or not.

Note The link address configured in proxy profile or class level will take precedence over the link address while using the **linkaddress-from-ra-enable** command.

Task ID

Task ID	Operation
ip-services	read, write

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dhcp ipv6
RP/0/RSP0/CPU0:router(config-dhcpv6)# profile dhcp_v6 proxy
RP/0/RSP0/CPU0:router(config-dhcpv6-proxy-profile)# helper-address vrf default 4000::7:2c:2
RP/0/RSP0/CPU0:router(config-dhcpv6-proxy-profile)# linkaddress-from-ra-enable
```

Related Commands

Command	Description
dhcp ipv6 (BNG), on page 14	To enable Dynamic Host Configuration Protocol (DHCP) for IPv6 and to enter DHCP IPv6 configuration mode

Command	Description
helper-address (BNG), on page 30	To configure the Dynamic Host Configuration Protocol (DHCP) IPv4 or IPv6 relay agent to relay DHCP packets to a specific DHCP server

limit lease per-circuit-id

To specify the lease limit each circuit id each interface, use the **limit lease per-circuit-id** command in the DHCP IPv4 sub configuration mode. To disable the lease per-circuit-id, use the **no** form of this command.

limit lease per-circuit-id *value*

Syntax Description

value	Specifies the limit up to which the lease value can be extended.

Command Default

None

Command Modes

DHCP IPv4 configuration

Command History

Release	Modification
Release 4.2.1	This command was introduced.

Usage Guidelines

Use the **dhcp ipv4** command to enter DHCP IPv4 configuration mode.

Task ID

Task ID	Operation
ip-services	read, write

This is an example of configuring the **limit lease per-circuit-id** command in the DHCP IPv4 sub configuration mode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile myproxyprofile proxy
RP/0/RSP0/CPU0:router(config-dhcpv4)# limit lease per-circuit-id 1000
```

Related Commands

Command	Description
dhcp ipv4 (BNG), on page 13	Enables the Dynamic Host Configuration Protocol (DHCP) for IPv4.

limit lease per-interface

To specify the lease limit each interface, use the **limit lease per-interface** command in the DHCP IPv4 sub configuration mode. To disable the limit lease per-interface, use the **no** form of this command.

limit lease per-interface *value*

Syntax Description

value	Specifies the limit up to which the lease value can be extended.

Command Default

None

Command Modes

DHCP IPv4 configuration

Command History

Release	Modification
Release 4.2.1	This command was introduced.

Usage Guidelines

Use the **dhcp ipv4** command to enter DHCP IPv4 configuration mode.

Task ID

Task ID	Operation
ip-services	read, write

This is an example of configuring the **limit lease per-interface** command in the DHCP IPv4 sub configuration mode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile myproxyprofile proxy
RP/0/RSP0/CPU0:router(config-dhcpv4)# limit lease per-interface 1000
```

Related Commands

Command	Description
dhcp ipv4 (BNG), on page 13	Enables the Dynamic Host Configuration Protocol (DHCP) for IPv4.

limit lease per-remote-id

To specify the lease limit per remote id each interface, use the **limit lease per-remote-id** command in the DHCP IPv4 sub configuration mode. To disable the lease per-remote-id, use the **no** form of this command.

limit lease per-remote-id *value*

Syntax Description

value	Specifies the limit up to which the lease value can be extended.

Command Default

None

Command Modes

DHCP IPv4 configuration

Command History

Release	Modification
Release 4.2.1	This command was introduced.

Usage Guidelines

Use the **dhcp ipv4** command to enter DHCP IPv4 configuration mode.

Task ID

Task ID	Operation
ip-services	read, write

This is an example of configuring the **limit lease per-remote-id** command in the DHCP IPv4 sub configuration mode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile myproxyprofile proxy
RP/0/RSP0/CPU0:router(config-dhcpv4)# limit lease per-remote-id 1000
```

Related Commands

Command	Description
dhcp ipv4 (BNG), on page 13	Enables the Dynamic Host Configuration Protocol (DHCP) for IPv4.

match-default

To specify the default profile to match the subscriber's PPPoE/IPoE class information for IPv4/IPv6 prefix allocation to the end user, use the **match-default** command in the DHCP IPv4/IPv6 base profile configuration mode. To disable the match option, use the **no** form of the command.

match-default profile *profile-name* **server**

Syntax Description

class-name	Specifies the name of the class.
profile	Specifies the profile to select for a particular class.
profile-name	Specifies the name of the profile.
server	Specifies the server mode.

Command Default

None

Command Modes

DHCP IPv4/IPv6 base profile configuration mode

Command History

Release	Modification
Release 6.2.1	This command was introduced for DHCPv6.
Release 6.6.2	This command was introduced for DHCPv4.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
ip-services	read, write

This is an example of using the **match-default** command in the DHCP IPv4 base profile configuration mode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile BASE_PROFILE base
RP/0/RSP0/CPU0:router(config-dhcpv4-base-profile)# match mode-class SERVER_CLASS profile
SERVER_PROFILE  server
RP/0/RSP0/CPU0:router(config-dhcpv4-base-profile)# match mode-class  PROXY_CLASS profile
PROXY_PROFILE proxy
RP/0/RSP0/CPU0:router(config-dhcpv4-base-profile)# match-default profile DEFAULT_SERVER
server
RP/0/RSP0/CPU0:router(config-dhcpv4-base-profile)# dhcp-to-aaa option list 12 55 60 61 124
RP/0/RSP0/CPU0:router(config-dhcpv4-base-profile)# exit
RP/0/RSP0/CPU0:router(config-dhcpv4)# interface bundle-ether1.10 base profile BASE_PROFILE
RP/0/RSP0/CPU0:router(config-dhcpv4)# interface pw-ether25000.10 base profile BASE_PROFILE
RP/0/RSP0/CPU0:router(config-dhcpv4)# commit
```

This is an example of using the **match-default** command in the DHCP IPv6 base profile configuration mode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv6
RP/0/RSP0/CPU0:router(config-dhcpv6)# profile BASE_PROFILE base
RP/0/RSP0/CPU0:router(config-dhcpv6-base-profile)# match mode-class SERVER_CLASS profile
SERVER_PROFILE  server
RP/0/RSP0/CPU0:router(config-dhcpv6-base-profile)# match mode-class  PROXY_CLASS profile
PROXY_PROFILE proxy
RP/0/RSP0/CPU0:router(config-dhcpv6-base-profile)# match-default profile DEFAULT_SERVER
server
RP/0/RSP0/CPU0:router(config-dhcpv6-base-profile)# dhcpv6-to-aaa option list all
RP/0/RSP0/CPU0:router(config-dhcpv6-base-profile)# exit
RP/0/RSP0/CPU0:router(config-dhcpv6)# interface bundle-ether1.10 base profile BASE_PROFILE
RP/0/RSP0/CPU0:router(config-dhcpv6)# interface pw-ether25000.10 base profile BASE_PROFILE
RP/0/RSP0/CPU0:router(config-dhcpv6)# commit
```

Related Commands

Command	Description
match mode-class, on page 47	Matches the subscriber's PPPoE/IPoE class information for IPv4/IPv6 prefix allocation.
dhcp ipv4 (BNG), on page 13	Enables the Dynamic Host Configuration Protocol (DHCP) for IPv4.
dhcp ipv6 (BNG), on page 14	
interface (DHCP-BNG), on page 34	

match mode-class

To match the subscriber's PPPoE/IPoE class information in order to select the corresponding profile to perform the server or proxy functionality for IPv4/IPv6 prefix allocation to the end user, use the **match mode-class** command in the DHCP IPv4/IPv6 base profile configuration mode. To disable the match option, use the **no** form of the command.

match mode-class *class-name* **profile** *profile-name* {**server** | | **proxy**}

Syntax Description

class-name	Specifies the name of the class.
profile	Specifies the profile to select for a particular class.
profile-name	Specifies the name of the profile.
server	Specifies the server mode.
proxy	Specifies the proxy mode.

Command Default

None

Command Modes

DHCP IPv4/IPv6 base profile configuration mode

Command History

Release	Modification
Release 6.2.1	This command was introduced for DHCPv6.
Release 6.6.2	This command was introduced for DHCPv4.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
ip-services	read, write

This is an example of using the **match mode-class** command in the DHCP IPv4 base profile configuration mode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile BASE_PROFILE base
RP/0/RSP0/CPU0:router(config-dhcpv4-base-profile)# match mode-class SERVER_CLASS profile
SERVER_PROFILE  server
RP/0/RSP0/CPU0:router(config-dhcpv4-base-profile)# match mode-class  PROXY_CLASS profile
PROXY_PROFILE proxy
RP/0/RSP0/CPU0:router(config-dhcpv4-base-profile)# match-default profile DEFAULT_SERVER
server
RP/0/RSP0/CPU0:router(config-dhcpv4-base-profile)# dhcp-to-aaa option list 12 55 60 61 124
RP/0/RSP0/CPU0:router(config-dhcpv4-base-profile)# exit
```

```
RP/0/RSP0/CPU0:router(config-dhcpv4)# interface bundle-ether1.10 base profile BASE_PROFILE
RP/0/RSP0/CPU0:router(config-dhcpv4)# interface pw-ether25000.10 base profile BASE_PROFILE
RP/0/RSP0/CPU0:router(config-dhcpv4)# commit
```

This is an example of using the **match mode-class** command in the DHCP IPv6 base profile configuration mode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv6
RP/0/RSP0/CPU0:router(config-dhcpv6)# profile BASE_PROFILE base
RP/0/RSP0/CPU0:router(config-dhcpv6-base-profile)# match mode-class SERVER_CLASS profile
SERVER_PROFILE  server
RP/0/RSP0/CPU0:router(config-dhcpv6-base-profile)# match mode-class  PROXY_CLASS profile
PROXY_PROFILE proxy
RP/0/RSP0/CPU0:router(config-dhcpv6-base-profile)# match-default profile DEFAULT_SERVER
server
RP/0/RSP0/CPU0:router(config-dhcpv6-base-profile)# dhcpv6-to-aaa option list all
RP/0/RSP0/CPU0:router(config-dhcpv6-base-profile)# exit
RP/0/RSP0/CPU0:router(config-dhcpv6)# interface bundle-ether1.10 base profile BASE_PROFILE
RP/0/RSP0/CPU0:router(config-dhcpv6)# interface pw-ether25000.10 base profile BASE_PROFILE
RP/0/RSP0/CPU0:router(config-dhcpv6)# commit
```

Related Commands

Command	Description
match-default, on page 45	Specifies the default profile to match the subscriber's PPPoE/IPoE class information for IPv4/IPv6 prefix allocation.
dhcp ipv4 (BNG), on page 13	Enables the Dynamic Host Configuration Protocol (DHCP) for IPv4.
dhcp ipv6 (BNG), on page 14	
interface (DHCP-BNG), on page 34	

match option

To match the proxy with the configured pattern, use the **match option** command in the DHCP IPv4 proxy profile class configuration mode. To disable the match option, use the **no** form of the command.

match option {**124** | **125** | | **60** | **77**} **hex** *hex_string* **mask** *bit_mask_string*

Syntax Description

124	Inserts option 124 vendor-identifying vendor class.
125	Inserts option 125 vendor-identifying vendor-specific info.
60	Inserts option 60 vendor class ID.
77	Inserts option 124 user class.
hex	Inserts a hex pattern.
hex_string	Specifies the hex pattern string.
mask	Inserts bit mask pattern.
bit_mask_string	Specifies the bit mask pattern string. The string pattern is between 0 and 4294967295.

Command Default

None

Command Modes

DHCP IPv4 proxy profile class configuration

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
ip-services	read, write

This is an example of configuring the **match option** command in the DHCP IPv4 proxy profile class configuration mode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile dhcp_profile proxy
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile)# class blue
```

```
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile-class)# match option 124 hex hex_name
mask 3445
```

Related Commands

Command	Description
class, on page 10	Creates a proxy profile class and enters the proxy profile class sub configuration mode.

match option 60

To enable option 60-based DISCOVER packet filter in DHCPv4, use the **match option 60** command in DHCP IPv4 profile (server, proxy, base or dynamic) configuration mode. To disable this feature, use the **no** form of this command.

For server or proxy profile mode:

match option 60 {**default** | **hex** *hex-string*} **action** {**allow** | **drop**}

For base or dynamic profile mode:

match option 60 {**default** *hex-string*} **action** {**allow** | **drop**}

Syntax Description

default	Defines a default behavior in case any Vendor-Id specific option 60 filter is not configured.
hex *hex-string*	Specifies the hexadecimal pattern in DHCP option 60 to be matched.
action	Specifies the action to be performed on DISCOVER packets.
allow	Allows the DISCOVER packets based on DHCP option 60 information.
drop	Drops the DISCOVER packets based on DHCP option 60 information.

Command Default

None

Command Modes

DHCP IPv4 proxy profile configuration

DHCP IPv4 server profile configuration

DHCP IPv4 base profile configuration

DHCP IPv4 dynamic profile configuration

Command History

Release	Modification
Release 6.1.2	This command was introduced.

Usage Guidelines

The DHCP option 60 filtering feature kicks in only for DISCOVER packets that have option 60 field available.

In case of dynamic mode, the preference is given to the base profile filter list over proxy or server mode filter list, if available.

Task ID

Task ID	Operation
ip-services	read, write

This example shows how to allow DHCP client packets with option 60 hex string "1234" and "1256", and drop all others.

```
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile)# match option 60 hex 1234 action allow
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile)# match option 60 hex 1256 action allow
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile)# match option 60 default action drop
```

This example shows how to drop DHCP client packets with option 60 hex string "1234" and "1256", and allow all others.

```
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile)# match option 60 hex 1234 action drop
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile)# match option 60 hex 1256 action drop
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile)# match option 60 default action allow
```

match vrf

To match class based on VRF name, use the **match vrf** command in the DHCP IPv4 proxy profile class configuration mode. To disable the match vrf, use the **no** form of the command.

match vrf *vrf_name*

Syntax Description

vrf_name	Specifies the VRF name.

Command Default

None

Command Modes

DHCP IPv4 proxy profile class configuration

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
ip-services	read, write

This is an example of configuring the **match vrf** command

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile dhcp_profile proxy
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile)# class blue
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile-class)# match vrf vrf1
```

Related Commands

Command	Description
match option, on page 49	Matches the proxy with the configured pattern.

option 17

To deliver the URL for self-configuration from the BNG to CPEs through DHCPv6 Option 17, use the **option 17** command in the DHCP IPv6 server profile configuration mode. To remove the configuration, use the **no** form of this command.

option 17 hex *hex-string*

Syntax Description

hex *hex_string*	Specifies URL in hexadecimal format, with a maximum length of 1000 hex nibbles or 500 characters.

Command Default

None

Command Modes

DHCP IPv6 server profile

Command History

Release	Modification
Release 6.2.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
ip-services	read, write

This example shows how to send the URL for self-configuration from BNG to CPEs through DHCPv6 Option 17:

```
RP/0/RSP0/CPU0:router(config)#dhcp ipv6
RP/0/RSP0/CPU0:router(config-dhcpv6)#profile dhcp_server1 server
RP/0/RSP0/CPU0:router(config-dhcpv6-server-profile)#option 17 hex
0000168b000100206874747073a2f2f6f70657261746f722e636f6d2f6465766963652f61636d70
```

The value used as encoded string in this example represents these:

- 0x00000de9—enterprise number=3561—The Broadband Forum
- 0x0001—opt-code=1
- 0x0020—option-len=32
- 0x68747470733a2f2f6f70657261746f722e636f6d2f6465766963652f61636d70—option-data=

  https://operator.com/device/acmp

outer-cos

To reset the default outer-cos value for DHCPv4 control packets sent on BNG subscriber interfaces, use the **outer-cos** command in DHCP IPv4 configuration mode. To set the outer-cos value back to the default value, use the **no** form of this command.

outer-cos *value*

Syntax Description

value	Value of outer-cos for DHCPv4 control packets. The range is from 0 to 7.

Command Default

None

Command Modes

DHCP IPv4 configuration

Command History

Release	Modification
Release 4.3.2	This command was introduced.
Release 5.3.1	This command was modified.

Usage Guidelines

The inner and outer Class of Service (CoS) values can be configured for DHCPv4 control packets. For broadcast packets, both the **inner-cos** and **outer-cos** commands can be used to configure CoS values. For unicast packets, the **inner-cos** command cannot be directly used. The outer CoS value configured using the **outer-cos** command is also set as the inner CoS value.

Task ID

Task ID	Operation
ip-services	read, write

Example

This example shows how to reset the default outer-cos value for DHCPv4 control packets sent on BNG subscriber interfaces:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# outer-cos 0
```

Related Commands

Command	Description
inner-cos, on page 32	Resets the default inner-cos value for DHCPv4 control packets sent on BNG subscriber interfaces.

prefix-pool

To specify the name of prefix pool by integrating the DHCPv6 sever with distributed address pool service (DAPS), use the **prefix-pool** command in the DHCP IPv6 server profile class configuration mode. To remove the prefix pool name, use the **no** form of this command.

prefix-pool *pool_name*

Syntax Description

pool_name	Specifies the name of a prefix pool.

Command Default

When a DHCP for IPv6 pool is first created, no DNS IPv6 servers are configured.

Command Modes

DHCP IPv6 server profile class configuration

Command History

Release	Modification
Release 4.3.0	This command was introduced.

Usage Guidelines

To enter the DHCP IPv6 server profile configuration, enter **profile** *profile_name* **server** command in the DHCPv6 configuration mode.

To enter the DHCP IPv6 server profile class configuration, enter **class** *class_name* command in the DHCPv6 server profile configuration mode.

Task ID

Task ID	Operations
ip-services	read, write

Examples

This is an example of creating a prefix-pool name using the **prefix-pool** command:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv6
RP/0/RSP0/CPU0:router(config-dhcpv6)# profile my_profile server
RP/0/RSP0/CPU0:router(config-dhcpv6-server-profile)# class class_dhcp
RP/0/RSP0/CPU0:router(config-dhcpv6-server-profile-class)# prefix-pool pool1
```

profile (BNG)

To specify a DHCP profile for the Dynamic Host Configuration Protocol (DHCP) IPv4 and IPv6 component and to enter the profile mode, use the **profile** command in DHCP IPv4 or DHCP IPv6 configuration submode. To disable a profile and exit the profile mode, use the **no** form of this command.

profile *profile_name* { **base** | **proxy** | **server** }

Syntax Description

profile_name	Specifies the name of the profile that uniquely identifies the proxy or server.
base	Creates a DHCP base profile.
proxy	Creates a DHCP proxy profile.
server	Creates a DHCP server profile.

Command Default

None

Command Modes

DHCP IPv4 configuration

DHCP IPv6 configuration

Command History

Release	Modification
Release 4.2.0	This command was introduced.
Release 4.3.0	Support was added for IPv6.
Release 6.2.1	Support for base profile was added for DHCP IPv6 in BNG.

Usage Guidelines

The *profile-name* and the *class-name* should be unique per base profile.

Task ID

Task ID	Operations
ip-services	read, write

Examples

This example shows how to enable the dhcpv4 configuration mode and how to create a profile called dhcp_profile in the dhcpv4 configuration submode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile dhcp_profile proxy
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile)#
```

This example shows how to enable the dhcpv6 configuration mode and how to create a profile called dhcp_v6 in the dhcpv6 configuration submode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv6
RP/0/RSP0/CPU0:router(config-dhcpv6)# profile dhcp_v6 proxy
RP/0/RSP0/CPU0:router(config-dhcpv6-proxy-profile)#
```

This example shows how to create a DHCPv6 base profile:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv6
RP/0/RSP0/CPU0:router(config-dhcpv6)# profile dhcp_profile base
RP/0/RSP0/CPU0:router(config-dhcpv6-base-profile)#
```

rapid commit

This command aids to enable or disable the rapid commit option of the DHCP server. Enabling it renders the DHCPv6 server to use the two message exchange feature to address/prefix an assignment. Including the **rapid commit** option in the **SOLICIT** message and enabling the same in the server profile, enables the server to respond with the **REPLY** message. Else, it follows the normal four message exchange procedure to assign address/prefix an assignment.

rapid-commit

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

DHCP IPv6 server profile configuration

Command History

Release	Modification
Release 5.2.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
ip-services	read, write

Examples

This is an example of enabling rapid-commit in the DHCP IPv6 server profile configuration mode:

```
RP/0/RSP0/CPU0:router(config)# dhcp ipv6
RP/0/RSP0/CPU0:router(config-dhcpv6)# profile my_profile server
RP/0/RSP0/CPU0:router(config-dhcpv6-server-profile)# rapid-commit
```

relay information authenticate (BNG)

To specify relay agent information option to the policy plane for authentication purposes, use the **relay information authenticate** command in the DHCP IPv4 proxy profile configuration mode. To disable the relay option, use the **no** form of this command.

relay information authenticate {**received** | **inserted**}

Syntax Description

received	Authenticate using received relay agent information option.
inserted	Authenticate using inserted relay agent information option.

Command Default

None

Command Modes

DHCP IPv4 proxy profile configuration

Command History

Release	Modification
Release 4.3.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
ip-services	read, write

Examples

This example shows how to specify the received relay agent information option for authentication using the **relay information authenticate** command in DHCP IPv4 proxy profile configuration mode:

```
RP/0/RSP0/CPU0:router# config
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile myprofile proxy
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile)# relay information authenticate received
```

Related Commands

Command	Description
dhcp ipv4 (BNG), on page 13	Enables Dynamic Host Configuration Protocol (DHCP) for IPv4 and enters DHCP IPv4 configuration mode.

Command	Description
relay information check (BNG), on page 62	Configures a DHCP server to validate the relay agent information option in forwarded BOOTREPLY messages.
relay information option (BNG), on page 64	Enables the system to insert a DHCP relay agent information option in forwarded BOOTREQUEST messages to a DHCP server.
relay information option allow-untrusted (BNG), on page 66	Configures the DHCP component to not drop BOOTREQUEST messages that have the relay information option set and the giaddr set to zero.
relay information policy (BNG), on page 68	Configures how a relay agent processes BOOTREQUEST messages that already contain a relay information option.

relay information check (BNG)

To configure a Dynamic Host Configuration Protocol (DHCP) IPv4 Relay to validate the relay agent information option in forwarded BOOTREPLY messages, use the **relay information check** command in DHCP IPv4 relay profile configuration submode. To disable this feature, use the **no** form of this command.

relay information check

Syntax Description

This command has no keywords or arguments.

Command Default

DHCP validates the relay agent information option.

Command Modes

DHCP IPv4 relay profile configuration

Command History

Release	Modification
Release 3.7.2	This command was introduced.
Release 4.2.0	This command was supported for BNG.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
ip-services	read, write
basic-services	read, write

This example shows how to use the **relay information check** command:

```
RP/0/RSP0/CPU0:router#config
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile client relay
RP/0/RSP0/CPU0:router(config-dhcpv4-relay-profile)# relay information check
```

Related Commands

Command	Description
dhcp ipv4 (BNG), on page 13	Enables DHCP for IPv4 and enters DHCP IPv4 configuration mode.
helper-address	Configures the DHCP relay agent to relay packets to a specific DHCP Server.
profile (BNG)	Configures a relay profile for the DHCP IPv4 component.

Command	Description
relay information option (BNG), on page 64	Enables the system to insert a DHCP relay agent information option in forwarded BOOTREQUEST messages to a DHCP server.
relay information option allow-untrusted (BNG), on page 66	Configures the DHCP component to not drop BOOTREQUEST messages that have the relay information option set and the giaddr set to zero.

relay information option (BNG)

To configure Dynamic Host Configuration Protocol (DHCP) IPv4 relay or DHCP snooping Relay to insert relay agent information option in forwarded BOOTREQUEST messages to a DHCP server, use the **relay information option** command in DHCP IPv4 relay profile relay configuration or DHCP IPv4 profile snoop submode. To disable inserting relay information into forwarded BOOTREQUEST messages, use the **no** form of this command.

relay information option

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

DHCP IPv4
relay
profile
relay
configuration

DHCP IPv4 profile snoop configuration

Command History

Release	Modification
Release 3.7.2	This command was introduced.
Release 4.2.0	This command was supported for BNG.

Usage Guidelines

The **relay information option** command automatically adds the circuit identifier suboption and the remote ID suboption to the DHCP relay agent information option.

The **relay information option** command enables a DHCP server to identify the user (for example, cable access router) sending the request and initiate appropriate action based on this information. By default, DHCP does not insert relay information.

If the **information option** command is enabled, DHCP snooping mode does not set the giaddr field in the DHCP packet.

The upstream DHCP server or DHCP relay interface must be configured to accept this type of packet using the **relay information option allow-untrusted** configuration. This configuration prevents the server or relay from dropping the DHCP message.

Task ID

Task ID	Operations
ip-services	read, write
basic-services	read, write

This example shows how to use the **relay information option** command:

```
RP/0/RSP0/CPU0:router# config
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile client relay
RP/0/RSP0/CPU0:router(config-dhcpv4-relay-profile)# relay information option
```

Related Commands

Command	Description
dhcp ipv4 (BNG), on page 13	Enables DHCP for IPv4 and enters DHCP IPv4 configuration mode.
helper-address	Configures the DHCP relay agent to relay packets to a specific DHCP Server.
relay information check (BNG), on page 62	Configures a DHCP server to validate the relay agent information option in forwarded BOOTREPLY messages.
relay information option allow-untrusted (BNG), on page 66	Configures the DHCP component to not drop BOOTREQUEST messages that have the relay information option set and the giaddr set to zero.

relay information option allow-untrusted (BNG)

To configure the Dynamic Host Configuration Protocol (DHCP) IPv4 relay or DHCP snooping Relay not to drop discard BOOTREQUEST packets that have the relay information option set and the giaddr set to zero, use the **relay information option allow-untrusted** command in DHCP IPv4 relay profile configuration submode or DHCP IPv4 profile snoop configuration submode. To restore the default behavior, which is to discard the BOOTREQUEST packets that have the relay information option and set the giaddr set to zero, use the **no** form of this command.

relay information option allow-untrusted

Syntax Description

This command has no keywords or arguments.

Command Default

The packet is dropped if the relay information is set and the giaddr is set to zero.

Command Modes

DHCP IPv4
relay
profile
relay
configuration

DHCP IPv4 profile snoop configuration

Command History

Release	Modification
Release 3.7.2	This command was introduced.
Release 4.2.0	This command was supported for BNG.

Usage Guidelines

According to RFC 3046, relay agents (and servers) receiving a DHCP packet from an untrusted circuit with giaddr set to zero but with a relay agent information option already present in the packet shall discard the packet and increment an error count. This configuration prevents the server or relay from dropping the DHCP message.

Task ID

Task ID	Operations
ip-services	read, write
basic-services	read, write

Examples

This example shows how to use the **relay information option allow-untrusted** command:

```
RP/0/RSP0/CPU0:router# config
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile client relay
```

```
RP/0/RSP0/CPU0:router(config-dhcpv4-relay-profile)# relay information option allow-untrusted
```

Related Commands

Command	Description
dhcp ipv4 (BNG), on page 13	Enables DHCP for IPv4 and enters DHCP IPv4 configuration mode.
helper-address	Configures the DHCP relay agent to relay packets to a specific DHCP Server.
relay information check (BNG), on page 62	Configures a DHCP server to validate the relay agent information option in forwarded BOOTREPLY messages.
relay information option (BNG), on page 64	Enables the system to insert a DHCP relay agent information option in forwarded BOOTREQUEST messages to a DHCP server.

relay information policy (BNG)

To configure how the Dynamic Host Configuration Protocol (DHCP) IPv4 relay processes BOOTREQUEST packets that already contain a relay information option, use the **relay information policy** command in DHCP IPv4 relay profile configuration submode. To restore the default relay information policy, use the **no** form of this command.

relay information policy {**drop** | **keep** | **encapsulate**}

Syntax Description

drop	Directs the DHCP IPv4 Relay to discard BOOTREQUEST packets with the existing relay information option.
keep	Directs the DHCP IPv4 Relay not to discard a BOOTREQUEST packet that is received with an existing relay information option and to keep the existing relay information option value.
encapsulate	Encapsulates the DHCP relay agent information option received from a prior relay agent in forwarded BOOTREQUEST messages.

Command Default

The DHCP IPv4 Relay does not discard a BOOTREQUEST packet that has an existing relay information option. The option and the existing relay information option value is replaced.

Command Modes

DHCP IPv4 relay profile configuration

Command History

Release	Modification
Release 3.7.2	This command was introduced.
Release 4.2.0	This command was supported for BNG.
Release 4.3.1	The **encapsulate** keyword was added.

Usage Guidelines

The **encapsulate** keyword allows the second relay agent to encapsulate option 82 information in a message received from the first relay agent, if it is also configured to add its own option 82 information. This configuration allows the DHCP server to use option 82 information from both relay agents.

Task ID

Task ID	Operations
ip-services	read, write
basic-services	read, write

Examples

This is sample output from executing the **relay information policy** command:

```
RP/0/RSP0/CPU0:router# config
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile client relay
```

```
RP/0/RSP0/CPU0:router(config-dhcpv4-relay-profile)# relay information policy keep
```

This example shows how to encapsulate the DHCP relay agent information option:

```
RP/0/RSP0/CPU0:router# config
RP/0/RSP0/CPU0:router(config)# dhcp ipv4
RP/0/RSP0/CPU0:router(config-dhcpv4)# profile client relay
RP/0/RSP0/CPU0:router(config-dhcpv4-relay-profile)# relay information policy encapsulate
```

Related Commands

Command	Description
dhcp ipv4 (BNG), on page 13	Enables DHCP for IPv4 and enters DHCP IPv4 configuration mode.
helper-address	Configures the DHCP relay agent to relay packets to a specific DHCP Server.
relay information check (BNG), on page 62	Configures a DHCP server to validate the relay agent information option in forwarded BOOTREPLY messages.
relay information option (BNG), on page 64	Enables the system to insert a DHCP relay agent information option in forwarded BOOTREQUEST messages to a DHCP server.
relay information option allow-untrusted (BNG), on page 66	Configures the DHCP component to not drop BOOTREQUEST messages that have the relay information option set and the giaddr set to zero.

relay option interface-id

To insert Interface-Id DHCPv6 option (option 18) in the Relay-forward message sent from BNG DHCPv6 proxy to the external DHCPv6 server, use the **relay option interface-id** command in the DHCP IPv6 proxy profile configuration mode. To disable this, use the **no** form of this command.

relay option interface-id insert {**local** | **pppoe** | **received**}

Syntax Description

insert	Inserts Interface-Id DHCPv6 option (option 18) in the Relay-forward message sent from BNG DHCPv6 proxy to the external DHCPv6 server.
local	Inserts locally generated or configured Interface-Id value.
pppoe	Inserts the Interface-Id value received from the SADB.
received	Inserts the received Interface-Id value.

Command Default

None

Command Modes

DHCP IPv6 proxy profile configuration

Command History

Release	Modification
Release 6.1.2	This command was introduced.

Usage Guidelines

This command is valid only for PPPoE subscriber sessions.

Task ID

Task ID	Operations
ip-services	read, write

Examples

This example shows how to insert DHCPv6 option (Interface-Id) in the Relay-forward message sent from BNG DHCPv6 proxy to the external DHCPv6 server

```
RP/0/RSP0/CPU0:router#config
RP/0/RSP0/CPU0:router(config)#dhcp ipv6
RP/0/RSP0/CPU0:router(config-dhcpv6)#profile P1 proxy
RP/0/RSP0/CPU0:router(config-dhcpv6-proxy-profile)#relay option
  interface-id insert pppoe
```

Related Commands

Command	Description
relay option link-layer-addr, on page 72	Sets MAC address as the Link-layer address in the Relay-forward message sent from BNG DHCPv6 to the external DHCPv6 server.
relay option remote-id, on page 73	Identifies the remote host end of the circuit in the DHCPv6 relay agents.

Command	Description
relay option subscriber-id, on page 75	Sets the Relay-Agent-Subscriber-Id option (DHCPv6 option 38) in the Relay-forward message sent from BNG DHCPv6 proxy to the external DHCPv6 server.

relay option link-layer-addr

To set the MAC address as the Link-layer address DHCPv6 option in the Relay-forward message sent from BNG DHCPv6 proxy to the external DHCPv6 server, use the **relay option link-layer-addr** command in the DHCP IPv6 proxy profile configuration mode. To disable this feature, use the **no** form of this command.

relay option remote-id set

Syntax Description

set	Sets the MAC address as the Link-layer address in the Relay-forward message sent from BNG DHCPv6 to the external DHCPv6 server.

Command Default

None

Command Modes

DHCP IPv6 proxy profile configuration

Command History

Release	Modification
Release 6.1.2	This command was introduced.

Usage Guidelines

This command is valid for both IPoE and PPPoE subscriber sessions.

Task ID

Task ID	Operations
ip-services	read, write

Examples

This example shows how to set DHCPv6 option 79 (Link-layer address) in the Relay-forward message sent from BNG DHCPv6 proxy to the external DHCPv6 server:

```
RP/0/RSP0/CPU0:router#config
RP/0/RSP0/CPU0:router(config)#dhcp ipv6
RP/0/RSP0/CPU0:router(config-dhcpv6)#profile P1 proxy
RP/0/RSP0/CPU0:router(config-dhcpv6-proxy-profile)#relay option
  link-layer-addr
```

Related Commands

Command	Description
relay option interface-id, on page 70	Inserts Interface-Id DHCPv6 option (option 18) in the Relay-forward message sent from BNG DHCPv6 proxy to the external DHCPv6 server.
relay option remote-id, on page 73	Identifies the remote host end of the circuit in the DHCPv6 relay agents.
relay option subscriber-id, on page 75	Sets the Relay-Agent-Subscriber-Id option (DHCPv6 option 38) in the Relay-forward message sent from BNG DHCPv6 proxy to the external DHCPv6 server.

relay option remote-id

To identify the remote host end of the circuit in the DHCPv6 relay agents, use the **relay option remote-id** command in the DHCP IPv6 proxy profile configuration mode. To disable the relay option, use the **no** form of this command.

relay option remote-id {*remote-id-string* | **pppoe**}

Syntax Description

remote-id-string	Specifies the string value for the Remote-Id.
pppoe	Specifies Remote-Id attribute in PPPoE session.

Command Default

If the remote-id is not provided during configuration, then the default value is used.

Command Modes

DHCP IPv6 proxy profile configuration

Command History

Release	Modification
Release 6.1.2	Modified the command to include**pppoe** option.
Release 4.3.0	This command was introduced.

Usage Guidelines

The **relay option remote-id** *remote-id* option is from the relay agent/proxy to the server. The option provides additional information to the DHCPv6 server. The server may use the information in the option to select parameters specific to particular users, hosts, or subscriber modems. The remote-id field is opaque to server and the server does not parse the value.

Task ID

Task ID	Operations
ip-services	read, write

Examples

This example shows how to set the remote-id value as "my-remote-id-12345" using the **relay option remote-id** command in DHCP IPv6 proxy profile configuration mode:

```
RP/0/RSP0/CPU0:router# config
RP/0/RSP0/CPU0:router(config)# dhcp ipv6
RP/0/RSP0/CPU0:router(config-dhcpv6)# profile myprofile proxy
RP/0/RSP0/CPU0:router(config-dhcpv6-proxy-profile)# relay option remote-id my-remote-id-12345
```

This example shows how to facilitate identification of subscriber based on the Remote-Id attribute in PPPoE session:

```
RP/0/RSP0/CPU0:router(config-dhcpv6-proxy-profile)# relay option remote-id pppoe
```

Related Commands

Command	Description
relay information option (BNG), on page 64	Enables the system to insert a DHCP relay agent information option in forwarded BOOTREQUEST messages to a DHCP server.
relay option interface-id, on page 70	Inserts Interface-Id DHCPv6 option (option 18) in the Relay-forward message sent from BNG DHCPv6 proxy to the external DHCPv6 server.
relay option link-layer-addr, on page 72	Sets MAC address as the Link-layer address in the Relay-forward message sent from BNG DHCPv6 to the external DHCPv6 server.
relay option subscriber-id, on page 75	Sets the Relay-Agent-Subscriber-Id option (DHCPv6 option 38) in the Relay-forward message sent from BNG DHCPv6 proxy to the external DHCPv6 server.

relay option subscriber-id

To set the Relay-Agent-Subscriber-Id option (DHCPv6 option 38) in the Relay-forward message sent from BNG DHCPv6 proxy to the DHCPv6 server, use the **relay option subscriber-id** command in the DHCP IPv6 proxy profile configuration mode. To disable this feature, use the **no** form of this command.

relay option subscriber-id pppoe

Syntax Description

pppoe	Specifies Relay-Agent-Subscriber-Id for PPPoE subscribers.

Command Default

None

Command Modes

DHCP IPv6 proxy profile configuration

Command History

Release	Modification
Release 6.1.2	This command was introduced.

Usage Guidelines

This command is valid only for PPPoE subscribers.

Task ID

Task ID	Operations
ip-services	read, write

Examples

This example shows how to set DHCPv6 option 38 in the Relay-forward message sent from BNG DHCPv6 proxy to the DHCPv6 server:

```
RP/0/RSP0/CPU0:router#config
RP/0/RSP0/CPU0:router(config)#dhcp ipv6
RP/0/RSP0/CPU0:router(config-dhcpv6)#profile P1 proxy
RP/0/RSP0/CPU0:router(config-dhcpv4-proxy-profile)#relay option subscriber-id pppoe
```

Related Commands

Command	Description
relay option interface-id, on page 70	Inserts Interface-Id DHCPv6 option (option 18) in the Relay-forward message sent from BNG DHCPv6 proxy to the external DHCPv6 server.
relay option link-layer-addr, on page 72	Sets MAC address as the Link-layer address in the Relay-forward message sent from BNG DHCPv6 to the external DHCPv6 server.
relay option remote-id, on page 73	Identifies the remote host end of the circuit in the DHCPv6 relay agents.

show dhcp ipv4 proxy binding

To show information concerning DHCP client bindings for proxy, use the **show dhcp ipv4 proxy binding** command in the EXEC mode.

show dhcp ipv4 proxy binding [{**circuit-id** *circuit_id_name* | **detail** | **interface***ipspecifier* | **location***locationspecifier* | **mac-address** | **remote-id** | **summary**}]{**location** | **vrf***vrf_name*}

Syntax Description

circuit-id	Displays the DHCP IPv4 proxy client binding based on circuit ID.
circuit_id_name	Displays the name of the circuit ID.
detail	Displays detailed binding information for DHCP proxy.
interface	Specifies the interface based on which the DHCP bindings are filtered.
ipspecifier	Displays the name of the interface.
location	Specifies the node location of the DHCP proxy.
locationspecifier	Displays the name of the location.
mac-address	Displays detailed client binding information based on mac-address.
remote-id	Displays the DHCP IPv4 proxy client binding based on remote ID.
summary	Displays the summary binding information for proxy.
vrf	Displays the VRF information.
vrf_name	Displays the name of the VRF.
|	Displays the output modifiers.

Command Default

Displays brief information about all DHCP proxy client bindings.

Command Modes

EXEC mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
ip-services	read

Examples

This is the sample output of the **show dhcp ipv4 proxy binding** command:

```
RP/0/RSP0/CPU0:router# show dhcp ipv4 proxy binding
The show dhcp ipv4 proxy binding output is as follows:
                                                                        Lease

 MAC Address      IP Address      State    Remaining      Interface            VRF
Sublabel
--------------          --------------    ---------   ---------       --------------------
  ---------  ----------
0000.6602.0102    1.1.1.1             BOUND    3495         Gi0/1/0/0            default
  0x0


RP/0/RSP0/CPU0:router# show dhcp ipv4 proxy binding mac-address  0000.6602.0102
MAC Address:      0000.6602.0102
IP Address:       1.1.1.1
Profile:          foo
State:            BOUND
Proxy Lease:                    86400 secs (1d00h)
Proxy Lease Remaining:  85942 secs (23:52:22)
Client Lease:                    600 secs (00:10:00)
Client Lease Remaining: 442 secs (00:07:22)
Client ID:        00-00-66-02-01-02
Interface:        GigabitEthernet0/1/0/0.200
VLAN Id:      200
VRF:              default
Subscriber Label: 0x0

RP/0/RSP0/CPU0:router# show dhcp ipv4 proxy binding circuit-id CCCCCCCCCC
MAC Address:      0000.6602.0102
IP Address:       1.1.1.1
circuit-id:  CCCCCCCCCC
remote-id: RRRRRRRRRR
Profile:          foo
State:            BOUND
Proxy Lease:                    86400 secs (1d00h)
Proxy Lease Remaining:  85942 secs (23:52:22)
Client Lease:                    600 secs (00:10:00)
Client Lease Remaining: 442 secs (00:07:22)
Client ID:        00-00-66-02-01-02
Interface:        GigabitEthernet0/1/0/0.200
VLAN Id:      outer 200, inner 300
VRF:              default
Subscriber Label: 0x0

RP/0/RSP0/CPU0:router# show dhcp ipv4 proxy binding remote-id RRRRRRRRRR
MAC Address:      0000.6602.0102
IP Address:       1.1.1.1
Profile:          foo
circuit-id:  CCCCCCCCCC
remote-id: RRRRRRRRRR
State:            BOUND
Proxy Lease:                    86400 secs (1d00h)
Proxy Lease Remaining:  85942 secs (23:52:22)
Client Lease:                    600 secs (00:10:00)
Client Lease Remaining: 442 secs (00:07:22)
Client ID:        00-00-66-02-01-02
Interface:        GigabitEthernet0/1/0/0
VRF:              default
Subscriber Label: 0x0

RP/0/RSP0/CPU0:router# show dhcp ipv4 proxy binding detail
MAC Address:        ca01.3fcd.0000
VRF:                default
```

```
IP Address:         10.10.10.6
Gateway IP Address: 0.0.0.0
Server IP Address:  11.11.11.3
ReceivedCircuit ID: -
InsertedCircuit ID: -
ReceivedRemote ID:  -
InsertedRemote ID:  -
Profile:            proxyProfile
State:              BOUND
Proxy Lease:                    86400 secs (1d00h)
Proxy Lease Remaining:  85942 secs (23:52:22)
Client Lease:                    600 secs (00:10:00)
Client Lease Remaining: 442 secs (00:07:22)
Client ID:          0x00-0x76-0x6C-0x61-0x6E-0x31-0x30-0x30
Interface:          GigabitEthernet0/1/0/0.100
VLAN:               None
Subscriber Label:   0x0

RP/0/RSP0/CPU0:router# show dhcp ipv4 proxy binding interface Gi0/1/0/0
                                                                    Lease

 MAC Address      IP Address      State    Remaining      Interface            VRF
Sublabel
--------------          --------------     ---------   ---------       --------------------
  ---------  ----------
0000.6602.0102    1.1.1.1             BOUND    3495         Gi0/1/0/0            default
  0x0
```

This is the sample output of the **show dhcp ipv4 proxy binding detail** command, that displays the detailed information of the IPoEv4 clients created as part of the dual-stack subscriber session. The IP-address, MAC-address, VRF-name, the interface on which the client is created and so on, are displayed as part of this command output.

```
RP/0/RSP0/CPU0:router# show dhcp ipv4 proxy binding detail
Tue Jan 29   12:49:49.498 UTC

MAC   Address:                 0000.6401.0102

VRF:                          default


Server VRF:                 default

IP Address:                 10.10.10.10

Giaddr from   client:         0.0.0.0

Giaddr to   server:           10.10.10.1

Server IP   Address:           20.20.20.2

Server IP   Address to client: 10.10.10.1

ReceivedCircuit   ID:         -

InsertedCircuit   ID:         -

ReceivedRemote   ID:           -

InsertedRemote   ID:           -

ReceivedVSISO:               -
```

```
InsertedVSISO:              -

Auth. on   received relay info:FALSE

Profile:                    IPoEv4

State:                      BOUND

Proxy   lease:                3600 secs   (01:00:00)

Proxy lease   remaining:      3403 secs (00:56:43)

Client ID:                    0x00-0x00-0x64-0x01-0x01-0x02

Access   Interface:          Bundle-Ether1.10

Access VRF:                 default

VLAN Id:                    10

Subscriber   Label:          0x55

Subscriber   Interface:      Bundle-Ether1.10.ip22
```

Related Commands

Command	Description
dhcp ipv4 (BNG), on page 13	Enables the Dynamic Host Configuration Protocol (DHCP) for IPv4.
show dhcp ipv6 proxy binding (BNG), on page 86	Shows the client bindings for Dynamic Host Configuration Protocol (DHCP) proxy.

show dhcp ipv4 proxy interface (BNG)

To display the proxy interface information for Dynamic Host Configuration Protocol (DHCP) IPv4, use the **show dhcp ipv4 proxy interface** command in EXEC mode.

show dhcp ipv4 proxy interface [*interface-type interface-name*] [**detail**]

Syntax Description

interface-type	Type of the proxy interface.
interface-name	Name of the proxy interface.
detail	Displays the detailed information of proxy interface.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
Release 4.2.0	This command was supported for BNG.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
ip-services	read

This is a sample output from the **show dhcp ipv4 proxy interface** command:

```
RP/0/RSP0/CPU0:router# show dhcp ipv4 proxy interface bundle-Ether 70.16 detail
Sat Jan  5 14:25:53.484 UTC

Interface:          Bundle-Ether70.16
VRF:                default
Mode:               Proxy
Profile Name:       proxy1
Lease Limit:        per circuit id from AAA 2

Lease Count Details:
Circuit id from AAA                                          Count
c2                                                           1
```

This table describes the significant fields shown in the display.

Table 1: show dhcp ipv4 proxy interface Command Field Descriptions

Field	Description
Lease Limit	Specifies the lease limit value sent from AAA server.

Field	Description
Count	Specifies the number of sessions on the router having the specific Circuit-ID received from the AAA server.

show dhcp ipv4 proxy profile

To display Dynamic Host Configuration Protocol (DHCP) proxy profile information, use the **show dhcp ipv4 proxy profile** command in the EXEC mode.

show dhcp ipv4 proxy profile {**name***profile_name* | }

Syntax Description

name	Displays the detailed proxy profile information.
profile_name	Specifies the profile name.
|	Displays the output modifiers.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

This command displays the proxy profiles created for DHCP IPv4.

Task ID

Task ID	Operations
ip-services	read

Examples

This is the sample output of the **show dhcp ipv4 proxy profile** command:

```
RP/0/RSP0/CPU0:router# show dhcp ipv4 proxy profile
```

The show dhcp ipv4 proxy profile output is as follows:

```
Wed Jan 23 17:05:49.760 IST

DHCP IPv4 Proxy Profiles
--------------------------
DHCP_PROF_IPSUB
```

This table describes the significant fields shown in the display.

Table 2: show dhcp ipv4 proxy profile Field Descriptions

Field	Description
DHCP IPv4 Proxy Profiles	Specifies all the DHCP IPv4 proxy profiles.

show dhcp ipv4 proxy statistics

To display statistics for a specific bridge domain, use the **show dhcp ipv4 proxy statistics** command in the EXEC mode.

show dhcp ipv4 proxy statistics location |]

Syntax Description

location	Specifies the node information for dhcp ipv4 proxy.
|	Displays the output modifiers.

Command Default

Displays a table of DHCP proxy statistics.

Command Modes

EXEC mode

Command History

Release	Modification
Release 4.2.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
ip-services	read

Examples

This is the sample output of the **show dhcp ipv4 proxy statistics** command:

```
RP/0/RSP0/CPU0:router# show dhcp ipv4 proxy statistics
```

The show dhcp ipv4 proxy statistics output is as follows:

```
Wed Jan 23 17:07:12.386 IST

                  VRF                     |       RX       |       TX       |       DR
|
-------------------------------------------------------------------------------------------
default                                   |            0   |            0   |            0   |
**nVSatellite                             |            0   |            0   |            0   |
```

This table describes the significant fields shown in the display.

Table 3: show dhcp ipv4 proxy statistics Field Descriptions

Field	Description
VRF	Specifies the VRF in the DHCP proxy. The default is nVSatellite.

show dhcp ipv4/6 server cdm

To display the entries from the CDM memory for Dynamic Host Configuration Protocol (DHCP), use the **show dhcp ipv4 server cdm** or **show dhcp ipv6 server cdm** command in EXEC mode.

show dhcp { **ipv4** | | **ipv6** } **server** **cdm** [{ **detail** }]

Syntax Description

cdm	Displays entries from CDM server.
detail	Displays detailed CDM entries for server.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
Release 7.3.1	This command is introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
ip-services	read

This snippet is a sample output from the **show dhcp ipv4 server cdm** command:

```
Router#show dhcp ipv4 server cdm

  Interface-Vlan                          Session-count        Session-limit
-------------------------------------------------------------------------------
  Bundle-Ether10100.9996:6.6              2000                 2000
  Bundle-Ether10100.9993:3.3              2000                 2000
  Bundle-Ether10100.9995:5.5              2000                 2000
  Bundle-Ether10100.9997:7.7              2000                 2000
  Bundle-Ether10100.9991:1.1              2000                 2000
  Bundle-Ether10100.9998:8.8              2000                 2000
  Bundle-Ether10100.9992:2.2              2000                 2000
  Bundle-Ether10100.9994:4.4              2000                 2000
```

This snippet is a sample output from the **show dhcp ipv6 server cdm** command:

```
Router#show dhcp ipv6 server cdm

  Interface-Vlan                          Session-count        Session-limit
-------------------------------------------------------------------------------
  Bundle-Ether10100.9996:6.6              2000                 2000
  Bundle-Ether10100.9993:3.3              2000                 2000
```

```
Bundle-Ether10100.9995:5.5              2000                2000
Bundle-Ether10100.9997:7.7              2000                2000
Bundle-Ether10100.9991:1.1              2000                2000
Bundle-Ether10100.9998:8.8              2000                2000
Bundle-Ether10100.9992:2.2              2000                2000
Bundle-Ether10100.9994:4.4              2000                2000
```

show dhcp ipv6 proxy binding (BNG)

To display the client bindings for Dynamic Host Configuration Protocol (DHCP) proxy, use the **show dhcp ipv6 proxy binding** command in EXEC mode.

show dhcp ipv6 proxy binding {**detail** | **duid** | **interface** | **interface-id** | **location** | **mac-address** | **remote-id** | **summary** | **vrf**}

Syntax Description

detail	Displays detailed bindings for proxy.
duid	Displays client bindings for DUID.
interface	Displays client bindings by Interface.
interface-id	Displays client bindings by Interface ID.
location	Specifies the node location.
mac-address	Displays detailed client binding information.
remote-id	Displays client binding by Remote ID.
summary	Displays summary bindings for proxy.
vrf	Displays client bindings by VRF name.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
Release 4.1.1	This command was introduced.
Release 4.3.0	This command was supported for BNG.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
ip-services	read

This is a sample output from the **show dhcp ipv6 proxy binding** command:

```
RP/0/RSP0/CPU0:router# show dhcp ipv6 proxy binding

Summary:
  Total number of Proxy bindings = 1
```

```
Prefix: 2001::/60 (Gi0/0/0/1)
  DUID: 00030001ca004a2d0000
  IAID: 00020001
  lifetime: 2592000
  expiration: Nov 25 2010 16:47

RP/0/RSP0/CPU0:router# show dhcp ipv6 proxy binding summary

Total number of clients: 2

     STATE              |             COUNT            |
                        |     IA-NA     |    IA-PD     |
-------------------------------------------------------
  INIT                  |            0  |           0  |
  SUB VALIDATING        |            0  |           0  |
  ADDR/PREFIX ALLOCATING|            0  |           0  |
  REQUESTING            |            0  |           0  |
  SESSION RESP PENDING  |            2  |           0  |
  ROUTE UPDATING        |            0  |           0  |
  BOUND                 |            0  |           0  |
```

show dhcp ipv6 proxy interface (BNG)

To display the proxy interface information for Dynamic Host Configuration Protocol (DHCP), use the **show dhcp ipv6 proxy interface** command in EXEC mode.

show dhcp ipv6 proxy interface {*typeinterface-path-id*} {**location***location*}

Syntax Description

type	Interface type. For more information, use the question mark (?) online help function.
interface-path-id	Physical interface or virtual interface. **Note** Use the **show interfaces** command to see a list of all interfaces currently configured on the router. For more information about the syntax for the router, use the question mark (**?**) online help function.
location	Displays the node location by Interface.
location	Displays the fully qualified location specification of an interface.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
Release 4.3.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
ip-services	read

This is a sample output from the **show dhcp ipv6 proxy interface** command:

```
RP/0/RSP0/CPU0:router# show dhcp ipv6 proxy interface

Tue Sep  4 19:14:54.056 UTC
Codes: Amb - Ambiguous VLAN, B - Base, R - Relay, P - Proxy,
       SR - Server, S - Snoop, C - Client, INV - Invalid
       CID - Circuit Id, RID - Remote Id, INTF - Interface

Interface              Mode Profile Name                              Amb Lease Limit
-------------------------------------------------------------------------------------
BE1.100                P    pxy1                                      No  None
BE1.200                P    pxy1                                      No  None
BE1.250                P    pxy1                                      Yes None
BE1.400                P    pxy1                                      Yes None
```

show dhcp ipv6 proxy profile

To display the proxy profile information for Dynamic Host Configuration Protocol (DHCP) proxy, use the **show dhcp ipv6 proxy profile** command in EXEC mode.

show dhcp ipv6 proxy profile name *profile_name*{**location***location*}

Syntax Description

name	Displays the detailed proxy profile information for the profile.
profile_name	Specifies the name of the profile.
location	Displays the node location by Interface.
location	Displays the fully qualified location specification of an interface.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
Release 4.3.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
ip-services	read

This is a sample output from the **show dhcp ipv6 proxy profile** command:

```
RP/0/RSP0/CPU0:router# show dhcp ipv6 proxy profile

Tue Sep  4 05:00:57.938 UTC

DHCP IPv6 Proxy Profiles
-------------------------
pxy1
pxy_pppoe1
pxy_pppoe2
```

show dhcp ipv6 proxy statistics

To display the statistics for Dynamic Host Configuration Protocol (DHCP) proxy, use the **show dhcp ipv6 proxy statistics** command in EXEC mode.

show dhcp ipv6 proxy statistics {**debug** | **location** | **vrf**}

Syntax Description

debug	Displays the debug statistics for the proxy.
location	Displays the node location for the proxy.
vrf	Displays the proxy statistics by VRF.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
Release 4.3.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
ip-services	read

This is a sample output from the **show dhcp ipv6 proxy statistics** command:

```
RP/0/RSP0/CPU0:router# show dhcp ipv6 proxy statistics

Wed Sep  5 01:10:35.650 UTC

                  VRF                     |       RX        |       TX        |        DR
|
-------------------------------------------------------------------------------------------

 default                                  |            23   |            28   |             0
|
 red                                      |             0   |             0   |             0
|
 blue                                     |             0   |             0   |             0
|
 green                                    |             6   |             0   |             0
|
 orange                                   |             0   |             0   |             0
|
 test_vrf                                 |             0   |             0   |             0
|
 dhcpclient                               |             0   |             0   |             0
|
```

```
 dhcpserver                                |             0  |             0  |             0
|
```

show dhcp ipv6 server binding

To display the client bindings for Dynamic Host Configuration Protocol (DHCP) server, use the **show dhcp ipv6 server binding** command in EXEC mode.

show dhcp ipv6 server binding {**detail** | **duid** | **interface** | **interface-id** | **location** | **mac-address** | **remote-id** | **summary** | **vrf**}

Syntax Description

detail	Displays detailed bindings for proxy.
duid	Displays client bindings for DUID.
interface	Displays client bindings by Interface.
interface-id	Displays client bindings by Interface ID.
location	Specifies the node location.
mac-address	Displays detailed client binding information.
remote-id	Displays client binding by Remote ID.
summary	Displays summary bindings for proxy.
vrf	Displays client bindings by VRF name.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
Release 4.3.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
ip-services	read

This is a sample output from the **show dhcp ipv6 server binding** command:

```
RP/0/RSP0/CPU0:router# show dhcp ipv6 server binding location 0/RSP0/CPU0
Summary:
Total number of clients: 3
  DUID  : 000300010000641e0103
  MAC Address: 0000.641e.0103
  Client Link Local: fe80::200:64ff:fe1e:103
  Sublabel: 0x82f
```

```
    IA ID: 0xb100
      STATE: BOUND
      IPv6 Prefix:  2004:4:4:6::/64 (Bundle-Ether2.3)
        lifetime  : 600 secs (00:10:00)
        expiration: 327 secs (00:05:27)
  DUID  : 000300010000641e0104
  MAC Address: 0000.641e.0104
  Client Link Local: fe80::200:64ff:fe1e:104
  Sublabel: 0x870
    IA ID: 0xb101
      STATE: BOUND
      IPv6 Prefix:  2004:4:4:a::/64 (Bundle-Ether2.3)
        lifetime  : 600 secs (00:10:00)
        expiration: 327 secs (00:05:27)
  DUID  : 000300010000641e0105
  MAC Address: 0000.641e.0105
  Client Link Local: fe80::200:64ff:fe1e:105
  Sublabel: 0x8b5
    IA ID: 0xb102
      STATE: BOUND
      IPv6 Prefix:  2004:4:4:b::/64 (Bundle-Ether2.3)
        lifetime  : 600 secs (00:10:00)
        expiration: 397 secs (00:06:37)

RP/0/RSP0/CPU0:router# show dhcp ipv6 server binding summary
Tue Sep  4 04:58:19.580 UTC

Total number of clients: 3

     STATE              |             COUNT            |
                        |     IA-NA     |    IA-PD     |
-------------------------------------------------------
  INIT                  |            0  |           0  |
  SUB VALIDATING        |            0  |           0  |
  ADDR/PREFIX ALLOCATING|            0  |           0  |
  REQUESTING            |            0  |           0  |
  SESSION RESP PENDING  |            0  |           0  |
  ROUTE UPDATING        |            0  |           0  |
  BOUND                 |            0  |           3  |


RP/0/RSP0/CPU0:router#show dhcp ipv6 server binding detail
Tue Sep  4 04:59:41.765 UTC

Client Link Local:      fe80::200:64ff:fe1e:103
MAC Address:            0000.641e.0103
Profile:                test
Client DUID:            000300010000641e0103
Client Flag:            0x80080811
Subscriber VRF:         abc
Class Name:             -
Access Interface:       Bundle-Ether2.3
Access VRF:             abc
Subscriber Label:       0x82f
VLAN Id:                3
ReceivedRemote ID:      -
ReceivedInterface ID:   -
Prefix Pool Name:       p2
Address Pool Name:      -
  IA ID:                0xb100
    STATE:              BOUND
      IPv6 Prefix:      2004:4:4:6::/64 (Bundle-Ether2.3)
        lifetime:       600 secs (00:10:00)
        expiration:     515 secs (00:08:35)
```

```
Client Link Local:      fe80::200:64ff:fe1e:104
MAC Address:            0000.641e.0104
Profile:                test
Client DUID:            000300010000641e0104
Client Flag:            0x80080811
Subscriber VRF:         abc
Class Name:             -
Access Interface:       Bundle-Ether2.3
Access VRF:             abc
Subscriber Label:       0x870
VLAN Id:                3
ReceivedRemote ID:      -
ReceivedInterface ID:   -
Prefix Pool Name:       p2
Address Pool Name:      -
  IA ID:                0xb101
    STATE:              BOUND
      IPv6 Prefix:      2004:4:4:a::/64 (Bundle-Ether2.3)
        lifetime:       600 secs (00:10:00)
        expiration:     515 secs (00:08:35)

Client Link Local:      fe80::200:64ff:fe1e:105
MAC Address:            0000.641e.0105
Profile:                test
Client DUID:            000300010000641e0105
Client Flag:            0x80080811
Subscriber VRF:         abc
Class Name:             -
Access Interface:       Bundle-Ether2.3
Access VRF:             abc
Subscriber Label:       0x8b5
VLAN Id:                3
ReceivedRemote ID:      -
ReceivedInterface ID:   -
Prefix Pool Name:       p2
Address Pool Name:      -
  IA ID:                0xb102
    STATE:              BOUND
      IPv6 Prefix:      2004:4:4:b::/64 (Bundle-Ether2.3)
        lifetime:       600 secs (00:10:00)
        expiration:     585 secs (00:09:45)
```

show dhcp ipv6 server interface

To display the server interface information for Dynamic Host Configuration Protocol (DHCP), use the **show dhcp ipv6 server interface** command in EXEC mode.

show dhcp ipv6 server interface {*typeinterface-path-id*} {**location***location*}

Syntax Description

type	Interface type. For more information, use the question mark (?) online help function.

interface-path-id	Either a physical interface instance or a virtual interface instance as follows:
	• Physical interface instance. Naming notation is *rack/slot/module/port* and a slash between values is required as part of the notation.
	  • *rack*: Chassis number of the rack.
	  • *slot*: Physical slot number of the modular services card or line card.
	  • *module*: Module number. A physical layer interface module (PLIM) is always 0.
	  • *port*: Physical port number of the interface.
	Note In references to a Management Ethernet interface located on a route processor card, the physical slot number is alphanumeric (RP0 or RP1) and the module is CPU0. Example: interface MgmtEth0/RP1/CPU0/0.
	• Virtual interface instance. Number range varies depending on interface type.
	For more information about the syntax for the router, use the question mark (?) online help function.

location	Displays the node location by Interface.
location	Displays the fully qualified location specification of an interface.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
Release 4.3.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
ip-services	read

This is a sample output from the **show dhcp ipv6 server interface** command:

```
RP/0/RSP0/CPU0:router# show dhcp ipv6 server interface bundle-Ether 2.3


Tue Sep  4 05:02:03.861 UTC

Interface:          Bundle-Ether2.3
VRF:                abc
Mode:               Server
Profile Name:       test
Lease Limit:        None
```

show dhcp ipv6 server profile

To display the server profile information for Dynamic Host Configuration Protocol (DHCP) server, use the **show dhcp ipv6 server profile** command in EXEC mode.

show dhcp ipv6 server profile name *profile_name*{**location***location*}

Syntax Description

name	Displays the detailed proxy profile information for the profile.
profile_name	Specifies the name of the profile.
location	Displays the node location by Interface.
location	Displays the fully qualified location specification of an interface.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
Release 4.3.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
ip-services	read

This is a sample output from the **show dhcp ipv6 server profile** command:

```
RP/0/RSP0/CPU0:router# show dhcp ipv6 server profile name test

Tue Sep  4 05:00:57.938 UTC

Profile: test
DNS Addresses:None
Client Lease Time: 0 secs (00:00:00)
Framed Address Pool: p1
Delegated Prefix Pool: p2
Interface References:
Bundle-Ether2.3
```

show dhcp ipv6 server statistics

To display the statistics for Dynamic Host Configuration Protocol (DHCP) server, use the **show dhcp ipv6 server statistics** command in EXEC mode.

show dhcp ipv6 server statistics {**debug** | **location** | **vrf**}

Syntax Description

debug	Displays the debug statistics for the proxy.
location	Displays the node location for the proxy.
vrf	Displays the proxy statistics by VRF.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
Release 4.3.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
ip-services	read

This is a sample output from the **show dhcp ipv6 server statistics** command:

```
RP/0/RSP0/CPU0:router# show dhcp ipv6 server statistics

  Tue Sep  4 19:13:47.472 UTC

                 VRF                      |       RX       |       TX       |       DR
|
-------------------------------------------------------------------------------------------

 default                                  |        10003   |        11651   |             3
|
 red                                      |            0   |            0   |             0
|
 blue                                     |            0   |            0   |             0
|
 green                                    |            0   |            0   |             0
|
 orange                                   |            0   |            0   |             0
|
 test_vrf                                 |            0   |            0   |             0
|
 dhcpclient                               |            0   |            0   |             0
|
```

```
 dhcpserver                                |             0  |             0  |             0
|
```