



JunosE™ Software for E Series™ Broadband Services Routers

DHCP Services

Release

15.1.x



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The information in this document is current as of the date on the title page.

YEAR 2000 NOTICE

Juniper Networks hardware and software products are Year 2000 compliant. Junos OS has no known time-related limitations through the year 2038. However, the NTP application is known to have some difficulty in the year 2036.

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About the Documentation

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E Series and JunosE Documentation and Release Notes

For a list of related JunosE documentation, see <http://www.juniper.net/techpubs/software/index.html>.

If the information in the latest release notes differs from the information in the documentation, follow the *JunosE Release Notes*.

To obtain the most current version of all Juniper Networks® technical documentation, see the product documentation page on the Juniper Networks website at <http://www.juniper.net/techpubs/>.

Audience

This guide is intended for experienced system and network specialists working with Juniper Networks E Series Broadband Services Routers in an Internet access environment.

E Series and JunosE Text and Syntax Conventions

Table 1 on page viii defines notice icons used in this documentation.

Table 1: Notice Icons







Icon	Meaning	Description
	Informational note	Indicates important features or instructions.
	Caution	Indicates a situation that might result in loss of data or hardware damage.
	Warning	Alerts you to the risk of personal injury or death.
	Laser warning	Alerts you to the risk of personal injury from a laser.
	Tip	Indicates helpful information.
	Best practice	Alerts you to a recommended use or implementation.

Table 2 on page viii defines text and syntax conventions that we use throughout the E Series and JunosE documentation.

Table 2: Text and Syntax Conventions

Convention	Description	Examples
Bold text like this	Represents commands and keywords in text.	<ul style="list-style-type: none"> Issue the clock source command. Specify the keyword exp-msg.
Bold text like this	Represents text that the user must type.	host1(config)#traffic class low-loss1
Fixed-width text like this	Represents information as displayed on your terminal's screen.	<pre>host1#show ip ospf 2 Routing Process OSPF 2 with Router ID 5.5.0.250 Router is an Area Border Router (ABR)</pre>
<i>Italic text like this</i>	<ul style="list-style-type: none"> Emphasizes words. Identifies variables. Identifies chapter, appendix, and book names. 	<ul style="list-style-type: none"> There are two levels of access: <i>user</i> and <i>privileged</i>. <i>clusterId</i>, <i>ipAddress</i>. <i>Appendix A, System Specifications</i>
Plus sign (+) linking key names	Indicates that you must press two or more keys simultaneously.	Press Ctrl + b.

Table 2: Text and Syntax Conventions (*continued*)

Convention	Description	Examples
Syntax Conventions in the Command Reference Guide		
Plain text like this	Represents keywords.	terminal length
<i>Italic text like this</i>	Represents variables.	<i>mask, accessListName</i>
(pipe symbol)	Represents a choice to select one keyword or variable to the left or to the right of this symbol. (The keyword or variable can be either optional or required.)	diagnostic line
[] (brackets)	Represent optional keywords or variables.	[internal external]
[]* (brackets and asterisk)	Represent optional keywords or variables that can be entered more than once.	[level1 level2 l1]*
{ } (braces)	Represent required keywords or variables.	{ permit deny } { in out } { clusterId ipAddress }

Obtaining Documentation

To obtain the most current version of all Juniper Networks technical documentation, see the Technical Documentation page on the Juniper Networks website at <http://www.juniper.net/>.

To download complete sets of technical documentation to create your own documentation CD-ROMs or DVD-ROMs, see the Portable Libraries page at

<http://www.juniper.net/techpubs/resources/index.html>

Copies of the Management Information Bases (MIBs) for a particular software release are available for download in the software image bundle from the Juniper Networks website at <http://www.juniper.net/>.

Documentation Feedback

We encourage you to provide feedback, comments, and suggestions so that we can improve the documentation to better meet your needs. Send your comments to techpubs-comments@juniper.net, or fill out the documentation feedback form at <https://www.juniper.net/cgi-bin/docbugreport/>. If you are using e-mail, be sure to include the following information with your comments:

- Document or topic name
- URL or page number
- Software release version

Requesting Technical Support

Technical product support is available through the Juniper Networks Technical Assistance Center (JTAC). If you are a customer with an active J-Care or JNASC support contract, or are covered under warranty, and need post-sales technical support, you can access our tools and resources online or open a case with JTAC.

- JTAC policies—For a complete understanding of our JTAC procedures and policies, review the *JTAC User Guide* located at <http://www.juniper.net/us/en/local/pdf/resource-guides/7100059-en.pdf>.
- Product warranties—For product warranty information, visit <http://www.juniper.net/support/warranty/>.
- JTAC hours of operation—The JTAC centers have resources available 24 hours a day, 7 days a week, 365 days a year.

Self-Help Online Tools and Resources

For quick and easy problem resolution, Juniper Networks has designed an online self-service portal called the Customer Support Center (CSC) that provides you with the following features:

- Find CSC offerings: <http://www.juniper.net/customers/support/>
- Search for known bugs: <http://www2.juniper.net/kb/>
- Find product documentation: <http://www.juniper.net/techpubs/>
- Find solutions and answer questions using our Knowledge Base: <http://kb.juniper.net/>
- Download the latest versions of software and review release notes: <http://www.juniper.net/customers/csc/software/>
- Search technical bulletins for relevant hardware and software notifications: <http://kb.juniper.net/InfoCenter/>
- Join and participate in the Juniper Networks Community Forum: <http://www.juniper.net/company/communities/>
- Open a case online in the CSC Case Management tool: <http://www.juniper.net/cm/>

To verify service entitlement by product serial number, use our Serial Number Entitlement (SNE) Tool: <https://tools.juniper.net/SerialNumberEntitlementSearch/>

Opening a Case with JTAC

You can open a case with JTAC on the Web or by telephone.

- Use the Case Management tool in the CSC at <http://www.juniper.net/cm/>.
- Call 1-888-314-JTAC (1-888-314-5822 toll-free in the USA, Canada, and Mexico).

For international or direct-dial options in countries without toll-free numbers, see <http://www.juniper.net/support/requesting-support.html>.

PART 1

Overview

- [Understanding DHCP Processes on page 3](#)
- [DHCP Access Model for RADIUS Requests on page 9](#)
- [Workflow of DHCP Proxy Client Processes on page 11](#)

CHAPTER 1

Understanding DHCP Processes

- [DHCP Overview Information on page 3](#)
- [DHCP Platform Considerations on page 4](#)
- [DHCP References on page 5](#)
- [DHCP Client Bindings and Duplicate MAC Addresses for Subinterfaces Overview on page 5](#)

DHCP Overview Information

The most important configuration parameter carried by DHCP is the IP address. A computer must be initially assigned a specific IP address that is appropriate to the network to which the computer is attached and that is not assigned to any other computer on that network. If you move a computer to a new network, it must be assigned a new IP address for that new network. You can use DHCP to manage these assignments automatically.

An IP client contacts a DHCP server for configuration parameters. The DHCP server is typically centrally located and operated by the network administrator. Because the server is run by a network administrator, DHCP clients can be reliably and dynamically configured with parameters appropriate to the current network architecture.

You can configure the E Series router to support the following DHCP features:

- DHCP access model
- DHCP proxy client
- DHCP relay
- DHCP relay proxy
- DHCP local server
- DHCP external server

Session and Resource Control Software

The Session and Resource Control (SRC) software, formerly the Service Deployment System (SDX) software is a component of Juniper Networks management products.

The SRC software provides a Web-based interface that allows subscribers to access services, such as the Internet, an intranet, or an extranet.

When a DHCP subscriber logs in, the SRC software can authorize the address request and select the DHCP address pool on the router from which the DHCP address is selected. The SRC software can also control the number of IP addresses that are given to a particular retailer or subscriber and control the lease time of IP addresses assigned to DHCP subscribers.

The router retrieves the DSL line rate parameters from Access Node Control Protocol (ANCP) and reports this information to the SRC software with the corresponding COPS messages. If the router cannot retrieve the DSL line rate parameters from ANCP, it retrieves the DSL information in the following ways:

- **From AAA layer**—For PPP interfaces, the router retrieves the DSL line rate parameters from the AAA layer and reports this information to the SRC software.
- **From DHCP options**—For DHCP external server and DHCP local server in equal-access mode, the router retrieves the DSL line rate parameters from DHCP options and reports this information to the SRC software. To enable the DHCP external server to receive the DHCP options if the router blocks the DHCP options on the DHCP application, you must use the **set dhcp relay preserve-trusted-client-option** command.



NOTE: The SRC client configured on the E Series router does not send Delete Request (DRQ) messages for interfaces that are bounced during the address mode and are in the administratively up state. Bouncing of an interface refers to shutting down and restarting the interface, releasing the IP address allocated to the clients connected on that interface, and obtaining a fresh IP address for the clients using a rediscovery process. For such interfaces, interface DRQ messages are not sent to the COPS server (or PDP) after DRQ messages for the address configured on the interface are sent from the SRC client.

Related Documentation

- *set dhcp relay preserve-trusted-client-option*

DHCP Platform Considerations

For information about modules that support DHCP on the ERX7xx models, ERX14xx models, and the ERX310 Broadband Services Router:

- See *ERX Module Guide, Table 1, ERX Module Combinations* for detailed module specifications.
- See *ERX Module Guide, Appendix A, Module Protocol Support* for information about the modules that support DHCP.

For information about modules that support DHCP on the E120 and E320 Broadband Services Routers:

- See *E120 and E320 Module Guide, Table 1, Module and IOAs* for detailed module specifications.
- See *E120 and E320 Module Guide, Appendix A, IOA Protocol Support* for information about the modules that support DHCP.

**Related
Documentation**

- [DHCP Overview Information on page 3](#)
- [DHCP References on page 5](#)

DHCP References

For more information about DHCP, consult the following resources:

- DSL Forum Technical Report (TR)-101—Migration to Ethernet-Based DSL Aggregation (April 2006)
- RFC 2131—Dynamic Host Configuration Protocol (March 1997)
- RFC 2132—DHCP Options and BOOTP Vendor Extensions (March 1997)
- RFC 3046—DHCP Relay Agent Information Option (January 2001)
- RFC 3315—Dynamic Host Configuration Protocol for IPv6 (DHCPv6) (July 2003)
- RFC 3633—IPv6 Prefix Options for Dynamic Host Configuration Protocol (DHCP) Version 6 (December 2003)
- RFC 4243—Vendor-Specific Information Suboption for the Dynamic Host Configuration Protocol (DHCP) Relay Agent Option (December 2005)



NOTE: IETF drafts are valid for only 6 months from the date of issuance. They must be considered as works in progress. Please refer to the IETF Web site at <http://www.ietf.org> for the latest drafts.

**Related
Documentation**

- [DHCP Overview Information on page 3](#)
- [DHCP Platform Considerations on page 4](#)
- *RADIUS IETF Attributes Supported for Subscriber AAA Accounting Messages*
- *RADIUS IETF Attributes Supported for AAA Tunnel Accounting Messages*
- *RADIUS IETF Attributes*

DHCP Client Bindings and Duplicate MAC Addresses for Subinterfaces Overview

In certain network scenarios, active VLAN subinterfaces of subscribers might be transferred from one virtual router to another, and later retransitioned to the original virtual router for correct computation of subscription and billing costs for customers being serviced by an enterprise provider. Also, addition and removal of active VLAN subinterfaces might be performed during troubleshooting with the customer premises equipment (CPE)

devices. Such changes in the configuration of active VLAN subinterfaces causes differences in the subscriber entries displayed in the output of the **show dhcp bindings** (and other commands used to monitor DHCP bindings) and **show subscribers** commands.

When the DHCP client is bound to an IP address, deletion of the active VLAN subinterface causes the subscriber entry to be removed from the AAA database and the access-internal route for that client to be deleted. In such a scenario, if the client binding was still retained in the DHCP database, the entries for that subscriber for which the binding is removed from the AAA database are not displayed in the output of the **show subscribers** (under the User Name field) and **show ip route access-internal** (under the Prefix/Length field) commands.

When the VLAN subinterface associated with a DHCP client, which was previously deleted when the client binding was removed, is reconfigured, the entries for that subscriber are not displayed in the output of the following **show** commands until the DHCP client sends a discover or renew request to the DHCP server for an IP address to be allocated to it:

- **show ip dhcp-local binding interface** (under the Address field)
- **show ip route access-internal** (under the Prefix/Length field)
- **show subscribers** (under the User Name field)

When some DHCP packets flow between the subscriber and the router, the following events take place:

- During the process of allocating IP addresses to the DHCP client, which involves the discovery, offer, request, and acknowledgment messages between the server and the client, the client binding already exists in the database and the DHCP server does not contact AAA for authentication. At this point, the subscriber entry is not present in the AAA database. The access-internal route is created for the client and the subscriber connection becomes active. The client does not receive Acct-Request packets because the entry for this subscriber is not available in the AAA database.
- When the client sends a renew request to renew its address, the request does not reach the interface on the DHCP server. The DHCP server sends a NAK message to the client, forcing the client to begin the DHCP connection process again.
- When the client sends a rebind request for the IP address to be bound again to it, the existing binding for this client is deleted and re-created during the next discovery process. All the databases are synchronized and the entry for the client is correctly displayed in the output of the **show subscribers** and **show dhcp bindings** commands.

In this scenario, the subscriber session might be established and active without accounting records for Acct-Stop and Interim-Acct messages sent to the RADIUS server during the process of allocating addresses to DHCP clients in JunosE releases numbered lower than 9.3.x.

Beginning with JunosE Release 9.3.x, support for configuring DHCP external server to uniquely identify clients with duplicate MAC addresses is available. This functionality causes a new IP address to be assigned to a client during the process of DHCP address allocation by the DHCP server using the discovery, offer, request, and acknowledgment sequence. The previously configured binding for the same client is deleted from the

database before the lease period expires for that address, immediately after the VLAN subinterface for that client is deleted. Because the DHCP bindings are stored in a server management table that includes the VLAN subinterface user ID (UID), when the server queries the management table to check whether a binding for a client already exists, no match is found and a fresh client binding is created when the VLAN subinterface is reconfigured.

To prevent the problem of incorrect and inconsistent parameters being displayed in the **show** commands used to monitor subscriber information and DHCP binding attributes, the client binding is removed from the DHCP database after the VLAN subinterface associated with that subscriber is deleted. Retaining the client binding is not effective after the primary interface is deleted because when the client logs in again, it is assigned a different user ID unless a rollover of the user ID occurs. This rollover causes the user ID assigned to the client prior to the logout to be reassigned to it upon logging in again and a fresh IP address is bound to the client. When a stateful SRP switchover operation is performed before the transaction is posted to the standby SRP module, the client binding remains in the database because it is added again when the configuration data is restored from the mirrored containers. The client binding stays in the database until its lease expires.

- Related Documentation**
- [DHCP Platform Considerations on page 4](#)
 - [DHCP References on page 5](#)

CHAPTER 2

DHCP Access Model for RADIUS Requests

- [Configuring the DHCP Access Model on page 9](#)

Configuring the DHCP Access Model

The E Series router provides a DHCP access model, which enables you to integrate the router into an existing RADIUS-based operation support system (OSS). In the DHCP access model, a DHCP local server or DHCP external service is configured, but the E Series router does not have direct interaction with an OSS or a policy server, such as the Session and Resource Control (SRC) software. The router passes the client's DHCP options, client's media access control (MAC) address and, if appropriate, the DHCP relay's IP address in RADIUS requests for authentication.

To configure the DHCP access model to pass the client's information in RADIUS requests, you enable the DHCP options feature, then specify the client information to be passed to RADIUS. You can specify that the client's MAC address be included in the request. You can also specify that the DHCP relay's IP address be sent, if appropriate. For descriptions of the RADIUS attributes used with the DHCP access model, see *Juniper Networks VSAs Supported for Subscriber AAA Access Messages* and *Juniper Networks VSAs Supported for Subscriber AAA Accounting Messages*.

Workflow of DHCP Proxy Client Processes

- [Configuring DHCP Proxy Clients on page 11](#)

Configuring DHCP Proxy Clients

Dynamic Host Configuration Protocol (DHCP) proxy client support enables the router to obtain an IP address from a DHCP server for a remote Point-to-Point Protocol (PPP) client. Each virtual router (acting as a DHCP proxy client) can query up to five DHCP servers.

For PPP users, the router acts as a DHCP client to obtain an address for the user. This is referred to as DHCP proxy.

The process for PPP users is as follows:

1. The remote user dials in and the client requests RADIUS authentication.
2. The authentication, authorization, and accounting (AAA) server on the router sends a request to the DHCP proxy client on the router for an IP address to be assigned to the remote user's host.
3. The proxy client assumes the role of a DHCP client and sends a discovery message to each DHCP server.
4. One or more of the DHCP servers responds with an offer message containing an IP address.
5. The proxy client determines which offer to accept and sends a message to that DHCP server requesting that IP address.
6. The DHCP server responds to the proxy client with an acknowledgment message.
7. The proxy client passes the IP address to the AAA server on the router, and the AAA server returns the address to PPP. PPP then assigns the address to the remote host. The new IP address is included when the router next updates its routing table.

Dynamic IP addresses are leased to the remote host for a specific period of time, which can range from minutes to days. At the halfway point in the lease period, the proxy client requests an extension from the DHCP server on behalf of the remote host. The lease is extended for a period specified in the acknowledgment (ACK) message returned by the DHCP server—typically equal to the original lease. If the DHCP server returns a negative acknowledgment (NAK) message to the proxy client, the proxy client notifies the server

on the router that the extension has been denied. The AAA server logs out the remote host and frees the IP address for reuse.

When a remote host disconnects, the AAA server notifies the proxy client that the IP address is available for reuse. The proxy client informs the DHCP server, which can now reassign that IP address.



NOTE: The maximum number of DHCP proxy client bindings that are stored on the router chassis is 48,000 for ERX routers, 64,000 for E120 routers, and 96,000 for E320 routers.

For additional information about managing client bindings, see [“Viewing and Deleting DHCP Client Bindings” on page 17](#).

To configure a proxy client from Global Configuration mode:

1. Specify the address of the DHCP server that will provide IP addresses for remote hosts. You can specify a maximum of five DHCP servers.

```
host1(config)#ip dhcp-server 10.6.128.10
```

2. Direct the router to request IP addresses for remote users from the DHCP servers.

```
host1(config)#ip address-pool dhcp
```

**Related
Documentation**

- [ip address-pool on page 22](#)
- [ip dhcp-server on page 23](#)

PART 2

Configuration

- [Configuring DHCP Packet Logging Settings on page 15](#)
- [Working with DHCP Client Bindings on page 17](#)
- [Configuration Commands on page 21](#)

Configuring DHCP Packet Logging Settings

- [Logging DHCP Packet Information on page 15](#)

Logging DHCP Packet Information

The JunosE Software enables you to collect and log DHCP packet information for all JunosE DHCP access models on a per-interface basis. To log packets for a specific DHCP application, you enable DHCP packet logging on the interface that serves the application. JunosE Software supports per-interface DHCP packet logging on a maximum of 16 interfaces. Per-interface DHCP packet logging is disabled by default.

You can specify which packets are logged—receive, transmit, or all. You can optionally assign low or high priority to the logged packets. Packets are assigned a low priority by default, which does not interfere with router DHCP packet processing. The logged packets are output to the `dhcpCapture` event logging category.

You can configure per-interface DHCP packet logging on statically configured and dynamically created IP interfaces. However, configuration information for dynamic interface configurations is lost after a cold restart. Both static and dynamic interface configuration information is maintained after a warm restart.

You use the `ip dhcp-capture` command with the following keywords to enable DHCP packet logging for all DHCP applications on the interface.

- Use the **receive**, **transmit**, and **all** keywords to specify the type of DHCP packets that is logged.
- Use the optional **priority** keyword to assign a **low** or **high** priority to logged packets. By default, logged packets have a low priority and do not interfere with the router's DHCP packet processing.

You can specify DHCP packet logging on a maximum of 16 interfaces.

- To enable DHCP packet logging:

```
host1(config-if)#ip dhcp-capture all
```

Related Documentation • [ip dhcp-capture on page 24](#)

Working with DHCP Client Bindings

- [Viewing and Deleting DHCP Client Bindings on page 17](#)

Viewing and Deleting DHCP Client Bindings

The JunosE Software provides commands that enable you to manage your router's DHCP external server, DHCP local server, and DHCP relay proxy client bindings. A client binding associates an IP address with a DHCP client, and describes both the client (for example, hardware address and state) and the IP address (for example, subnet and lease time).

The following commands enable you to view information about current DHCP client bindings:

- To display information and track lease times and status for specified DHCP client bindings, with results arranged in ascending order by binding ID, use the **show dhcp binding** command.
- To display information and track lease times and status for specified DHCP client bindings, with results arranged in ascending order by IP address, use the **show dhcp host** command. This command displays information only for DHCP client bindings with assigned IP addresses.
- To display count information for DHCP client bindings and interfaces, use the **show dhcp count** command.

To delete a connected user's IP address lease and the associated route configuration when the DHCP client binding is no longer needed, use the **dhcp delete-binding** command. When you delete a DHCP client binding, the lease is removed on the router. You might delete client bindings to:

- Recover functional resources from a user who has not explicitly terminated connectivity and whose lease is unexpired.
- Discontinue connectivity to a user, prompting or forcing the user to request a new lease in order to reestablish network connectivity.

The router does not notify the DHCP client or the DHCP server when you issue the **dhcp delete-binding** command.



NOTE: The `dhcp delete-binding` command replaces the `clear ip dhcp-local binding` and `dhcp-external delete-binding` commands, which are deprecated and might be removed in a future release.

Use the following keywords and variables with the `dhcp delete-binding` command to specify (filter) the client bindings you want to delete:

- **all**—All DHCP local server, DHCP external server, and DHCP relay proxy client bindings
- **all-local**—All DHCP local server client bindings
- **all-external**—All DHCP external server client bindings
- **all-relay-proxy**—All DHCP relay proxy client bindings
- *binding-id*—DHCP binding ID for a specific client
- **circuit-id**—Agent-circuit-id suboption (suboption 1) string of the DHCP relay agent information option (option 82); the circuit ID string supports matching of both regular expression metacharacters and nonprintable ASCII characters in binary sequences
- **external**—DHCP external server bindings that meet the deletion criteria
- **interface**—Interface string associated with DHCP client bindings; the interface string supports matching of regular expression metacharacters, and must be specified as a regular expression without spaces
- **ip-prefix**—IP prefix (address and subnetwork mask) of the DHCP client
- **local**—DHCP local server bindings that meet the deletion criteria
- **no-interface**—DHCP clients without a lower-layer interface; use this keyword to delete DHCP client bindings configured over dynamic interfaces for which the lower-layer interface has been shut down
- **relay-proxy**—DHCP relay proxy bindings that meet the deletion criteria
- **remote-id**—Agent-remote-id suboption (suboption 2) string of the DHCP relay agent information option (option 82); the remote ID string supports matching of both regular expression metacharacters and nonprintable ASCII characters in binary sequences
- *subnetAddress*—IP address of the subnet on which the DHCP client resides

Filtering the deletion of DHCP client bindings by the circuit ID string or remote ID string is not supported for the DHCP external server application. DHCP external server does not store information about the agent-circuit-id suboption or agent-remote-id suboption of option 82.

You can remove all DHCP client bindings, all DHCP client bindings of a particular type, or a specified DHCP client binding that meets the deletion criteria you specify.

- To delete all DHCP client bindings on virtual router vr1:
 - `host1:vr1#dhcp delete-binding all`
- To delete DHCP local server client bindings with the specified subnet address:

```
host1:vr2#dhcp delete-binding local 0.0.0.0
```

When you delete DHCP client bindings of a particular type on a specified subnet, you must specify the **local**, **external**, or **relay-proxy** type keyword to prevent accidental deletion of all DHCP client bindings.

- To delete a specific DHCP client binding:

```
host1:vr1#dhcp delete-binding 3972819365
```

- To delete DHCP client bindings with the specified IP prefix:

```
host1:vr1#dhcp delete-binding ip-prefix 10.1.0.0/28
```

- To delete DHCP client bindings without a lower-layer interface:

```
host1:vr1#dhcp delete-binding no-interface
```

- To delete DHCP client bindings with the specified interface string:

```
host1:vr2#dhcp delete-binding interface ip71.*4
```

This **dhcp delete-binding** command uses the * (asterisk) regular expression metacharacter in the interface string to delete DHCP client bindings on virtual router vr2 with an IP address beginning with 71 and ending with 4.

- To delete DHCP client bindings that match the specified circuit ID string:

```
host1:vr3#dhcp delete-binding circuit-id \xe3
```

To specify nonprintable byte codes in the circuit ID string or remote ID string, you can use the string `\xab`, where `ab` is a hex code of the byte. This **dhcp delete-binding** command uses the string `\xe3` to represent byte E3 in the circuit ID string. This command deletes DHCP client bindings on virtual router vr3 with the specified circuit ID string.

Related Documentation

- [dhcp delete-binding on page 25](#)
- [show dhcp binding on page 54](#)
- [show dhcp count on page 57](#)
- [show dhcp host on page 60](#)

CHAPTER 6

Configuration Commands

- ip address-pool
- ip dhcp-server
- ip dhcp-capture
- dhcp delete-binding

ip address-pool

Syntax ip address-pool { dhcp | local | none }
no ip address-pool

Release Information Command introduced before JunosE Release 7.1.0.

Description Specifies to the router where to get an IP address for the remote user. The **no** version uses the default value, **local**.

- Options**
- dhcp—Enables the use of a DHCP server for address allocations
 - local—Enables the use of local address pool for address allocations
 - none—Does not enable an IP address pool

Mode Global Configuration

ip dhcp-server

Syntax ip dhcp-server *dhcpServerAddress* [*adminStatus*]
no ip dhcp-server [*dhcpServerAddress* [*adminStatus*]]

Release Information Command introduced before JunosE Release 7.1.0.

Description Adds the IP address of a single DHCP server to the list of DHCP servers from which the router can request addresses to allocate to remote users. A maximum of five DHCP servers can be specified. The **no** version removes the specified DHCP server or removes all DHCP servers from the list.

- Options**
- *dhcpServerAddress*—IP address of the DHCP server that will allocate addresses for remote users
 - *adminStatus*—One of the following options:
 - *disable*—Disables the DHCP server
 - *drain*—Drains the DHCP server

Mode Global Configuration

ip dhcp-capture

Syntax ip dhcp-capture { all | receive | transmit } [priority { low | high }]
no ip dhcp-capture { all | receive | transmit }

Release Information Command introduced in JunosE Release 7.3.0.

Description Configures the E Series router to capture and log DHCP packet information for an interface. By default, DHCP packet information is not captured. The **no** version restores the default behavior.

- Options**
- all—Captures received and transmitted packets
 - receive—Captures received packets
 - transmit—Captures transmitted packets
 - low—Captured packets arrive with low priority; the default priority
 - high—Captured packets arrive with high priority

Mode Interface Configuration

- Related Documentation**
- [Logging DHCP Packet Information on page 15](#)
 - [Monitoring DHCP Packet Capture Settings on page 51](#)
 - [show ip dhcp-capture on page 65](#)

dhcp delete-binding

Syntax To delete the DHCP client with the specified binding ID:

```
dhcp delete-binding bindingId
```

To delete all DHCP client bindings or all DHCP client bindings of a particular type on the specified subnet:

```
dhcp delete-binding { all | all-local | all-external | all-relay-proxy } [ subnetAddress ]
```

To delete DHCP client bindings of a particular type on the specified subnet:

```
dhcp delete-binding { local | external | relay-proxy } [ subnetAddress ]
```

To delete DHCP client bindings for the specified IP prefix:

```
dhcp delete-binding [ local | external | relay-proxy ] [ subnetAddress ] ip-prefix ipPrefix
```

To delete DHCP client bindings for the specified interface string:

```
dhcp delete-binding [ local | external | relay-proxy ] [ subnetAddress ] interface string
```

To delete DHCP client bindings without a lower-layer interface:

```
dhcp delete-binding [ local | external | relay-proxy ] [ subnetAddress ] no-interface
```

To delete DHCP client bindings for the specified agent-circuit-id suboption (suboption 1) string of the DHCP relay agent information option (option 82):

```
dhcp delete-binding [ local | external | relay-proxy ] [ subnetAddress ] circuit-id string
```

To delete DHCP client bindings for the specified agent-remote-id suboption (suboption 2) string of the DHCP relay agent information option (option 82):

```
dhcp delete-binding [ local | external | relay-proxy ] [ subnetAddress ] remote-id string
```

Release Information Command introduced in JunosE Release 8.1.0.
local, **external**, **relay-proxy**, **interface**, **no-interface**, **ip-prefix**, **circuit-id**, and **remote-id** keywords and *subnetAddress*, *ipAddress*, and *string* variables added in JunosE Release 9.3.0.

Description Deletes the specified DHCP client bindings. There is no **no** version.



NOTE: This command replaces the deprecated **clear ip dhcp-local binding** and **dhcp-external delete-binding** commands, which may be removed completely in a future release.

- Options**
- *bindingId*—DHCP binding ID for a specific client
 - *all*—Specifies all DHCP local server, DHCP external server, and DHCP relay proxy client bindings
 - *all-local*—Specifies all DHCP local server client bindings
 - *all-external*—Specifies all DHCP external server client bindings
 - *all-relay-proxy*—Specifies all DHCP relay proxy client bindings
 - *local*—Specifies DHCP local server client bindings that meet the deletion criteria
 - *external*—Specifies DHCP external server client bindings that meet the deletion criteria
 - *relay-proxy*—Specifies DHCP relay proxy client bindings that meet the deletion criteria
 - *subnetAddress*—IP address of the subnet on which the DHCP clients reside
 - *ipPrefix*—IP prefix (address and subnetwork mask) of the DHCP clients; for example, 10.10.10.0/24
 - *no-interface*—Specifies DHCP clients without a lower-layer interface; use this keyword to delete DHCP client bindings configured over dynamic interfaces for which the lower-layer interface has been shut down
 - *string*—Regular expression string that represents the interface, circuit ID, or remote ID to be matched; you must enclose elements containing a space within double quotes (“*one element*”)

Each element is either a literal string, a metacharacter, or a combination. You can remove the special meaning of a metacharacter by preceding it with a backslash (\). Regular expressions support the following metacharacters:

- **^** Matches the beginning of the input string. Alternatively, when used as the first character within brackets—**[^]**—matches any number except the ones specified within the brackets.
- **\$** Matches the end of the input string
- **.** (period) Matches any single character, including white space
- ***** Matches 0 or more sequences of the immediately previous character or pattern.
- **+** Matches 1 or more sequences of the immediately previous character or pattern
- **?** Matches 0 or 1 sequence of the immediately previous character or pattern
- **()** Specifies patterns for multiple use when followed by one of the multiplier metacharacters: asterisk *, plus sign +, or question mark ?
- **[]** Matches any enclosed character; specifies a range of single characters
- **-** (hyphen) Used within brackets to specify a range of AS or community numbers
- **_** (underscore) Matches a ^, a \$, a comma, a space, a {, or a }. Placed on either side of a string to specify a literal and disallow substring matching. Numerals enclosed by underscores can be preceded or followed by any of the characters listed above
- **|** Matches characters on either side of the metacharacter; logical OR

You must specify the interface string as a regular expression without spaces; for example, `fastEthernet1.1/100` or `fastEthernet.*100`

The following rules apply for representing nonprintable character sequences in the circuit ID string or the remote ID string:

- To represent the binary sequence `0d 0a` (hex), use the string `'\\r\\n'`. This consists of four ASCII characters: `5c` for `\\`, `72` for `r`, `5c` for `\\`, and `6e` for `n`.

For example, to match the sequence `74 65 73 74 0d 0a 6f 6e 65` (hex), use the string `'test\\r\\n'`. In this string, `74` is represented by `t`, `65` is represented by `e`, `73` is represented by `s`, `74` is represented by `t`, `0d 0a` is represented by `\\r\\n`, `6f` is represented by `o`, `6e` is represented by `n`, and `65` is represented by `e`.

- To represent the binary sequence `0d 00` (hex), use the string `'\\r'`. This consists of two ASCII characters: `5c` for `\\`, and `72` for `r`.
- To represent the binary sequence `0a 00` (hex), use the string `'\\n'`. This consists of two ASCII characters: `5c` for `\\`, and `6e` for `n`.

For example, to match the sequence `74 65 73 74 0a 00 6f 6e 65` (hex), use the string `'test\\n'`. In this string, `74` is represented by `t`, `65` is represented by `e`, `73` is represented by `s`, `74` is represented by `t`, `0a 00` is represented by `\\n`, `0a` is represented by `\\n`, `6f` is represented by `o`, `6e` is represented by `n`, and `65` is represented by `e`.

- To represent all other cases, use the string `'\\xab'`, where `ab` is a hex code of the byte. For example, to represent byte `3A`, use `'\\x3a'`. This consists of four ASCII characters: `5c` for `\\`, `78` for `x`, `33` for `3`, and `61` for `a`.

As another example, to match the sequence `74 65 73 74 f3 6f 6e 65` (hex), use the string `'test\\xf3one'`. In this string, `74` is represented by `t`, `65` is represented by `e`, `73` is represented by `s`, `74` is represented by `t`, byte `F3` is represented by `\\xf3`, `6f` is represented by `o`, `6e` is represented by `n`, and `65` is represented by `e`.

Mode Privileged Exec

Related Documentation

- [Viewing and Deleting DHCP Client Bindings on page 17](#)

PART 3

Administration

- [Configuring Baselines for DHCP Statistics on page 31](#)
- [Viewing IP Addresses Excluded from Delegation on page 33](#)
- [Displaying DHCP Bindings on page 35](#)
- [Monitoring DHCP Services on page 47](#)
- [Monitoring DHCP Proxy Client Bindings on page 49](#)
- [Monitoring DHCP Packet Logging on page 51](#)
- [Monitoring Commands on page 53](#)

Configuring Baselines for DHCP Statistics

- [Setting Baselines for DHCP Statistics on page 31](#)

Setting Baselines for DHCP Statistics

You can use the **baseline dhcp** commands to set statistics baselines for DHCP operations. The router implements the baseline by reading and storing the statistics at the time the baseline is set and then subtracting this baseline when you retrieve baseline-relative statistics.

Use the **delta** keyword with the **show dhcp** commands to display baselined statistics.

Tasks to set a baseline for DHCP statistics are:

1. [Setting a Baseline for DHCP Relay and Relay Proxy on page 31](#)
2. [Setting a Baseline for DHCP Proxy Server Statistics on page 31](#)
3. [Setting a Baseline for DHCP External Server Statistics on page 31](#)
4. [Setting a Baseline for DHCP Local Server Statistics on page 32](#)

Setting a Baseline for DHCP Relay and Relay Proxy

To set a statistics baseline for DHCP relay and DHCP relay proxy:

- Issue the **baseline dhcp relay** command:

```
host1#baseline dhcp relay
```

There is no **no** version.

Setting a Baseline for DHCP Proxy Server Statistics

To set a baseline for DHCP proxy server statistics.

- Issue the **baseline dhcp server** command:

```
host1#baseline dhcp server
```

There is no **no** version.

Setting a Baseline for DHCP External Server Statistics

To set a baseline for DHCP external server statistics.

- Issue the **baseline ip dhcp-external** command:

```
host1#baseline ip dhcp-external
```

There is no **no** version.

Setting a Baseline for DHCP Local Server Statistics

To set a baseline for DHCP local server statistics:

- Issue the **baseline ip dhcp-local** command:

```
host1#baseline ip dhcp-local
```

There is no **no** version.

To set a baseline for DHCP local server statistics for a specific ATM, Fast Ethernet, or Gigabit Ethernet interface:

- Issue the **baseline ip dhcp-local** command with the optional **interface** keyword to specify the type of interface and interface specifier:

```
host1#baseline ip dhcp-local interface atm 3/1
```

To set a baseline for DHCPv6 local server statistics:

- Issue the **baseline ipv6 dhcpv6-local** command:

```
host1#baseline ipv6 dhcpv6-local
```

Viewing IP Addresses Excluded from Delegation

- [Monitoring Addresses Excluded from DHCP Local Server Use on page 33](#)

Monitoring Addresses Excluded from DHCP Local Server Use

Purpose Display addresses that have been excluded by the `ip dhcp-local excluded-address` command. The DHCP local server does not allocate excluded addresses, because they are already used by devices on the subnetwork.

Action To display excluded IP addresses:

```
host1(config)#show ip dhcp-local excluded
Dhcp Excluded Addresses
-----
      Pool          Low          High
      Address      Address      Address
-----
default          10.10.1.1
default          10.10.1.5    10.10.1.30
cable2           10.10.2.1
home.com         10.10.3.1
cable4           10.10.4.1
cable5           10.10.5.1
```

Meaning [Table 3 on page 33](#) lists the `show ip dhcp-local excluded` command output fields.

Table 3: show ip dhcp-local excluded Output Fields

Field Name	Field Description
Pool	Name of the pool that contains the excluded address
Low Address	Excluded address or first address in a range of addresses
High Address	Last address in a range of addresses

Related Documentation

- [show ip dhcp-local excluded](#)

CHAPTER 9

Displaying DHCP Bindings

- [Monitoring DHCP Bindings on page 35](#)
- [Monitoring DHCP Binding Information on page 36](#)
- [Monitoring DHCP Binding Host Information on page 39](#)
- [Monitoring DHCP Binding Count Information on page 41](#)
- [Monitoring DHCP Bindings \(Displaying DHCP Bindings Based on Binding ID\) on page 43](#)
- [Monitoring DHCP Bindings \(Displaying IP Address-to-MAC Address Bindings\) on page 44](#)
- [Monitoring DHCP Bindings \(Local Server Binding Information\) on page 44](#)

Monitoring DHCP Bindings

Tasks to monitor DHCP bindings are:

- [Monitoring DHCP Binding Information on page 36](#)
- [Monitoring DHCP Binding Count Information on page 41](#)
- [Monitoring DHCP Binding Host Information on page 39](#)
- [“Monitoring DHCP Bindings \(Displaying IP Address-to-MAC Address Bindings\)” on page 44](#)
- [“Monitoring DHCP Bindings \(Displaying DHCP Bindings Based on Binding ID\)” on page 43](#)
- [“Monitoring DHCP Bindings \(Local Server Binding Information\)” on page 44](#)

Related Documentation

- [show dhcp binding on page 54](#)
- [show dhcp count on page 57](#)
- [show dhcp host on page 60](#)
- [show ip dhcp-external binding on page 66](#)
- [show ip dhcp-external binding-id on page 67](#)
- [show ip dhcp-local binding on page 68](#)

Monitoring DHCP Binding Information

Purpose Display information for specified DHCP client bindings, with results arranged in ascending order by binding ID.



NOTE: The `show dhcp binding` command replaces the `show ip dhcp-external binding`, `show ip dhcp-external binding-id`, and `show ip dhcp-local binding` commands, which are deprecated and might be removed completely in a future release.

Action To display information about all DHCP local server bindings:

```
host1:vr1#show dhcp binding local
BindingId      HwAddress      Type      IpSubnet      IpAddress      State
-----
2409734593    8000.0001.9365 local      0.0.0.0       81.3.0.2      bound
2409734595    8000.0003.9365 local      0.0.0.0       81.3.0.3      bound
2409734597    8000.0005.9365 local      0.0.0.0       81.3.0.4      bound
2409734599    8000.0007.9365 local      0.0.0.0       81.3.0.5      bound
2409734605    8000.000d.9365 local      0.0.0.0       81.3.0.8      bound
2409734607    8000.000f.9365 local      0.0.0.0       81.3.0.9      bound
2409734609    8000.0011.9365 local      0.0.0.0       81.3.0.10     bound
2409734611    8000.0013.9365 local      0.0.0.0       81.3.0.11     bound
2409734618    8000.000b.9365 local      0.0.0.0       81.3.0.7      bound
2409734619    8000.0009.9365 local      0.0.0.0       81.3.0.6      bound
```

The output of the `show dhcp binding` command is identical to the output of the `show dhcp host` command except for the order of the client bindings. The results of the `show dhcp binding` command are arranged in ascending order by binding ID, whereas the results of the `show dhcp host` command are arranged in ascending order by IP address.

To display information about a specific DHCP binding ID:

```
host1#show dhcp binding 3070230530
BindingId:      3070230530
HwAddress:      7000.0002.9365
IpSubnet:       0.0.0.0
IpAddress:      192.168.0.90
State:          bound
Type:           relay-p
Server:         192.168.15.1
Giaddr:         192.168.0.1
Lease:          3600
Remaining:      2079
IpInterface:    GigabitEthernet1/0/1.101
ClientId:       45-41-48-00-01-70-00-00-02-93-65
Interface:
Relay Agent:

Agent Circuit Id: test circuit id
Agent Remote Id: test remote id
Vendor Specific: 01-02-03-04-05-06-07-08-09-0a-0b-0c-0d-0e-0f-10
Unrecognized:   11-12-13-14-15-16-17-18-19-1a-1b-1c-1d-1e-1f-20
```

To display binding information for DHCP clients with a specified interface string:

```
host1:vr2#show dhcp binding interface ip71.*4
BindingId      HwAddress      Type      IpSubnet      IpAddress      State
-----
3053453315    7000.0002.9365  external  0.0.0.0       71.1.0.4       bound
3053453325    7000.000c.9365  external  0.0.0.0       71.1.0.14      bound
3053453353    7000.0016.9365  external  0.0.0.0       71.1.0.24      bound
```

This **show dhcp binding** command uses the * (asterisk) regular expression metacharacter in the interface string to display information for DHCP client bindings on virtual router vr2 with an IP address beginning with 71 and ending with 4. The results of the **show dhcp binding** command are arranged in ascending order by binding ID.

To display binding information for DHCP clients that match the specified circuit ID string:

```
host1:vr3#show dhcp binding circuit-id \xe3
BindingId      HwAddress      Type      IpSubnet      IpAddress      State
-----
3070230529    7000.0000.9365  relay-p   0.0.0.0       71.1.0.2       bound
3070230531    7000.0002.9365  relay-p   0.0.0.0       71.1.0.4       bound
3070230535    7000.0006.9365  relay-p   0.0.0.0       71.1.0.8       bound
3070230537    7000.0008.9365  relay-p   0.0.0.0       71.1.0.10      bound
3070230539    7000.000a.9365  relay-p   0.0.0.0       71.1.0.12      bound
3070230541    7000.000c.9365  relay-p   0.0.0.0       71.1.0.14      bound
3070230543    7000.000e.9365  relay-p   0.0.0.0       71.1.0.16      bound
3070230545    7000.0010.9365  relay-p   0.0.0.0       71.1.0.18      bound
3070230547    7000.0012.9365  relay-p   0.0.0.0       71.1.0.20      bound
3070230549    7000.0014.9365  relay-p   0.0.0.0       71.1.0.22      bound
3070230553    7000.0018.9365  relay-p   0.0.0.0       71.1.0.26      bound
3070230555    7000.001a.9365  relay-p   0.0.0.0       71.1.0.28      bound
3070230557    7000.001c.9365  relay-p   0.0.0.0       71.1.0.30      bound
3070230569    7000.0016.9365  relay-p   0.0.0.0       71.1.0.24      bound
3070230572    7000.0004.9365  relay-p   0.0.0.0       71.1.0.6       bound
```

To specify nonprintable byte codes in the circuit ID string or remote ID string, you can use the string `\xab`, where `ab` is a hex code of the byte. This **show dhcp binding** command uses the string `\xe3` to represent byte E3 in the circuit ID string. This command displays information for the DHCP client bindings on virtual router vr3 with the specified circuit ID string, with results arranged in ascending order by binding ID.

To display information about DHCP local server bindings with a specified subnet address:

```
host1:vr1#show dhcp binding local 0.0.0.0
```

To display information about DHCP bindings with a specified IP prefix:

```
host1:vr1#show dhcp binding ip—prefix 10.1.0.0/28
```

To display information about DHCP relay proxy bindings without a lower-layer interface:

```
host1:vr1#show dhcp binding relay—proxy no-interface
```

To display binding information for DHCP clients that match the specified remote ID string:

```
host1:vr1#show dhcp binding remote-id "remote id.*even"
```

Filtering the display of DHCP client bindings by the circuit ID string or remote ID string is not supported for the DHCP external server application. DHCP external server does not

store information about the agent-circuit-id suboption or agent-remote-id suboption of option 82.

Meaning Table 4 on page 38 lists the **show dhcp binding** command output fields.

Table 4: show dhcp binding Output Fields

Field Name	Field Description
BindingId	Client binding ID
HwAddress	MAC address of client
Type	Binding type; external (DHCP external server), local (DHCP local server), or relay-p (DHCP relay proxy)
IpSubnet	For DHCP local server bindings, the subnet of the IP address assigned to the client; 0.0.0.0 for DHCP external server and DHCP relay proxy bindings
IpAddress	IP address assigned to client
State	State of the DHCP client binding
Server	IP address of the DHCP server that allocated the client IP address
Giaddr	For DHCP relay proxy the IP address of the DHCP relay proxy; for DHCP local server bindings, the IP address of the DHCP relay that sent the packet or 0.0.0.0 if the packet comes from the client; for DHCP external server bindings, the giaddr from the DHCP packet
Lease	Total time for which the IP address is available, in seconds
Remaining	Time remaining on the current lease, in seconds
IpInterface	IP interface that is associated with the client
ClientId	DHCP Option 61 received from the client
Interface	Subinterface for DHCP local server bindings; does not apply to DHCP external server and DHCP relay proxy
Relay Agent	Indicates Relay Agent Information option (option 82)
Agent Circuit Id	Suboption 1 of the DHCP Relay Agent information option
Agent Remote Id	Suboption 2 of the DHCP relay agent information option
Vendor Specific	Suboption 9 of the DHCP relay agent information option

- Related Documentation**
- [Monitoring DHCP Binding Host Information on page 39](#)
 - [show dhcp binding on page 54](#)

Monitoring DHCP Binding Host Information

Purpose Display information for specified DHCP client bindings, with results arranged in ascending order by IP address. The **show dhcp host** command displays information only for DHCP client bindings with assigned IP addresses.

Action To display information about all DHCP local server bindings:

```
host1:vr1#show dhcp host local
BindingId      HwAddress      Type      IpSubnet      IpAddress      State
-----
2409734593    8000.0001.9365 local      0.0.0.0      81.3.0.2      bound
2409734595    8000.0003.9365 local      0.0.0.0      81.3.0.3      bound
2409734597    8000.0005.9365 local      0.0.0.0      81.3.0.4      bound
2409734599    8000.0007.9365 local      0.0.0.0      81.3.0.5      bound
2409734619    8000.0009.9365 local      0.0.0.0      81.3.0.6      bound
2409734618    8000.000b.9365 local      0.0.0.0      81.3.0.7      bound
2409734605    8000.000d.9365 local      0.0.0.0      81.3.0.8      bound
2409734607    8000.000f.9365 local      0.0.0.0      81.3.0.9      bound
2409734609    8000.0011.9365 local      0.0.0.0      81.3.0.10     bound
2409734611    8000.0013.9365 local      0.0.0.0      81.3.0.11     bound
```

The output of the **show dhcp host** command is identical to the output of the **show dhcp binding** command except for the order of the client bindings. The results of the **show dhcp host** command are arranged in ascending order by IP address, whereas the results of the **show dhcp binding** command are arranged in ascending order by binding ID.

To display binding information for DHCP clients with a specified interface string:

```
host1:vr2#show dhcp host interface ip71.*4
BindingId      HwAddress      Type      IpSubnet      IpAddress      State
-----
3053453315    7000.0002.9365 external    0.0.0.0      71.1.0.4      bound
3053453325    7000.000c.9365 external    0.0.0.0      71.1.0.14     bound
3053453353    7000.0016.9365 external    0.0.0.0      71.1.0.24     bound
```

This **show dhcp host** command uses the * (asterisk) regular expression metacharacter in the interface string to display information for DHCP client bindings on virtual router vr2 with an IP address beginning with 71 and ending with 4. The results of the **show dhcp host** command are arranged in ascending order by IP address.

To display binding information for DHCP clients that match the specified circuit ID string:

```
host1:vr3#show dhcp host circuit-id \xe3
BindingId      HwAddress      Type      IpSubnet      IpAddress      State
-----
3070230529    7000.0000.9365 relay-p     0.0.0.0      71.1.0.2      bound
3070230531    7000.0002.9365 relay-p     0.0.0.0      71.1.0.4      bound
3070230572    7000.0004.9365 relay-p     0.0.0.0      71.1.0.6      bound
3070230535    7000.0006.9365 relay-p     0.0.0.0      71.1.0.8      bound
3070230537    7000.0008.9365 relay-p     0.0.0.0      71.1.0.10     bound
3070230539    7000.000a.9365 relay-p     0.0.0.0      71.1.0.12     bound
3070230541    7000.000c.9365 relay-p     0.0.0.0      71.1.0.14     bound
3070230543    7000.000e.9365 relay-p     0.0.0.0      71.1.0.16     bound
```

```

3070230545 7000.0010.9365 relay-p 0.0.0.0 71.1.0.18 bound
3070230547 7000.0012.9365 relay-p 0.0.0.0 71.1.0.20 bound
3070230549 7000.0014.9365 relay-p 0.0.0.0 71.1.0.22 bound
3070230569 7000.0016.9365 relay-p 0.0.0.0 71.1.0.24 bound
3070230553 7000.0018.9365 relay-p 0.0.0.0 71.1.0.26 bound
3070230555 7000.001a.9365 relay-p 0.0.0.0 71.1.0.28 bound
3070230557 7000.001c.9365 relay-p 0.0.0.0 71.1.0.30 bound

```

To specify nonprintable byte codes in the circuit ID string or remote ID string, you can use the string `\\xab`, where `ab` is a hex code of the byte. This `show dhcp host` command uses the string `\\xe3` to represent byte E3 in the circuit ID string. This command displays information for the DHCP client bindings on virtual router `vr3` with the specified circuit ID string, with results arranged in ascending order by IP address.

To display information about DHCP external server bindings with a specified subnet address:

```
host1:vr1#show dhcp host external 0.0.0.0
```

To display information about DHCP bindings with a specified IP prefix:

```
host1:vr1#show dhcp host ip—prefix 10.2.0.0/28
```

To display information about DHCP relay proxy bindings without a lower-layer interface:

```
host1:vr1#show dhcp host relay—proxy no-interface
```

To display binding information for DHCP clients that match the specified remote ID string:

```
host1:vr1#show dhcp host remote-id "remote id.*west"
```

Filtering the display of DHCP client bindings by the circuit ID string or remote ID string is not supported for the DHCP external server application. DHCP external server does not store information about the agent-circuit-id suboption or agent-remote-id suboption of option 82.

Meaning [Table 5 on page 40](#) lists the `show dhcp host` command output fields.

Table 5: show dhcp host Output Fields

Field Name	Field Description
BindingId	Client binding ID
HwAddress	MAC address of client
Type	Binding type; external (DHCP external server), local (DHCP local server), or relay-p (DHCP relay proxy)
IpSubnet	For DHCP local server bindings, the subnet of the IP address assigned to the client; 0.0.0.0 for DHCP external server and DHCP relay proxy bindings
IpAddress	IP address assigned to client
State	State of the DHCP client binding

Table 5: show dhcp host Output Fields (*continued*)

Field Name	Field Description
Server	(Detailed output only) IP address of the DHCP server that allocated the client IP address
Giaddr	(Detailed output only) For DHCP relay proxy the IP address of the DHCP relay proxy; for DHCP local server bindings, the IP address of the DHCP relay that sent the packet or 0.0.0.0 if the packet comes from the client; for DHCP external server bindings, the giaddr from the DHCP packet
Lease	(Detailed output only) Total time for which the IP address is available, in seconds
Remaining	(Detailed output only) Time remaining on the current lease, in seconds
IpInterface	(Detailed output only) IP interface that is associated with the client

Related Documentation

- [Monitoring DHCP Binding Information on page 36](#)
- [show dhcp host on page 60](#)

Monitoring DHCP Binding Count Information

Purpose Display count information for DHCP client bindings and interfaces.

Action To display count information for all DHCP client bindings and interfaces:

```
host1:vr1#show dhcp count
```

Type	IpSubnet	Interfaces	Clients	Assigned Clients	Bound Clients
external	0.0.0.0	30	30	30	30
relay-p	0.0.0.0	2	30	30	30

To display count information for DHCP client bindings and interfaces with the specified interface string:

```
host1:vr2#show dhcp count interface ip71.*4
```

Type	IpSubnet	Interfaces	Clients	Assigned Clients	Bound Clients
external	0.0.0.0	3	3	3	3

This **show dhcp count** command uses the * (asterisk) regular expression metacharacter in the interface string to display information for DHCP client bindings on virtual router vr2 with an IP address beginning with 71 and ending with 4.

To display count information for DHCP client bindings and interfaces that match the specified circuit ID string:

```
host1:vr3#show dhcp count circuit-id \xe3
```

Type	IpSubnet	Interfaces	Clients	Assigned Clients	Bound Clients
relay-p	0.0.0.0	1	15	15	15

To specify nonprintable byte codes in the circuit ID string or remote ID string, you can use the string `\xab`, where `ab` is a hex code of the byte. This **show dhcp count** command uses the string `\xe3` to represent byte E3 in the circuit ID string. This command displays information for the DHCP client bindings on virtual router vr3 with the specified circuit ID string, with results arranged in ascending order by binding ID.

To display count information for DHCP local server client bindings and interfaces with a specified subnet address:

```
host1:vr1#show dhcp count local 0.0.0.0
```

To display count information for DHCP client bindings and interfaces with a specified IP prefix:

```
host1:vr1#show dhcp count ip—prefix 71.1.0.0/28
```

To display count information for DHCP relay proxy client bindings without a lower-layer interface:

```
host1:vr1#show dhcp count relay—proxy no-interface
```

To display count information for DHCP client bindings that match the specified remote ID string:

```
host1:vr1#show dhcp count remote-id "remote id.*odd"
```

Filtering the display of DHCP client bindings by the circuit ID string or remote ID string is not supported for the DHCP external server application. DHCP external server does not store information about the agent-circuit-id suboption or agent-remote-id suboption of option 82.

Meaning [Table 6 on page 42](#) lists the **show dhcp count** command output fields.

Table 6: show dhcp count Output Fields

Field Name	Field Description
Type	Binding type; external (DHCP external server), local (DHCP local server), or relay-p (DHCP relay proxy)
IpSubnet	For DHCP local server bindings, the subnet of the IP address assigned to the client; 0.0.0.0 for DHCP external server and DHCP relay proxy bindings
Interfaces	Number of interfaces associated with this binding type; includes the number of DHCP client bindings without a lower-layer interface, if configured

Table 6: show dhcp count Output Fields (*continued*)

Field Name	Field Description
Clients	Number of DHCP clients associated with this binding type
Assigned Clients	Number of DHCP clients with an assigned IP address
Bound Clients	Number of DHCP clients in a bound state

Related Documentation • [show dhcp count on page 57](#)

Monitoring DHCP Bindings (Displaying DHCP Bindings Based on Binding ID)

Purpose Display binding information for all DHCP clients.



NOTE: This command is deprecated and might be removed completely in a future release. The function provided by this command has been replaced by the `show dhcp binding` command.

Action To display DHCP binding information:

```
host1(config)#show ip dhcp-external binding-id
```

```

          Dhcp External Binding Ids
          -----
Binding Id      Hardware      Giaddr      IPAddress
-----
3053453316     7000.0001.9365  91.3.0.1    91.3.0.2

```

Meaning [Table 7 on page 43](#) lists the `show ip dhcp-external binding-id` command output file

Table 7: show ip dhcp-external binding-id

Field Name	Field Description
Binding Id	DHCP client binding ID option value associated with the user
Hardware	MAC address of the subscriber's computer
Giaddr	Gateway IP address (giaddr) in the DHCP packet received from a client
IpAddress	IP address assigned to the client

Related Documentation • [show ip dhcp-external binding-id on page 67](#)

Monitoring DHCP Bindings (Displaying IP Address-to-MAC Address Bindings)

Purpose Display the mapping between the assigned IP address and the MAC address of the subscriber's computer.



NOTE: This command is deprecated and might be removed completely in a future release. The function provided by this command has been replaced by the `show dhcp binding` command.

Action To display the DHCP IP address to MAC address bindings:

```
host1#show ip dhcp-external binding
```

```

                Dhcp External Bindings
            -----
Hardware      Giaddr      IpAddress    Server      Lease  Expire  Interface
-----
7000.0001.9365  91.3.0.1   91.3.0.2    10.1.2.1   3600   3175   ATM3/1.100.1

```

Meaning [Table 8 on page 44](#) lists the `show ip dhcp-external binding` command output fields

Table 8: show ip dhcp-external binding Output Fields

Field Name	Field Description
Hardware	MAC address of subscriber's computer
Giaddr	Gateway IP address (giaddr) in the DHCP packet received from a client
IpAddress	Subscriber client's IP address
Server	DHCP server's address
Lease	Time for which the IP address is available, in seconds
Expire	Time remaining on the current lease, in seconds
Interface	Interface that is associated with the subscriber's computer

Related Documentation

- [show ip dhcp-external binding on page 66](#)

Monitoring DHCP Bindings (Local Server Binding Information)

Purpose Display DHCP local server binding information for DHCP local server clients. Optionally, specify an IP address or an interface to display binding information for a particular address or interface.



NOTE: This command is deprecated and might be removed completely in a future release. The function provided by this command has been replaced by the `show dhcp binding` command.

Action To display DHCP local server binding information for a specific IP address:

```
host1#show ip dhcp-local binding 192.168.1.3
```

```

                Dhcp Local Bindings
            -----
Address          Hardware          Lease          Interface          State
-----
192.168.1.3     11-11-22-22-33-33  (600)         fastEthernet 5/0   expired

```

To display DHCP local server binding information for a specific interface:

```
host1#show ip dhcp-local binding interface fastEthernet 5/0.2
```

```

                Dhcp Local Bindings
            -----
Address          Hardware          Lease          Interface          State
-----
192.168.0.6     40-00-00-0b-00-01  240           fastEthernet 5/0.2   bound
192.168.0.7     40-00-00-0c-00-01  240           fastEthernet 5/0.2   bound
192.168.1.3     11-11-22-22-33-33  (600)         fastEthernet 5/0.2   expired

```

Meaning [Table 9 on page 45](#) lists the `show ip dhcp-local binding` command output fields.

Table 9: show ip dhcp-local binding Output Fields

Field Name	Field Description
Address	IP address
Hardware	MAC address of subscriber's computer
Lease	Infinite, or the number of seconds in which the IP address is available; grace period is shown in parentheses for clients in a grace period
Interface	Interface whose statistics are reported
State	Binding state; expired or released state for clients currently in the grace period

Related Documentation

- [show ip dhcp-local binding on page 68](#)

Monitoring DHCP Services

- [Monitoring Status of DHCP Applications on page 47](#)

Monitoring Status of DHCP Applications

Purpose Display which DHCP applications are configured whether they are active or inactive—displays the status of DHCP relay, DHCP relay proxy, DHCP local server, and DHCP external server.

Action To display the status of the configured DHCP applications:

```
host1#show dhcp summary
DHCP local-server configured and inactive
DHCP relay configured and active
```

Meaning [Table 10 on page 47](#) lists the **show dhcp summary** command output fields.

Table 10: show dhcp summary Output Fields

Field Name	Field Description
configured	Applications that are currently configured
active or inactive	Current status of the application

Related Documentation

- [show dhcp summary on page 64](#)

Monitoring DHCP Proxy Client Bindings

- [Monitoring DHCP Proxy Client Bindings on page 49](#)

Monitoring DHCP Proxy Client Bindings

Purpose Display information for all DHCP proxy client bindings, with results arranged in ascending order by binding ID.

Action To display information for all DHCP proxy client bindings:

```
host1#show dhcp proxy-client binding
          Dhcp Proxy Client Bindings
-----
ClientId  IpAddress  Server    Lease  Expire  State
-----
436600832 21.1.0.1   31.1.1.2  600    466    bound
436600833 21.1.0.2   31.1.1.2  600    467    bound
436600834 21.1.0.3   31.1.1.2  600    468    bound
436600835 21.1.0.4   31.1.1.2  600    468    bound
436600836 21.1.0.5   31.1.1.2  600    468    bound
436600837 21.1.0.6   31.1.1.2  600    468    bound
436600838 21.1.0.7   31.1.1.2  600    468    bound
436600839 21.1.0.8   31.1.1.2  600    468    bound
436600840 21.1.0.9   31.1.1.2  600    468    bound
436600841 21.1.0.10  31.1.1.2  600    468    bound
```

Meaning [Table 11 on page 49](#) lists the `show dhcp proxy-client binding` command output fields.

Table 11: show dhcp proxy-client binding Output Fields

Field Name	Field Description
ClientId	Proxy client binding ID
IpAddress	IP address assigned to the client
Server	IP address of the DHCP server that allocated the client IP address
Lease	Total time for which the IP address is available, in seconds
Expire	Time remaining on the current lease, in seconds
State	State of the DHCP client binding

Related Documentation • [show dhcp proxy-client binding on page 63](#)

Monitoring DHCP Packet Logging

- [Monitoring DHCP Packet Capture Settings on page 51](#)

Monitoring DHCP Packet Capture Settings

Purpose Display the configuration for per-interface DHCP packet logging.

Action To display configuration information about the DHCP packet capture feature:

```
host1#show ip dhcp-capture
```

```

      Dhcp Capture Configuration
      -----
Router  Interface  Type  Priority
-----  -
default ip3/1      Rx/Tx low/low
default ip5/1      Rx    high

```

Meaning [Table 12 on page 51](#) lists the **show ip dhcp-capture** command output fields.

Table 12: show ip dhcp-capture Output Fields

Field Name	Field Description
Router	Router name
Interface	Interface whose DHCP packets are logged
Type	Packet type to be logged, Rx (received), Tx (transmitted), or Rx/Tx (all)
Priority	Priority assigned to logged packets, low or high

Related Documentation • [show ip dhcp-capture on page 65](#)

CHAPTER 13

Monitoring Commands

- show dhcp binding
- show dhcp count
- show dhcp host
- show dhcp proxy-client binding
- show dhcp summary
- show ip dhcp-capture
- show ip dhcp-external binding
- show ip dhcp-external binding-id
- show ip dhcp-local binding

show dhcp binding

Syntax To display information for the specified binding ID:

```
show dhcp binding bindingId
```

To display information for DHCP client bindings on the specified subnet:

```
show dhcp binding [ local | external | relay-proxy ] [ subnetAddress ] [ detail ] [ filter ]
```

To display information for DHCP client bindings for the specified IP prefix:

```
show dhcp binding [ local | external | relay-proxy ] [ subnetAddress ] ip-prefix ipPrefix [ detail ] [ filter ]
```

To display information for DHCP client bindings for the specified interface string:

```
show dhcp binding [ local | external | relay-proxy ] [ subnetAddress ] interface string [ detail ] [ filter ]
```

To display information for DHCP client bindings without a lower-layer interface:

```
show dhcp binding [ local | external | relay-proxy ] [ subnetAddress ] no-interface [ detail ] [ filter ]
```

To display information for DHCP client bindings for the specified agent-circuit-id suboption (suboption 1) string of the DHCP relay agent information option (option 82):

```
show dhcp binding [ local | external | relay-proxy ] [ subnetAddress ] circuit-id string [ detail ] [ filter ]
```

To display information for DHCP client bindings for the specified agent-remote-id suboption (suboption 2) string of the DHCP relay agent information option (option 82):

```
show dhcp binding [ local | external | relay-proxy ] [ subnetAddress ] remote-id string [ detail ] [ filter ]
```

Release Information Command introduced in JunosE Release 8.1.0.

local, **external**, **relay-proxy**, **interface**, **no-interface**, **ip-prefix**, **circuit-id**, and **remote-id** keywords and *subnetAddress*, *ipAddress*, and *string* variables added in JunosE Release 9.3.0.

Description Displays information for specified DHCP client bindings, with results ordered by binding ID.



NOTE: This command replaces the deprecated **show ip dhcp-external binding**, **show ip dhcp-external binding-id**, and **show ip dhcp-local binding** commands, which may be removed completely in a future release.

- Options**
- *bindingId*—DHCP binding ID for a specific client
 - *local*—Specifies DHCP local server client bindings that meet the display criteria
 - *external*—Specifies DHCP external server client bindings that meet the display criteria
 - *relay-proxy*—Specifies DHCP relay proxy client bindings that meet the display criteria
 - *subnetAddress*—IP address of the subnet on which the DHCP clients reside
 - *ipPrefix*—IP prefix (address and subnetwork mask) of the DHCP clients; for example, 10.10.10.0/24
 - *no-interface*—Specifies DHCP clients without a lower-layer interface; use this keyword to display information for DHCP client bindings configured over dynamic interfaces for which the lower-layer interface has been shut down
 - *detail*—Shows detailed information for the specified DHCP bindings
 - *filter*—See *Filtering show Commands*
 - *string*—Regular expression string that represents the interface, circuit ID, or remote ID to be matched; you must enclose elements containing a space within double quotes (“one element”)

Each element is either a literal string, a metacharacter, or a combination. You can remove the special meaning of a metacharacter by preceding it with a backslash (\). Regular expressions support the following metacharacters:

- `^` Matches the beginning of the input string. Alternatively, when used as the first character within brackets—`[^]`—matches any number except the ones specified within the brackets.
- `$` Matches the end of the input string
- `.` (period) Matches any single character, including white space
- `*` Matches 0 or more sequences of the immediately previous character or pattern.
- `+` Matches 1 or more sequences of the immediately previous character or pattern
- `?` Matches 0 or 1 sequence of the immediately previous character or pattern
- `()` Specifies patterns for multiple use when followed by one of the multiplier metacharacters: asterisk `*`, plus sign `+`, or question mark `?`
- `[]` Matches any enclosed character; specifies a range of single characters
- `-` (hyphen) Used within brackets to specify a range of AS or community numbers
- `_` (underscore) Matches a `^`, a `$`, a comma, a space, a `{`, or a `}`. Placed on either side of a string to specify a literal and disallow substring matching. Numerals enclosed by underscores can be preceded or followed by any of the characters listed above
- `|` Matches characters on either side of the metacharacter; logical OR

You must specify the interface string as a regular expression without spaces; for example, `fastEthernet1.1/100` or `fastEthernet.*100`

The following rules apply for representing nonprintable character sequences in the circuit ID string or the remote ID string:

- To represent the binary sequence 0d 0a (hex), use the string '\\r\\n'. This consists of four ASCII characters: 5c for \\, 72 for r, 5c for \\, and 6e for n.

For example, to match the sequence 74 65 73 74 0d 0a 6f 6e 65 (hex), use the string 'test\\r\\n'. In this string, 74 is represented by t, 65 is represented by e, 73 is represented by s, 74 is represented by t, 0d 0a is represented by \\r\\n, 6f is represented by o, 6e is represented by n, and 65 is represented by e.

- To represent the binary sequence 0d 00 (hex), use the string '\\r'. This consists of two ASCII characters: 5c for \\, and 72 for r.
- To represent the binary sequence 0a 00 (hex), use the string '\\n'. This consists of two ASCII characters: 5c for \\, and 6e for n.

For example, to match the sequence 74 65 73 74 0a 00 6f 6e 65 (hex), use the string 'test\\n'. In this string, 74 is represented by t, 65 is represented by e, 73 is represented by s, 74 is represented by t, 0a 00 is represented by \\n, 0a is represented by \\n, 6f is represented by o, 6e is represented by n, and 65 is represented by e.

- To represent all other cases, use the string '\\xab', where ab is a hex code of the byte. For example, to represent byte 3A, use '\\x3a'. This consists of four ASCII characters: 5c for \\, 78 for x, 33 for 3, and 61 for a.

As another example, to match the sequence 74 65 73 74 f3 6f 6e 65 (hex), use the string 'test\\xf3'. In this string, 74 is represented by t, 65 is represented by e, 73 is represented by s, 74 is represented by t, byte F3 is represented by \\xf3, 6f is represented by o, 6e is represented by n, and 65 is represented by e.

Mode Privileged Exec

- Related Documentation**
- [Viewing and Deleting DHCP Client Bindings on page 17](#)
 - [Monitoring DHCP Binding Information on page 36](#)

show dhcp count

Syntax To display counts of DHCP client bindings and interfaces on the specified subnet:

```
show dhcp count [ local | external | relay-proxy ] [ subnetAddress ] [ filter ]
```

To display counts of DHCP client bindings and interfaces for the specified IP prefix:

```
show dhcp count [ local | external | relay-proxy ] [ subnetAddress ] ip-prefix ipPrefix [ filter ]
```

To display counts of DHCP client bindings and interfaces for the specified interface string:

```
show dhcp count [ local | external | relay-proxy ] [ subnetAddress ] interface string [ filter ]
```

To display counts of DHCP client bindings and interfaces without a lower-layer interface:

```
show dhcp count [ local | external | relay-proxy ] [ subnetAddress ] no-interface [ filter ]
```

To display counts of DHCP client bindings and interfaces for the specified agent-circuit-id suboption (suboption 1) string of the DHCP relay agent information option (option 82):

```
show dhcp count [ local | external | relay-proxy ] [ subnetAddress ] circuit-id string [ filter ]
```

To display counts of DHCP client bindings and interfaces for the specified agent-remote-id suboption (suboption 2) string of the DHCP relay agent information option (option 82):

```
show dhcp count [ local | external | relay-proxy ] [ subnetAddress ] remote-id string [ filter ]
```

Release Information Command introduced in JunosE Release 9.3.0.

Description Displays counts of DHCP client bindings and interfaces.

- Options**
- **local**—Specifies DHCP local server client bindings that meet the display criteria
 - **external**—Specifies DHCP external server client bindings that meet the display criteria
 - **relay-proxy**—Specifies DHCP relay proxy client bindings that meet the display criteria
 - ***subnetAddress***—IP address of the subnet on which the DHCP clients reside
 - ***ipPrefix***—IP prefix (address and subnetwork mask) of the DHCP clients; for example, 10.10.10.0/24
 - **no-interface**—Specifies DHCP clients without a lower-layer interface; use this keyword to display count information for DHCP client bindings configured over dynamic interfaces for which the lower-layer interface has been shut down

- *filter*—See *Filtering show Commands*
- *string*—Regular expression string that represents the interface, circuit ID, or remote ID to be matched; you must enclose elements containing a space within double quotes (“one element”)

Each element is either a literal string, a metacharacter, or a combination. You can remove the special meaning of a metacharacter by preceding it with a backslash (\). Regular expressions support the following metacharacters:

- `^` Matches the beginning of the input string. Alternatively, when used as the first character within brackets—`[^]`—matches any number except the ones specified within the brackets.
- `$` Matches the end of the input string
- `.` (period) Matches any single character, including white space
- `*` Matches 0 or more sequences of the immediately previous character or pattern.
- `+` Matches 1 or more sequences of the immediately previous character or pattern
- `?` Matches 0 or 1 sequence of the immediately previous character or pattern
- `()` Specifies patterns for multiple use when followed by one of the multiplier metacharacters: asterisk `*`, plus sign `+`, or question mark `?`
- `[]` Matches any enclosed character; specifies a range of single characters
- `-` (hyphen) Used within brackets to specify a range of AS or community numbers
- `_` (underscore) Matches a `^`, a `$`, a comma, a space, a `{`, or a `}`. Placed on either side of a string to specify a literal and disallow substring matching. Numerals enclosed by underscores can be preceded or followed by any of the characters listed above
- `|` Matches characters on either side of the metacharacter; logical OR

You must specify the interface string as a regular expression without spaces; for example, `fastEthernet1.1/100` or `fastEthernet.*100`

The following rules apply for representing nonprintable character sequences in the circuit ID string or the remote ID string:

- To represent the binary sequence `0d 0a` (hex), use the string `'\\r\\n'`. This consists of four ASCII characters: `5c` for `\\`, `72` for `r`, `5c` for `\\`, and `6e` for `n`.

For example, to match the sequence `74 65 73 74 0d 0a 6f 6e 65` (hex), use the string `'test\\r\\n'`. In this string, `74` is represented by `t`, `65` is represented by `e`, `73` is represented by `s`, `74` is represented by `t`, `0d 0a` is represented by `\\r\\n`, `6f` is represented by `o`, `6e` is represented by `n`, and `65` is represented by `e`.

- To represent the binary sequence `0d 00` (hex), use the string `'\\r'`. This consists of two ASCII characters: `5c` for `\\`, and `72` for `r`.
- To represent the binary sequence `0a 00` (hex), use the string `'\\n'`. This consists of two ASCII characters: `5c` for `\\`, and `6e` for `n`.

For example, to match the sequence `74 65 73 74 0a 00 6f 6e 65` (hex), use the string `'test\\n'`. In this string, `74` is represented by `t`, `65` is represented by `e`, `73` is

represented by s, 74 is represented by t, 0a 00 is represented by \n, 0a is represented by \n, 6f is represented by o, 6e is represented by n, and 65 is represented by e.

- To represent all other cases, use the string '\\xab', where ab is a hex code of the byte. For example, to represent byte 3A, use '\\x3a'. This consists of four ASCII characters: 5c for \, 78 for x, 33 for 3, and 61 for a.

As another example, to match the sequence 74 65 73 74 f3 6f 6e 65 (hex), use the string 'test\\xf3one'. In this string, 74 is represented by t, 65 is represented by e, 73 is represented by s, 74 is represented by t, byte F3 is represented by \\xf3, 6f is represented by o, 6e is represented by n, and 65 is represented by e.

Mode Privileged Exec

- Related Documentation**
- [Viewing and Deleting DHCP Client Bindings on page 17](#)
 - [Monitoring DHCP Binding Count Information on page 41](#)

show dhcp host

- Syntax** To display information for DHCP client bindings on the specified subnet:
- ```
show dhcp host [local | external | relay-proxy] [subnetAddress] [detail] [filter]
```
- To display information for DHCP client bindings for the specified IP prefix:
- ```
show dhcp host [ local | external | relay-proxy ] [ subnetAddress ] ip-prefix ipPrefix [ detail ] [ filter ]
```
- To display information for DHCP client bindings for the specified interface string:
- ```
show dhcp host [local | external | relay-proxy] [subnetAddress] interface string [detail] [filter]
```
- To display information for DHCP client bindings without a lower-layer interface:
- ```
show dhcp host [ local | external | relay-proxy ] [ subnetAddress ] no-interface [ detail ] [ filter ]
```
- To display information for DHCP client bindings for the specified agent-circuit-id suboption (suboption 1) string of the DHCP relay agent information option (option 82):
- ```
show dhcp host [local | external | relay-proxy] [subnetAddress] circuit-id string [detail] [filter]
```
- To display information for DHCP client bindings for the specified agent-remote-id suboption (suboption 2) string of the DHCP relay agent information option (option 82):
- ```
show dhcp host [ local | external | relay-proxy ] [ subnetAddress ] remote-id string [ detail ] [ filter ]
```

Release Information Command introduced in JunosE Release 9.3.0.

Description Displays information for specified DHCP client bindings, with results ordered by IP address. This command displays information only for DHCP client bindings with assigned IP addresses.

- Options**
- **local**—Specifies DHCP local server client bindings that meet the display criteria
 - **external**—Specifies DHCP external server client bindings that meet the display criteria
 - **relay-proxy**—Specifies DHCP relay proxy client bindings that meet the display criteria
 - ***subnetAddress***—IP address of the subnet on which the DHCP clients reside
 - ***ipPrefix***—IP prefix (address and subnetwork mask) of the DHCP clients; for example, 10.10.10.0/24
 - **no-interface**—Specifies DHCP clients without a lower-layer interface; use this keyword to display information for DHCP client bindings configured over dynamic interfaces for which the lower-layer interface has been shut down

- *detail*—Shows detailed information for the specified DHCP bindings
- *filter*—See *Filtering show Commands*
- *string*—Regular expression string that represents the interface, circuit ID, or remote ID to be matched; you must enclose elements containing a space within double quotes (“*one element*”)

Each element is either a literal string, a metacharacter, or a combination. You can remove the special meaning of a metacharacter by preceding it with a backslash (\). Regular expressions support the following metacharacters:

- `^` Matches the beginning of the input string. Alternatively, when used as the first character within brackets—`[^]`—matches any number except the ones specified within the brackets.
- `$` Matches the end of the input string
- `.` (period) Matches any single character, including white space
- `*` Matches 0 or more sequences of the immediately previous character or pattern.
- `+` Matches 1 or more sequences of the immediately previous character or pattern
- `?` Matches 0 or 1 sequence of the immediately previous character or pattern
- `()` Specifies patterns for multiple use when followed by one of the multiplier metacharacters: asterisk `*`, plus sign `+`, or question mark `?`
- `[]` Matches any enclosed character; specifies a range of single characters
- `-` (hyphen) Used within brackets to specify a range of AS or community numbers
- `_` (underscore) Matches a `^`, a `$`, a comma, a space, a `{`, or a `}`. Placed on either side of a string to specify a literal and disallow substring matching. Numerals enclosed by underscores can be preceded or followed by any of the characters listed above
- `|` Matches characters on either side of the metacharacter; logical OR

You must specify the interface string as a regular expression without spaces; for example, `fastEthernet1.1/100` or `fastEthernet.*100`

The following rules apply for representing nonprintable character sequences in the circuit ID string or the remote ID string:

- To represent the binary sequence `0d 0a` (hex), use the string `'\\r\\n'`. This consists of four ASCII characters: `5c` for `\\`, `72` for `r`, `5c` for `\\`, and `6e` for `n`.

For example, to match the sequence `74 65 73 74 0d 0a 6f 6e 65` (hex), use the string `'test\\r\\n'`. In this string, `74` is represented by `t`, `65` is represented by `e`, `73` is represented by `s`, `74` is represented by `t`, `0d 0a` is represented by `\\r\\n`, `6f` is represented by `o`, `6e` is represented by `n`, and `65` is represented by `e`.
- To represent the binary sequence `0d 00` (hex), use the string `'\\r'`. This consists of two ASCII characters: `5c` for `\\`, and `72` for `r`.
- To represent the binary sequence `0a 00` (hex), use the string `'\\n'`. This consists of two ASCII characters: `5c` for `\\`, and `6e` for `n`.

For example, to match the sequence 74 65 73 74 0a 00 6f 6e 65 (hex), use the string 'test\none'. In this string, 74 is represented by t, 65 is represented by e, 73 is represented by s, 74 is represented by t, 0a 00 is represented by \n, 0a is represented by \n, 6f is represented by o, 6e is represented by n, and 65 is represented by e.

- To represent all other cases, use the string '\\xab', where ab is a hex code of the byte. For example, to represent byte 3A, use '\\x3a'. This consists of four ASCII characters: 5c for \, 78 for x, 33 for 3, and 61 for a.

As another example, to match the sequence 74 65 73 74 f3 6f 6e 65 (hex), use the string 'test\\xf3one'. In this string, 74 is represented by t, 65 is represented by e, 73 is represented by s, 74 is represented by t, byte F3 is represented by \\xf3, 6f is represented by o, 6e is represented by n, and 65 is represented by e.

Mode Privileged Exec

- Related Documentation**
- [Viewing and Deleting DHCP Client Bindings on page 17](#)
 - [Monitoring DHCP Binding Host Information on page 39](#)

show dhcp proxy-client binding

Syntax show dhcp proxy-client binding

Release Information Command introduced in JunosE Release 12.2.0.

Description Displays the configured DHCP proxy client bindings.

Mode Privileged Exec

show dhcp summary

Syntax show dhcp summary

Release Information Command introduced in JunosE Release 8.2.0.

Description Displays the currently configured DHCP applications and indicates whether they are active.

Mode Privileged Exec

Related Documentation

- [Monitoring Status of DHCP Applications on page 47](#)

show ip dhcp-capture

Syntax show ip dhcp-capture [*filter*]

Release Information Command introduced in JunosE Release 7.3.0.

Description Displays the per-interface DHCP packet capture configuration information.

Options • *filter*—See *Filtering show Commands*

Mode Privileged Exec

Related Documentation

- [Logging DHCP Packet Information on page 15](#)
- [Monitoring Status of DHCP Applications on page 47](#)
- [Monitoring DHCP Packet Capture Settings on page 51](#)
- [ip dhcp-capture on page 24](#)

show ip dhcp-external binding

Syntax show ip dhcp-external binding [*filter*]

Release Information Command introduced before JunosE Release 7.1.0.

Description Displays binding for DHCP external clients.



NOTE: This command is deprecated and might be removed completely in a future release. The function provided by this command has been replaced by the **show dhcp binding** command.

Options • *filter*—See *Filtering show Commands*

Mode Privileged Exec

Related Documentation • [Monitoring DHCP Bindings \(Displaying IP Address-to-MAC Address Bindings\)](#) on page 44

show ip dhcp-external binding-id

Syntax show ip dhcp-external binding-id [*filter*]

Release Information Command introduced before JunosE Release 7.1.0.

Description Displays binding information for DHCP clients.



NOTE: This command is deprecated and might be removed completely in a future release. The function provided by this command has been replaced by the **show dhcp binding** command.

Options • *filter*—See *Filtering show Commands*

Mode Privileged Exec

Related Documentation • [Monitoring DHCP Bindings \(Displaying DHCP Bindings Based on Binding ID\) on page 43](#)

show ip dhcp-local binding

Syntax show ip dhcp-local binding [*ipAddress* | interface *interfaceType* *interfaceValue*]
[*filter*]

Release Information Command introduced before JunosE Release 7.1.0.

Description Displays DHCP local server binding information for DHCP local server clients.



NOTE: This command is deprecated and might be removed completely in a future release. The function provided by this command has been replaced by the **show dhcp binding** command.

- Options**
- *ipAddress*—IP address of the subscriber's personal computer
 - *interfaceType*—Interface type; see *Interface Types and Specifiers*
 - *interfaceSpecifier*—Particular interface; format varies according to interface type; see *Interface Types and Specifiers*
 - *filter*—See *Filtering show Commands*

Mode Privileged Exec

Related Documentation

- [Monitoring DHCP Bindings \(Local Server Binding Information\) on page 44](#)

PART 4

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- [Index on page 71](#)

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