

VYATTA, INC.

| **Vyatta System**

Services

REFERENCE GUIDE

DHCP

DHCPv6

DNS

Web Caching

LLDP



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Use this list to help you locate examples you'd like to look at or try.

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Preface

This document describes the various deployment, installation, and upgrade options for Vyatta software.

This preface provides information about using this guide. The following topics are presented:

- [Intended Audience](#)
- [Organization of This Guide](#)
- [Document Conventions](#)
- [Vyatta Publications](#)

Intended Audience

This guide is intended for experienced system and network administrators. Depending on the functionality to be used, readers should have specific knowledge in the following areas:

- Networking and data communications
- TCP/IP protocols
- General router configuration
- Routing protocols
- Network administration
- Network security
- IP services

Organization of This Guide

This guide has the following aid to help you find the information you are looking for:

- [Quick List of Commands](#)

Use this list to help you quickly locate commands.

- [List of Examples](#)

Use this list to help you locate examples you'd like to try or look at.

This guide has the following chapters:

Chapter	Description	Page
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Chapter 2: DHCPv6	This chapter describes how to implement DHCPv6 on the Vyatta system.	121
Chapter 3: DNS	This chapter explains how to use Domain Name System (DNS) on the Vyatta System.	182
Chapter 4: Web Caching	This chapter explains how to set up web caching on the Vyatta system.	224
Chapter 5: LLDP	This chapter explains how to configure LLDP for use on the Vyatta system.	252

Document Conventions

This guide uses the following advisory paragraphs, as follows.



WARNING Warnings alert you to situations that may pose a threat to personal safety.



CAUTION Cautions alert you to situations that might cause harm to your system or damage to equipment, or that may affect service.

NOTE Notes provide information you might need to avoid problems or configuration errors.

This document uses the following typographic conventions.

Monospace	Examples, command-line output, and representations of configuration nodes.
bold Monospace	Your input: something you type at a command line.
bold	Commands, keywords, and file names, when mentioned inline. Objects in the user interface, such as tabs, buttons, screens, and panes.
<i>italics</i>	An argument or variable where you supply a value.
<key>	A key on your keyboard, such as <Enter>. Combinations of keys are joined by plus signs (“+”), as in <Ctrl>+c.
[key1 key2]	Enumerated options for completing a syntax. An example is [enable disable].
<i>num1–numN</i>	A inclusive range of numbers. An example is 1–65535, which means 1 through 65535, inclusive.
<i>arg1..argN</i>	A range of enumerated values. An example is eth0..eth3, which means eth0, eth1, eth2, or eth3.
<i>arg[arg...]</i> <i>arg[,arg...]</i>	A value that can optionally represent a list of elements (a space-separated list and a comma-separated list, respectively).

Vyatta Publications

Full product documentation is provided in the Vyatta technical library. To see what documentation is available for your release, see the *Guide to Vyatta Documentation*. This guide is posted with every release of Vyatta software and provides a great starting point for finding the information you need.

Additional information is available on www.vyatta.com and www.vyatta.org.

Chapter 1: DHCP

This chapter describes how to implement DHCP on the Vyatta system.

This chapter presents the following topics:

- [DHCP Overview](#)
- [DHCP Configuration](#)
- [DHCP Commands](#)

DHCP Overview

The Dynamic Host Configuration Protocol (DHCP) allows dynamic assignment of reusable IP addresses and other configuration information to DHCP clients. This reduces costs, configuration effort, and management burden associated with Internet access. On the other hand, it also increases network and service overhead.

In DHCP, the server assigns an IP address and other configuration parameters to a client for a limited period of time. This period of time is called the *lease*. The lease is valid for the period you configure on the Vyatta system, or until the client explicitly relinquishes the address.

To use the DHCP service, you define a pool of IP addresses for each subnet assigned by the DHCP server. Each DHCP address pool is mapped to a subnet associated with the system. For each address pool, you can specify the length of time an address will be valid (its lease duration). The default lease duration is 24 hours. You can also specify a number of different servers (for example DNS, WINS, SMTP, ...) available to clients on the subnet.

You can statically map an IP address to the MAC address of a device. The DHCP service listens on UDP port 67 for lease requests from DHCP clients. The request packet allows the system to determine which interface the client is located on. It then assigns an IP address from the appropriate pool and binds it to the client.

In addition to providing a DHCP server, individual interfaces on the Vyatta system can be configured as DHCP clients. For details, see the Vyatta documentation for the interface you are interested in configuring as a DHCP client.

The Vyatta system also supports DHCP relay.

A DHCP relay agent receives DHCP packets from DHCP clients and forwards them to a DHCP server. This allows you to place DHCP clients and DHCP servers on different networks; that is, across router interfaces.

The relay agent is configured with addresses of DHCP servers to which they should relay client DHCP message. The relay agent intercepts the broadcast, sets the gateway address (the **giaddr** field of the DHCP packet) and, if configured, inserts the Relay Agent Information option (option 82) in the packet and forwards it to the DHCP server.

The DHCP server echoes the option back verbatim to the relay agent in server-to-client replies, and the relay agent strips the option before forwarding the reply to the client.

DHCP Configuration

This section includes the following examples:

- [Enabling the DHCP Server](#)
- [Configuring DHCP Address Pools](#)
- [Creating a Static Mapping](#)
- [Setting up DHCP Servers for Failover](#)
- [Setting up DHCP Relay](#)
- [Setting Additional DHCP Configuration Parameters](#)

Enabling the DHCP Server

To use the DHCP server on the Vyatta System, you must enable the DHCP service.

To enable the DHCP service, perform the following steps in configuration mode:

Example 1-1 Enabling the DHCP service

Step	Command
Enable DHCP.	<code>vyatta@R1# set service dhcp-server</code>

In addition, at least one DHCP shared network (address pool) must be configured.

Configuring DHCP Address Pools

Configure DHCP address pools for the system to act as a DHCP server for the network.

[Example 1-2](#) creates three address pools:

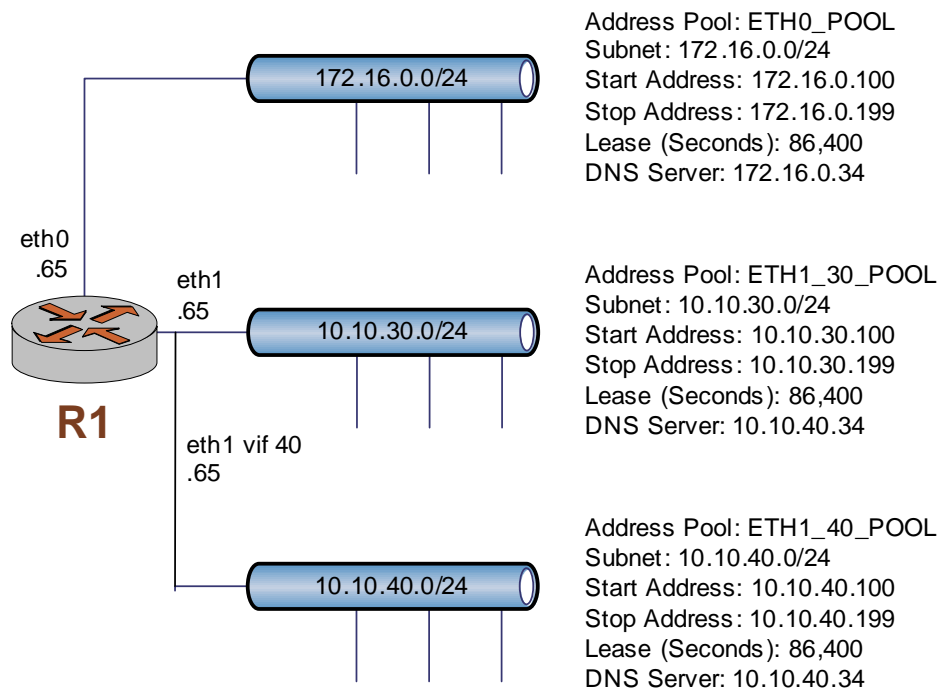
- **ETH0_POOL.** This address pool serves subnet 172.16.0.0/24, which is connected to interface eth0. The lease time will remain at the default, 24 hours (86,400 seconds). This address pool is able to use the DNS name server at 172.16.0.34.
- **ETH1_30_POOL.** This address pool serves subnet 10.10.30.0/24, which is connected directly to interface eth1. The lease time will remain at the default, 24 hours (86,400 seconds). This address pool will use the DNS name server at 10.10.40.34, which is directly connected to eth1.40 (that is, eth1 vif 40).

- **ETH1_40_POOL.** This address pool serves subnet 10.10.40.0/24, which is connected to interface eth1.40. The lease time will remain at the default, 24 hours (86,400 seconds). This address pool will use the DNS name server at 10.10.40.34, which is connected to eth1.40.

In all of these pools, the range of addresses is configured for .100 through .199.

Figure 1-1 shows the sample address pool configuration.

Figure 1-1 DHCP address pool configuration



To configure DHCP address pools, perform the following steps in configuration mode:

Example 1-2 Configuring DHCP address pools

Step	Command
Create the configuration node for ETH0_POOL on subnet 172.16.0.0/24. Specify the start and stop IP addresses for the pool.	<pre>vyatta@R1# set service dhcp-server shared-network-name ETH0_POOL subnet 172.16.0.0/24 start 172.16.0.100 stop 172.16.0.199</pre>
Specify the default router for ETH0_POOL .	<pre>vyatta@R1# set service dhcp-server shared-network-name ETH0_POOL subnet 172.16.0.0/24 default-router 172.16.0.65</pre>

Example 1-2 Configuring DHCP address pools

Specify a DNS server for ETH0_POOL.	<pre>vyatta@R1# set service dhcp-server shared-network-name ETH0_POOL subnet 172.16.0.0/24 dns-server 172.16.0.34</pre>
Create the configuration node for ETH1_30_POOL on subnet 10.10.30.0/24. Specify the start and stop IP addresses for the pool.	<pre>vyatta@R1# set service dhcp-server shared-network-name ETH1_30_POOL subnet 10.10.30.0/24 start 10.10.30.100 stop 10.10.30.199</pre>
Specify the default router for ETH1_30_POOL.	<pre>vyatta@R1# set service dhcp-server shared-network-name ETH1_30_POOL subnet 10.10.30.0/24 default-router 10.10.30.65</pre>
Specify a DNS server for ETH1_30_POOL.	<pre>vyatta@R1# set service dhcp-server shared-network-name ETH1_30_POOL subnet 10.10.30.0/24 dns-server 10.10.40.34</pre>
Create the configuration node for ETH1_40_POOL on subnet 10.10.40.0/24. Specify the start and stop IP addresses for the pool.	<pre>vyatta@R1# set service dhcp-server shared-network-name ETH1_40_POOL subnet 10.10.40.0/24 start 10.10.40.100 stop 10.10.40.199</pre>
Specify the default router for ETH1_40_POOL.	<pre>vyatta@R1# set service dhcp-server shared-network-name ETH1_40_POOL subnet 10.10.40.0/24 default-router 10.10.40.65</pre>
Specify a DNS server for ETH1_40_POOL.	<pre>vyatta@R1# set service dhcp-server shared-network-name ETH1_40_POOL subnet 10.10.40.0/24 dns-server 10.10.40.34</pre>
Commit the change.	<pre>vyatta@R1# commit</pre>

Example 1-2 Configuring DHCP address pools

```
Show the configuration.      vyatta@R1# show service dhcp-server
                             shared-network-name ETH0_POOL {
                               subnet 172.16.0.0/24 {
                                 default-router 172.16.0.65
                                 dns-server 172.16.0.34
                                 start 172.16.0.100 {
                                   stop 172.16.0.199
                                 }
                               }
                             }
                             shared-network-name ETH1_30_POOL {
                               subnet 10.10.30.0/24 {
                                 default-router 10.10.30.65
                                 dns-server 10.10.40.34
                                 start 10.10.30.100 {
                                   stop 10.10.30.199
                                 }
                               }
                             }
                             shared-network-name ETH1_40_POOL {
                               subnet 10.10.40.0/24 {
                                 default-router 10.10.40.65
                                 dns-server 10.10.40.34
                                 start 10.10.40.100 {
                                   stop 10.10.40.199
                                 }
                               }
                             }
```

```
Show the interface configuration. vyatta@R1# show interfaces
                                  ethernet eth0 {
                                    address 172.16.0.65/24
                                    hw-id 00:0c:29:42:05:2b
                                  }
                                  ethernet eth1 {
                                    address 10.10.30.65/24
                                    hw-id 00:0c:29:42:05:35
                                    vif 40 {
                                      address 10.10.40.65/24
                                    }
                                  }
                                  }
```

Creating a Static Mapping

There are situations where it makes sense to map a specific IP address to a specific host rather than dynamically assign an IP address from a pool of addresses. This is known as a “static mapping”.

Static mappings are defined using the **static-mapping** option of the **service dhcp-server** configuration node. This example adds a static mapping to **ETH0_POOL** created in [Example 1-2](#). [Example 1-3](#) does the following:

- Maps IP address 172.16.0.101 to the device with a MAC address of 00:15:c5:b3:2e:65.

Example 1-3 Creating a static mapping

Step	Command
Create a static mapping called “lab” and specify the static IP address within the ETH0_POOL pool.	<pre>vyatta@R1# set service dhcp-server shared-network-name ETH0_POOL subnet 172.16.0.0/24 static-mapping lab ip-address 172.16.0.101</pre>
Specify the associated MAC address within the static mapping called “lab” in the ETH0_POOL pool.	<pre>vyatta@R1# set service dhcp-server shared-network-name ETH0_POOL subnet 172.16.0.0/24 static-mapping lab mac-address 00:15:c5:b3:2e:65</pre>
Commit the information.	<pre>vyatta@R1# commit</pre>
Show the configuration.	<pre>vyatta@R1# show service dhcp-server shared-network-name ETH0_POOL shared-network-name ETH0_POOL { subnet 172.16.0.0/24 { default-router 172.16.0.65 dns-server 172.16.0.34 start 172.16.0.100 { stop 172.16.0.199 } static-mapping lab { ip-address 172.16.0.101 mac-address 00:15:c5:b3:2e:65 } } }</pre>

Setting up DHCP Servers for Failover

The Vyatta system also provides a failover feature to allow for DHCP redundancy on a given subnet.

In a failover configuration, two DHCP servers act as failover peers, with one of the peers designated as the primary and the other as the secondary. For DHCP failover to work:

- Both peers must be Vyatta systems, and must be running the same version of Vyatta software.
- Each server must be configured to point to the other as the failover peer.
- The time on the servers must be exactly synchronized.
- There must be at least one IP address in the start-stop range for each subnet that has not been either excluded (using `service dhcp-server shared-network-name <name> subnet <ipv4net> exclude <ipv4>`) or statically mapped (using `service dhcp-server shared-network-name <name> subnet <ipv4net> static-mapping <mapname>`).

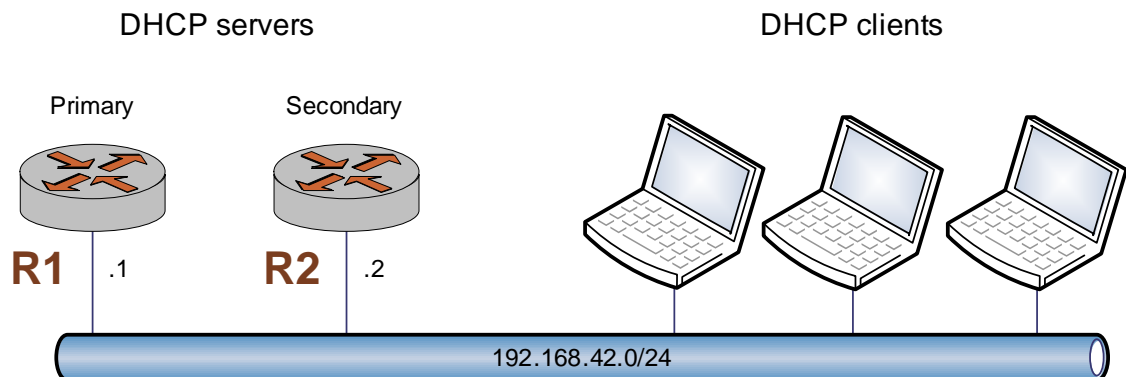
The system times should be synchronized before configuring DHCP failover. Use of NTP time synchronization is highly recommended. However, if difficulties arise due to incorrect system times, disable NTP, reset the times correctly, and then re-enable NTP.

Note that DHCP leases are only assigned in failover configurations if proper communication is established between the two failover peers. If the configuration is incorrect (if, for example, one failover peer is configured but the other is not), DHCP leases will not be dispersed.

Also note that statically mapped addresses will not be renewed by a failover server unless they are explicitly defined on that server using `service dhcp-server shared-network-name <name> subnet <ipv4net> static-mapping <mapname> command`.

Figure 1-2 shows the sample DHCP server failover configuration.

Figure 1-2 DHCP server failover configuration



To configure R1 as the Primary DHCP server in this failover scenario, perform the following steps in configuration mode on R1:

Example 1-4 Setting up DHCP failover on R1

Step	Command
Create the configuration node for DHCP1 on subnet 192.168.42.0/24. Specify the start and stop IP addresses for the pool.	<pre>vyatta@R1# set service dhcp-server shared-network-name DHCP1 subnet 192.168.42.0/24 start 192.168.42.100 stop 192.168.42.199</pre>
Specify the default router for DHCP1.	<pre>vyatta@R1# set service dhcp-server shared-network-name DHCP1 subnet 192.168.42.0/24 default-router 192.168.42.254</pre>
Specify a DNS server for DHCP1.	<pre>vyatta@R1# set service dhcp-server shared-network-name DHCP1 subnet 192.168.42.0/24 dns-server 192.168.42.253</pre>
Specify the local IP address for the DHCP server for failover.	<pre>vyatta@R1# set service dhcp-server shared-network-name DHCP1 subnet 192.168.42.0/24 failover local-address 192.168.42.1</pre>
Specify the IP address of the peer DHCP server for failover.	<pre>vyatta@R1# set service dhcp-server shared-network-name DHCP1 subnet 192.168.42.0/24 failover peer-address 192.168.42.2</pre>
Specify the role that the DHCP server will play in the failover group.	<pre>vyatta@R1# set service dhcp-server shared-network-name DHCP1 subnet 192.168.42.0/24 failover status primary</pre>
Specify the name of the failover group.	<pre>vyatta@R1# set service dhcp-server shared-network-name DHCP1 subnet 192.168.42.0/24 failover name FAILOVER</pre>
Commit the change	<pre>vyatta@R1# commit</pre>

Example 1-4 Setting up DHCP failover on R1

```
Show the configuration.      vyatta@R1# show service dhcp-server shared-network-name DHCP1
                             shared-network-name DHCP1 {
                               subnet 192.168.42.0/24 {
                                 default-router 192.168.42.254
                                 dns-server 192.168.42.253
                                 failover {
                                   local-address 192.168.42.1
                                   name FAILOVER
                                   peer-address 192.168.42.2
                                   status primary
                                 }
                                 start 192.168.42.100 {
                                   stop 192.168.42.199
                                 }
                               }
                             }
```

To configure R2 as the Secondary DHCP server in this failover scenario, perform the following steps in configuration mode on R2:

Example 1-5 Setting up DHCP failover on R2

Step	Command
Create the configuration node for DHCP1 on subnet 192.168.42.0/24. Specify the start and stop IP addresses for the pool.	<pre>vyatta@R2# set service dhcp-server shared-network-name DHCP1 subnet 192.168.42.0/24 start 192.168.42.100 stop 192.168.42.199</pre>
Specify the default router for DHCP1.	<pre>vyatta@R2# set service dhcp-server shared-network-name DHCP1 subnet 192.168.42.0/24 default-router 192.168.42.254</pre>
Specify a DNS server for DHCP1.	<pre>vyatta@R2# set service dhcp-server shared-network-name DHCP1 subnet 192.168.42.0/24 dns-server 192.168.42.253</pre>
Specify the local IP address for the DHCP server for failover.	<pre>vyatta@R2# set service dhcp-server shared-network-name DHCP1 subnet 192.168.42.0/24 failover local-address 192.168.42.2</pre>
Specify the IP address of the peer DHCP server for failover.	<pre>vyatta@R2# set service dhcp-server shared-network-name DHCP1 subnet 192.168.42.0/24 failover peer-address 192.168.42.1</pre>
Specify the role that the DHCP server will play in the failover group.	<pre>vyatta@R2# set service dhcp-server shared-network-name DHCP1 subnet 192.168.42.0/24 failover status secondary</pre>

Example 1-5 Setting up DHCP failover on R2

Specify the name of the failover group.	<pre>vyatta@R2# set service dhcp-server shared-network-name DHCP1 subnet 192.168.42.0/24 failover name FAILOVER</pre>
Commit the change	<pre>vyatta@R2# commit</pre>
Show the configuration.	<pre>vyatta@R2# show service dhcp-server shared-network-name DHCP1 shared-network-name DHCP1 { subnet 192.168.42.0/24 { default-router 192.168.42.254 dns-server 192.168.42.253 failover { local-address 192.168.42.2 name FAILOVER peer-address 192.168.42.1 status secondary } start 192.168.42.100 { stop 192.168.42.199 } } }</pre>

Setting up DHCP Relay

Configure DHCP relay if you want the Vyatta system to forward DHCP requests to another DHCP server.

Every interface involved in the DHCP relay must be configured and must be broadcast-capable. So, for example, if requests are coming in on interface eth0 and the DHCP server specified in the configuration is reached through interface eth1, both eth0 and eth1 must be configured for DHCP.

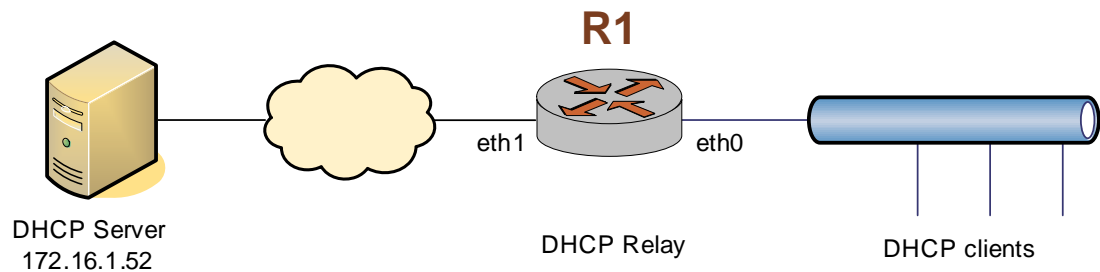
[Example 1-6](#) does the following:

- Configures both eth0 and eth1 for DHCP. The router is expected to receive client requests for the DHCP server through interface eth0. It will forward client-to-server DHCP messages to the DHCP server at 172.16.1.52 out through interface eth1.
- Enables relay options. This directs the system to add the Relay Agent Information option (option 82) to the DHCP message before forwarding, as specified by RFC 3046.
- Re-forwarding of DHCP messages will not be permitted by this system. If a packet is received that already contains relay information, the packet is discarded.

- Other relay option parameters are left at default values. This means that the router will use port 67 for DHCP messaging, will allow a maximum DHCP packet size of at most 576 bytes, and will have a maximum hop count of 10 hops.

Figure 1-3 shows the sample DHCP relay configuration.

Figure 1-3 DHCP relay configuration



To configure DHCP relay, perform the following steps in configuration mode:

Example 1-6 Setting up DHCP relay

Step	Command
Enable DHCP relay on interface eth0.	<code>vyatta@R1# set service dhcp-relay interface eth0</code>
Enable DHCP relay on interface eth1.	<code>vyatta@R1# set service dhcp-relay interface eth1</code>
Specify the IP address of the DHCP server.	<code>vyatta@R1# set service dhcp-relay server 172.16.1.52</code>
Set the router to discard messages containing relay information. Leave other parameters at default values.	<code>vyatta@R1# set service dhcp-relay relay-options relay-agents-packets discard</code>
Commit the change	<code>vyatta@R1# commit</code>
Show the configuration.	<code>vyatta@R1# show service dhcp-relay interface eth0 interface eth1 server 172.16.1.52 relay-options { relay-agents-packets discard }</code>

Setting Additional DHCP Configuration Parameters

WARNING *This is an advanced feature and should only be used by advanced users in special situations.*

The Vyatta DHCP server commands provide a set of commonly used DHCP server features. However, many additional features are available. Information regarding the available DHCP server features can be found on the `dhcpcd.conf` man page. To access it, type the following at the Vyatta command prompt:

```
man dhcpcd.conf
```

To access these additional features use one of the following commands, depending on the required scope of the feature. The commands are listed from widest to narrowest scope:

- `service dhcp-server global-parameters <params>`
- `service dhcp-server shared-network-name <name> shared-network-parameters <params>`
- `service dhcp-server shared-network-name <name> subnet <ipv4net> subnet-parameters <params>`
- `service dhcp-server shared-network-name <name> subnet <ipv4net> static-mapping <mapname> static-mapping-parameters <params>`

The precedence of scope of these commands is from narrowest to widest. That is, if more than one command is specified and a given host address falls within the scope of both, it will be governed by parameters specified in the command with the narrowest scope.

Multiple parameter strings can be specified. Each parameter string specified adds a separate line into the `dhcpcd.conf` file.

Note that no validation is done by the Vyatta system prior to passing the parameter string from these commands to the DHCP server process (`dhcpcd`). Because of this it is imperative that the syntax described in the `dhcpcd.conf` documentation be strictly followed. Failure to do so could result in the DHCP server crashing. It is advisable to check the system log for errors when using these parameter strings. Also, the `show system processes` command can be used to determine if the `dhcpcd` process is still running.

The following example shows how the additional DHCP server parameters can be accessed. To configure additional DHCP server parameters, perform the following steps in configuration mode:

Example 1-7 Setting up DHCP server with additional parameters

Step	Command
Enable DHCP server and define an option that does not already have a keyword defined in the dhcpd process. See the dhcpd man page for further information.	<pre>vyatta@R1# set service dhcp-server global-parameters 'option rfc3442-static-route code 121 = string;'</pre>
Specify the value to be used for the option for all shared networks, subnets, and static mappings defined in the DHCP server configuration.	<pre>vyatta@R1# set service dhcp-server global-parameters 'option rfc3442-static-route 01:01:01:01:01:01:01:01;'</pre>
Specify that the DHCP server is authoritative for the specified shared network.	<pre>vyatta@R1# set service dhcp-server shared-network-name NET1 authoritative enable</pre>
Specify the subnet and address pool to use.	<pre>vyatta@R1# set service dhcp-server shared-network-name NET1 subnet 172.16.117.0/24 start 172.16.117.10 stop 172.16.117.20</pre>
Specify an IP address to statically map to a host with a specific MAC address.	<pre>vyatta@R1# set service dhcp-server shared-network-name NET1 subnet 172.16.117.0/24 static-mapping MAP1 ip-address 172.16.117.15</pre>
Specify the MAC address of a host to be statically mapped to an IP address.	<pre>vyatta@R1# set service dhcp-server shared-network-name NET1 subnet 172.16.117.0/24 static-mapping MAP1 mac-address 09:09:09:09:09:09</pre>
Override the global value of the parameter defined above for a specific host.	<pre>vyatta@R1# set service dhcp-server shared-network-name NET1 subnet 172.16.117.0/24 static-mapping MAP1 static-mapping-parameters 'option rfc3442-static-route 01:01:01:01:01:01:01:02;'</pre>
Commit the change	<pre>vyatta@R1# commit</pre>

Example 1-7 Setting up DHCP server with additional parameters

Show the configuration.

```
vyatta@R1# show service dhcp-server
  global-parameters "option rfc3442-static-route code 121 =
string;"
  global-parameters "option rfc3442-static-route
01:01:01:01:01:01:01;"
  shared-network-name foo {
    authoritative enable
    subnet 172.16.117.0/24 {
      start 172.16.117.10 {
        stop 172.16.117.20
      }
      static-mapping bar {
        ip-address 172.16.117.15
        mac-address 09:09:09:09:09:09
        static-mapping-parameters "option
rfc3442-static-route
01:01:01:01:01:01:02;"
      }
    }
  }
```

DHCP Commands

This chapter contains the following commands.

Configuration Commands

DHCP Relay

<code>service dhcp-relay</code>	Configures the system to relay DHCP client messages to an off-net DHCP server.
<code>service dhcp-relay interface <interface></code>	Specifies the interface to use for accepting DHCP requests or relaying DHCP client messages.
<code>service dhcp-relay relay-options</code>	Specifies whether to add the Relay Agent Information option (option 82) to the client-to-server packet.
<code>service dhcp-relay server <ipv4></code>	Sets the IP address of the DHCP server.

DHCP Server

<code>service dhcp-server</code>	Enables DHCP server functionality.
<code>service dhcp-server disabled <state></code>	Allows you to disable the DHCP server without discarding configuration.
<code>service dhcp-server dynamic-dns-update enable <state></code>	Specifies whether or not to dynamically update the Domain Name System.
<code>service dhcp-server global-parameters <params></code>	Specifies additional global DHCP Server parameters.
<code>service dhcp-server shared-network-name <name></code>	Specifies the name of a DHCP address pool.
<code>service dhcp-server shared-network-name <name> authoritative <state></code>	Specifies whether the DHCP server is authoritative.
<code>service dhcp-server shared-network-name <name> description <desc></code>	Provides a description of the shared network.
<code>service dhcp-server shared-network-name <name> disable</code>	Disables DHCP configuration for the shared network.
<code>service dhcp-server shared-network-name <name> shared-network-parameters <params></code>	Specifies additional shared network DHCP Server parameters.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net></code>	Specifies the IPv4 network to be served by a DHCP address pool.

<code>service dhcp-server shared-network-name <name> subnet <ipv4net> bootfile-name <bootfile></code>	Specifies a bootstrap file from which diskless PCs can boot.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> bootfile-sever <addr></code>	Specifies a bootstrap server from which diskless PCs can boot.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> client-prefix-length <prefix></code>	Specifies the subnet prefix length to be assigned to clients.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> default-router <ipv4></code>	Specifies the address of the default router for DHCP clients on this subnet.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> dns-server <ipv4></code>	Specifies the address of a DNS server for DHCP clients.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> domain-name <domain-name></code>	Provides the domain name for DHCP clients.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> exclude <ipv4></code>	Excludes an IP address from a DHCP address pool.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> failover</code>	Enables DHCP failover functionality for a DHCP address pool on a subnet.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> failover local-address <ipv4></code>	Specifies the IP address of the local failover peer.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> failover name <peer-name></code>	Specifies the peer name for the local failover peer.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> failover peer-address <ipv4></code>	Specifies the IP address of the failover peer.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> failover status <status></code>	Specifies the DHCP failover status for this peer.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> ip-forwarding enable <state></code>	Specifies whether the client should configure its IP layer for packet forwarding.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> lease <seconds></code>	Specifies how long the address assigned by the DHCP server will be valid.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> ntp-server <ipv4></code>	Specifies the address of an NTP (Network Time Protocol) server available to clients.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> pop-server <ipv4></code>	Specifies the address of a POP3 (Post Office Protocol 3) server available to clients.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> server-identifier <ipv4></code>	Specifies the address for the DHCP server identifier.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> smtp-server <ipv4></code>	Specifies the address of a SMTP (Simple Mail Transfer Protocol) server available to clients.

<code>service dhcp-server shared-network-name <name> subnet <ipv4net> start <ipv4> stop <ipv4></code>	Specifies the range of addresses that will be assigned to DHCP clients.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> static-mapping <mapname></code>	Maps a static IP address to a specific DHCP client based on its MAC address.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> static-mapping <mapname> disable</code>	Disables DHCP configuration for the specified static mapping.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> static-mapping <mapname> ip-address <ipv4></code>	Specifies a static IP address for a specific DHCP client.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> static-mapping <mapname> mac-address <mac></code>	Specifies the MAC address of a DHCP client to assign a static IP address to.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> static-mapping <mapname> static-mapping-parameters <params></code>	Specifies additional static mapping DHCP Server parameters.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> static-route destination-subnet <ipv4net></code>	Specifies the destination subnet of a static route for clients to store in their routing cache.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> static-route router <ipv4></code>	Specifies the router for the destination of a static route for clients to store in their routing cache.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> subnet-parameters <params></code>	Specifies additional subnet DHCP Server parameters.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> tftp-server-name <servername></code>	Specifies the name of a TFTP (Trivial File Transfer Protocol) server available to clients.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> time-offset <seconds></code>	Specifies the offset of the client's subnet in seconds from UTC (Coordinated Universal Time).
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> time-server <ipv4></code>	Specifies the address of an RFC868 time server available to clients.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> wins-server <ipv4></code>	Specifies the address of a WINS server that is available to DHCP clients.
<code>service dhcp-server shared-network-name <name> subnet <ipv4net> wpad-url <url></code>	Specifies the Web Proxy Autodiscovery (WPAD) URL

Operational Commands

<code>release dhcp interface <interface></code>	Releases the current DHCP client lease on an interface.
<code>renew dhcp interface <interface></code>	Renews the current DHCP client lease on an interface.
<code>reset dhcp lease ip <ipv4></code>	Removes the DHCP lease for the specified IP address.

<code>reset dhcp leases</code>	Removes current DHCP leases.
<code>show dhcp client leases</code>	Displays DHCP information for interfaces configured as DHCP clients.
<code>show dhcp leases</code>	Displays current DHCP lease information.
<code>show dhcp statistics</code>	Displays DHCP server statistics.

release dhcp interface <interface>

Releases the current DHCP client lease on an interface.

Syntax

```
release dhcp interface interface
```

Command Mode

Operational mode.

Parameters

<i>interface</i>	The interface using DHCP to obtain an IP address.
------------------	---

Default

None.

Usage Guidelines

Use this command to release the DHCP client lease on the specified interface. The interface must be a DHCP client that obtained an IP address from a DHCP server.

renew dhcp interface <interface>

Renews the current DHCP client lease on an interface.

Syntax

```
renew dhcp interface interface
```

Command Mode

Operational mode.

Parameters

<i>interface</i>	The interface using DHCP to obtain an IP address.
------------------	---

Default

None.

Usage Guidelines

Use this command to renew the DHCP client lease on the specified interface. The interface must be a DHCP client that obtained an IP addresses from a DHCP server.

reset dhcp lease ip <ipv4>

Removes the DHCP lease for the specified IP address.

Syntax

```
reset dhcp lease ip ipv4
```

Command Mode

Operational mode.

Parameters

<i>ipv4</i>	Resets the DHCP lease for the specified IP address.
-------------	---

Default

None.

Usage Guidelines

Use this command to remove a DHCP lease. It is applicable to leases provided by the DHCP server. DHCP server is configured using [service dhcp-server command](#).

reset dhcp leases

Removes current DHCP leases.

Syntax

```
reset dhcp leases
```

Command Mode

Operational mode.

Parameters

None.

Default

None.

Usage Guidelines

Use this command to remove all DHCP leases. It is applicable to leases provided by the DHCP server. DHCP server is configured using [service dhcp-server command](#).

service dhcp-relay

Configures the system to relay DHCP client messages to an off-net DHCP server.

Syntax

```
set service dhcp-relay
delete service dhcp-relay
show service dhcp-relay
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
    dhcp-relay {
    }
}
```

Parameters

None.

Default

None.

Usage Guidelines

Use this command to configure the system as a DHCP relay agent.

A DHCP relay agent receives DHCP packets from DHCP clients and forwards them to a DHCP server. This allows you to place DHCP clients and DHCP servers on different networks; that is, across router interfaces.

The relay agent is configured with addresses of DHCP servers to which they should relay client DHCP message. The relay agent intercepts the broadcast, sets the gateway address (the **giaddr** field of the DHCP packet) and, if configured, inserts the Relay Agent Information option (option 82) in the packet and forwards it to the DHCP server.

The DHCP server echoes the option back verbatim to the relay agent in server-to-client replies, and the relay agent strips the option before forwarding the reply to the client.

All interfaces involved in the `dhcp-relay` for both clients and servers must be explicitly defined using `service dhcp-relay interface <interface> command`.

Use the `set` form of this command to define DHCP relay configuration.

Use the `delete` form of this command to remove DHCP relay configuration.

Use the `show` form of this command to view DHCP relay configuration.

service dhcp-relay interface <interface>

Specifies the interface to use for accepting DHCP requests or relaying DHCP client messages.

Syntax

```
set service dhcp-relay interface interface
delete service dhcp-relay interface interface
show service dhcp-relay interface
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-relay {
    interface interface {
    }
  }
}
```

Parameters

<i>interface</i>	Mandatory. Multi-node. The interface to use to accept DHCP requests or relay DHCP client messages. If the interface through which requests are received is different from the interface used to reach the DHCP server specified in the request, both interfaces must be configured.
------------------	---

You can assign multiple interfaces to be used for DHCP by creating multiple **interface** configuration nodes.

Default

None.

Usage Guidelines

Use this command to specify the interface to use to accept DHCP requests or relay DHCP client messages.

Use the **set** form of this command to specify the interface to use to accept DHCP requests or relay DHCP client messages.

Use the **delete** form of this command to remove the specified value.

Use the **show** form of this command to view the specified value.

service dhcp-relay relay-options

Specifies whether to add the Relay Agent Information option (option 82) to the client-to-server packet.

Syntax

```
set service dhcp-relay relay-options [hop-count count | max-size size | port port | relay-agents-packets policy]
```

```
delete service dhcp-relay relay-options [hop-count | max-size | port | relay-agents-packets]
```

```
show service dhcp-relay relay-options [hop-count | max-size | port | relay-agents-packets]
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-relay {
    relay-options {
      hop-count count
      max-size size
      port port
      relay-agents-packets policy
    }
  }
}
```

Parameters

hop-count <i>count</i>	Optional. Sets the hop count for outgoing relayed messages. Once the hop count is reached, the packet is discarded. The hop count should be set high enough that relayed packets are able to reach the DHCP Server. The range is 1 to 255. The default is 10.
-------------------------------	---

max-size *size*

Optional. Sets the maximum size of the DHCP packet to be created after appending the relay agent information option. If, after appending the information, the packet would exceed this size, the packet is forwarded without appending the information. This value should be set to the lowest MTU size in your network. The range is 64 to 1400. The default is 576.

If this option not configured, the router does not forward DHCP packets that exceed the MTU of the interface on which relaying is configured.

port *port*

Optional. Specifies the port on this interface to be used for relaying DHCP client messages. This should be done only for debugging purposes as the behavior changes - responses are broadcast rather than being sent to port 68 of the requesting client. The range is 1 to 65535.

relay-agents-packet
policy

Optional. Sets the reforwarding policy for a DHCP relay agent. This is the action the router will take if the DHCP message already contains relay information. Supported values are as follows:

append: The DHCP relay agent may append its own set of relay options to the packet, leaving the supplied option field intact.

discard: If the packet already contains relay information, it will be discarded.

forward: The packet will be forwarded regardless of whether it contains relay information.

replace: The DHCP relay agent may replace the supplied option field with its own set of relay options.

The default is **forward**.

Default

None.

Usage Guidelines

Use this command to configure the Relay Agent Information option (option 82) in the client-to-server packet, as specified by RFC 3046, and configure DHCP relay options.

Setting the **port** to a value other than 67 should be done only for debugging purposes. When this is done DHCP requests from clients are still accepted on port 67 but the responses from DHCP servers will be forwarded to broadcast address 255.255.255.255 port 0 rather than on port 68, where DHCP clients listen.

Use the **set** form of this command to set DHCP relay options.

Use the **delete** form of this command to restore default DHCP relay option values.

Use the **show** form of this command to view DHCP relay option configuration.

service dhcp-relay server <ipv4>

Sets the IP address of the DHCP server.

Syntax

```
set service dhcp-relay server ipv4
delete service dhcp-relay server ipv4
show service dhcp-relay server
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-relay {
    server ipv4 {
    }
  }
}
```

Parameters

<i>ipv4</i>	Mandatory. Multi-node. The IP address of the DHCP server. You can relay messages to more than one DHCP server, by creating multiple server configuration nodes.
-------------	---

Default

None.

Usage Guidelines

Use this command to specify the IP address of the DHCP server.

Use the **set** form of this command to specify the IP address of the DHCP server in a DHCP relay configuration.

Use the **delete** form of this command to remove DHCP server configuration in a DHCP relay configuration.

Use the **show** form of this command to view DHCP server configuration in a DHCP relay configuration.

service dhcp-server

Enables DHCP server functionality.

Syntax

```
set service dhcp-server
delete service dhcp-server
show service dhcp-server
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
    dhcp-server {
    }
}
```

Parameters

None.

Default

None.

Usage Guidelines

Use this command to configure a pool of addresses the system can use for Dynamic Host Configuration Protocol (DHCP).

At least one address pool must be configured for DHCP to be available as a service.

At least one address pool must lie within a configured subnet on any of the broadcast interfaces.

Each subnet specified contains a distinct address pool. A given interface can support more than one address pool (that is, more than one subnet).

Use the **set** form of this command to enable DHCP server functionality.

Use the **delete** form of this command to remove the DHCP server functionality.

Use the **show** form of this command to view DHCP server configuration.

service dhcp-server disabled <state>

Allows you to disable the DHCP server without discarding configuration.

Syntax

```
set service dhcp-server disabled state
delete service dhcp-server disabled
show service dhcp-server disabled
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    disabled state
  }
}
```

Parameters

<i>state</i>	The administrative state of the DHCP server. Supported values are as follows: true: Disables DHCP server without discarding configuration. false: Enables the DHCP server.
--------------	--

Default

DHCP server functionality is disabled.

Usage Guidelines

Use this command to disable the DHCP server without discarding configuration. Use the **set** form of this command to specify whether the DHCP server should be disabled or not. Use the **delete** form of this command to restore the default state.

Use the **show** form of this command to view DHCP server configuration.

service dhcp-server dynamic-dns-update enable <state>

Specifies whether or not to dynamically update the Domain Name System.

Syntax

```
set service dhcp-server dynamic-dns-update enable state
delete service dhcp-server dynamic-dns-update enable
show service dhcp-server dynamic-dns-update enable
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    dynamic-dns-update {
      enable state
    }
  }
}
```

Parameters

<i>state</i>	The state of dynamic DNS updates. Supported values are as follows: true: DNS updates are sent dynamically. false: DNS updates are not sent.
--------------	---

Default

DNS updates are not sent by the DHCP Server.

Usage Guidelines

Use this command to control DNS updates from the DHCP Server.

Use the **set** form of this command to specify whether dynamic DNS updates should be sent or not.

Use the **delete** form of this command to restore the default state.

Use the **show** form of this command to view the dynamic DNS update configuration.

service dhcp-server global-parameters <params>

Specifies additional global DHCP Server parameters.

Syntax

```
set service dhcp-server global-parameters params
delete service dhcp-server global-parameters params
show service dhcp-server global-parameters
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    global-parameters params
  }
}
```

Parameters

<i>params</i>	The string of parameters to be used by the DHCP Server. The string must be enclosed in single quotes.
---------------	---

Default

None.

Usage Guidelines

WARNING *This is an advanced feature and should only be used by advanced users in special situations.*

Use this command to specify additional global DHCP Server parameters that are not available within the **service dhcp-server** commands. The Vyatta DHCP Server commands are a subset of those available for DHCP Server configuration. This command provides access to all DHCP Server configuration parameters. Further information regarding DHCP Server configuration can be found on the **dhcpcd.conf** man page. To access it, type the following at the Vyatta command prompt:

man dhcpd.conf

No validation is done by the Vyatta system prior to passing the parameter string to the DHCP Server process (dhcpd). Because of this it is imperative that the syntax described in the **dhcpd.conf** documentation be strictly followed. Failure to do so could result in the DHCP Server crashing. It is advisable to check the system log for errors when using these parameter strings. Also, the **show system processes** command can be used to determine if the **dhcpd** process is still running.

The scope of these parameters is global. They will apply to all **shared-networks**, **subnets**, and **static-mappings** unless parameters with a narrower scope are specified using the **shared-network-parameters**, **subnet-parameters**, or **static-mapping-parameters** version of this command.

Multiple parameter strings can be specified. Each parameter string specified adds a separate line into the **dhcpd.conf** file.

Use the **set** form of this command to specify additional global DHCP Server parameters.

Use the **delete** form of this command to remove additional global DHCP Server parameters.

Use the **show** form of this command to view the additional global DHCP Server parameters configuration.

service dhcp-server shared-network-name <name>

Specifies the name of a DHCP address pool.

Syntax

```
set service dhcp-server shared-network-name name
delete service dhcp-server shared-network-name name
show service dhcp-server shared-network-name name
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. Multi-node. The name for the DHCP address pool. You can define multiple address pools by creating multiple shared-network-name configuration nodes, each with a different name.
-------------	--

Default

None.

Usage Guidelines

Use this command to create a DHCP server address pool with the specified name.

Use the **set** form of this command to create a DHCP address pool.

Use the **delete** form of this command to remove a DHCP address pool.

Use the **show** form of this command to view DHCP address pool configuration.

service dhcp-server shared-network-name <name> authoritative <state>

Specifies whether the DHCP server is authoritative.

Syntax

```
set service dhcp-server shared-network-name name authoritative state
delete service dhcp-server shared-network-name name authoritative
show service dhcp-server shared-network-name name authoritative
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
      authoritative state
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>state</i>	Specifies whether the DHCP server is the authoritative server. Supported values are as follows: enable: Enables authoritative state. disable: Disables authoritative state. The default is disable .

Default

The DHCP server is not authoritative.

Usage Guidelines

Use this command to set the server as the authoritative DHCP server.

Setting the server as authoritative sets the server as a master server and allows it to protect itself from rogue DHCP servers or misconfigured DHCP clients. If the server is authoritative, it sends a DHCPNAK to a misconfigured client; otherwise, the client cannot update its IP address until after the old lease expires.

Use the **set** form of this command to enable or disable the authoritative state for a DHCP server.

Use the **delete** form of this command to restore the default authoritative state.

Use the **show** form of this command to view the authoritative DHCP configuration.

service dhcp-server shared-network-name <name> description <desc>

Provides a description of the shared network.

Syntax

```
set service dhcp-server shared-network-name name description desc  
delete service dhcp-server shared-network-name name description  
show service dhcp-server shared-network-name name description
```

Command Mode

Configuration mode.

Configuration Statement

```
service {  
    dhcp-server {  
        shared-network-name name {  
            description desc  
        }  
    }  
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>desc</i>	A description of the specified shared network.

Default

None.

Usage Guidelines

Use this command to provide a description of the shared network.

Use the **set** form of this command to provide a description of the shared network.

Use the **delete** form of this command to remove the shared network description.

Use the **show** form of this command to view the shared network description.

service dhcp-server shared-network-name <name> disable

Disables DHCP configuration for the shared network.

Syntax

```
set service dhcp-server shared-network-name name disable
delete service dhcp-server shared-network-name name disable
show service dhcp-server shared-network-name name
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
      disable
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
-------------	-----------------------------------

Default

The shared network configuration is enabled.

Usage Guidelines

Use this command to disable configuration of the shared network.

Use the set form of this command to disable configuration of the shared network.

Use the **delete** form of this command to enable the configuration of the shared network.

Use the **show** form of this command to view the shared network configuration.

service dhcp-server shared-network-name <name> shared-network-parameters <params>

Specifies additional shared network DHCP Server parameters.

Syntax

```
set service dhcp-server shared-network-name name shared-network-parameters  
params
```

```
delete service dhcp-server shared-network-name name shared-network-parameters  
params
```

```
show service dhcp-server shared-network-name name shared-network-parameters
```

Command Mode

Configuration mode.

Configuration Statement

```
service {  
    dhcp-server {  
        shared-network-name name {  
            shared-network-parameters params  
        }  
    }  
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>params</i>	The string of parameters to be used by the DHCP Server. The string must be enclosed in single quotes.

Default

None.

Usage Guidelines

WARNING *This is an advanced feature and should only be used by advanced users in special situations.*

Use this command to specify additional shared network DHCP Server parameters that are not available within the **service dhcp-server** commands. The Vyatta DHCP Server commands are a subset of those available for DHCP Server configuration. This command provides access to all DHCP Server configuration parameters. Further information regarding DHCP Server configuration can be found on the **dhcpcd.conf** man page. To access it, type the following at the Vyatta command prompt:

man dhcpcd.conf

No validation is done by the Vyatta system prior to passing the parameter string to the DHCP Server process (dhcpcd). Because of this it is imperative that the syntax described in the **dhcpcd.conf** documentation be strictly followed. Failure to do so could result in the DHCP Server crashing. It is advisable to check the system log for errors when using these parameter strings. Also, the **show system processes** command can be used to determine if the **dhcpcd** process is still running.

The scope of these parameters is for the specified shared network. They will apply to all **subnets**, and **static-mappings** within this scope unless parameters with a narrower scope are specified using the **subnet-parameters**, or **static-mapping-parameters** version of this command.

Multiple parameter strings can be specified. Each parameter string specified adds a separate line into the **dhcpcd.conf** file.

Use the **set** form of this command to specify additional shared network DHCP Server parameters.

Use the **delete** form of this command to remove additional shared network DHCP Server parameters.

Use the **show** form of this command to view the additional shared network DHCP Server parameters configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net>

Specifies the IPv4 network to be served by a DHCP address pool.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net
delete service dhcp-server shared-network-name name subnet ipv4net
show service dhcp-server shared-network-name name subnet ipv4net
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
      subnet ipv4net {
      }
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network to be served with the addresses defined the specified address pool. The format is <i>ip-addr/prefix</i> .

Default

None.

Usage Guidelines

Use this command to specify the IPv4 network to be served with the addresses that are defined in this named rule. DHCP requests from devices on this subnet are served static address assignments or an address from the defined range.

Use the **set** form of this command to specify the DHCP address pool subnet.

Use the **delete** form of this command to remove DHCP address pool subnet configuration.

Use the **show** form of this command to view tDHCP address pool subnet configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> bootfile-name <bootfile>

Specifies a bootstrap file from which diskless PCs can boot.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net bootfile-name  
bootfile
```

```
delete service dhcp-server shared-network-name name subnet ipv4net bootfile-name
```

```
show service dhcp-server shared-network-name name subnet ipv4net bootfile-name
```

Command Mode

Configuration mode.

Configuration Statement

```
service {  
    dhcp-server {  
        shared-network-name name {  
            subnet ipv4net {  
                bootfile-name bootfile  
            }  
        }  
    }  
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .
<i>bootfile</i>	The name of the bootstrap file to be used to boot.

Default

None.

Usage Guidelines

Use this command to specify a bootstrap file from which diskless PCs may boot.

Use the **set** form of this command to specify the bootstrap file.

Use the **delete** form of this command to remove boot file configuration.

Use the **show** form of this command to view boot file configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> bootfile-server <addr>

Specifies a bootstrap server from which diskless PCs can boot.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net bootfile-server
addr
delete service dhcp-server shared-network-name name subnet ipv4net bootfile-server
show service dhcp-server shared-network-name name subnet ipv4net bootfile-server
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
      subnet ipv4net {
        bootfile-server addr
      }
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .
<i>addr</i>	The IPv4 address or hostname of the bootfile server.

Default

None.

Usage Guidelines

Use this command to specify a bootstrap server from which diskless PCs may boot.

Use the **set** form of this command to specify the bootstrap server.

Use the **delete** form of this command to remove boot server configuration.

Use the **show** form of this command to view boot server configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> client-prefix-length <prefix>

Specifies the subnet prefix length to be assigned to clients.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net
client-prefix-length prefix

delete service dhcp-server shared-network-name name subnet ipv4net
client-prefix-length

show service dhcp-server shared-network-name name subnet ipv4net
client-prefix-length
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
      subnet ipv4net {
        client-prefix-length prefix
      }
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .
<i>prefix</i>	Optional. The subnet prefix length that will be assigned to each client. By default, the prefix length defined in the subnet parameter is assigned. The range is 0 to 32.

Default

None.

Usage Guidelines

Use this command to specify the subnet prefix length that will be assigned to each client.

Use the **set** form of this command to specify the subnet prefix length that will be assigned to each client.

Use the **delete** form of this command to remove the client-prefix-length configuration.

Use the **show** form of this command to view the client-prefix-length configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> default-router <ipv4>

Specifies the address of the default router for DHCP clients on this subnet.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net default-router
ipv4
delete service dhcp-server shared-network-name name subnet ipv4net default-router
show service dhcp-server shared-network-name name subnet ipv4net default-router
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
      subnet ipv4net {
        default-router ipv4
      }
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .
<i>ipv4</i>	Optional. Gives the address of the default router for DHCP clients on this subnet. The default router should be on the same subnet as the client. The format is an IP address.

Default

None.

Usage Guidelines

Use this command to specify the address of the default router for DHCP clients on this subnet.

Use the **set** form of this command to specify the address of the default router for DHCP clients on this subnet.

Use the **delete** form of this command to remove the default-router configuration.

Use the **show** form of this command to view the default-router configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> dns-server <ipv4>

Specifies the address of a DNS server for DHCP clients.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net dns-server ipv4
delete service dhcp-server shared-network-name name subnet ipv4net dns-server ipv4
show service dhcp-server shared-network-name name subnet ipv4net dns-server
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
      subnet ipv4net {
        dns-server ipv4
      }
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .
<i>ipv4</i>	Optional. Multi-node. The IPv4 address of the DNS server . You can specify more than one DNS server by issuing this statement multiple times.

Default

None.

Usage Guidelines

Use this command to specify the address of a DNS server that is available to DHCP clients.

Use the **set** form of this command to specify the address of a DNS server that is available to DHCP clients.

Use the **delete** form of this command to remove DNS server configuration.

Use the **show** form of this command to view DNS server configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> domain-name <domain-name>

Provides the domain name for DHCP clients.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net domain-name domain-name
```

```
delete service dhcp-server shared-network-name name subnet ipv4net domain-name
```

```
show service dhcp-server shared-network-name name subnet ipv4net domain-name
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
      subnet ipv4net {
        domain-name domain-name
      }
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .
<i>domain-name</i>	Optional. The domain name to be given to DHCP clients on this subnet. A domain name can include letters, numbers, hyphens (“-”), and one period (“.”). For example, “vyatta.com”.

Default

None.

Usage Guidelines

Use this command to specify the domain name to be used by DHCP clients on this subnet.

Use the **set** form of this command to specify the client domain name.

Use the **delete** form of this command to remove client domain name configuration.

Use the **show** form of this command to view client domain name configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> exclude <ipv4>

Excludes an IP address from a DHCP address pool.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net exclude ipv4
delete service dhcp-server shared-network-name name subnet ipv4net exclude ipv4
show service dhcp-server shared-network-name name subnet ipv4net exclude
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
      subnet ipv4net {
        exclude ipv4
      }
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .
<i>ipv4</i>	Optional. Multi-node. The IP address to be excluded from the lease range. You can exclude more than one IP address by creating multiple <code>exclude</code> configuration nodes.

Default

None.

Usage Guidelines

Use this command to exclude an IP address from a DHCP address pool. Excluded addresses are never leased to DHCP clients. The exception is an IP addresses that is statically mapped using `service dhcp-server shared-network-name <name> subnet <ipv4net> static-mapping <mapname> command`. These addresses will not be excluded.

Use the `set` form of this command to exclude an IP address from the lease range.

Use the `delete` form of this command to remove an IP address from the exclusion list.

Use the `show` form of this command to view excluded addresses.

service dhcp-server shared-network-name <name> subnet <ipv4net> failover

Enables DHCP failover functionality for a DHCP address pool on a subnet.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net failover
delete service dhcp-server shared-network-name name subnet ipv4net failover
show service dhcp-server shared-network-name name subnet ipv4net failover
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
      subnet ipv4net {
        failover {
        }
      }
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .

Default

None.

Usage Guidelines

Use this command to enable DHCP failover for an address pool on a given network, allowing two DHCP servers to share an address pool.

In a failover configuration, two DHCP servers act as failover peers, with one of the peers designated as the primary and the other as the secondary. For DHCP failover to work:

- Both peers must be Vyatta systems, and must be running the same version of Vyatta software.
- Each server must be configured to point to the other as the failover peer.
- The time on the servers must be exactly synchronized.
- There must be at least one IP address in the start-stop range for each subnet that has not been either excluded (using `service dhcp-server shared-network-name <name> subnet <ipv4net> exclude <ipv4>`) or statically mapped (using `service dhcp-server shared-network-name <name> subnet <ipv4net> static-mapping <mapname>`).

The system times should be synchronized before configuring DHCP failover. Use of NTP time synchronization is highly recommended. However, if difficulties arise due to incorrect system times, disable NTP, reset the times correctly, and then re-enable NTP.

Note that DHCP leases are only assigned in failover configurations if proper communication is established between the two failover peers. If the configuration is incorrect (if, for example, one failover peer is configured but the other is not), DHCP leases will not be dispersed.

Also note that statically mapped addresses will not be renewed by a failover server unless they are explicitly defined on that server using `service dhcp-server shared-network-name <name> subnet <ipv4net> static-mapping <mapname> command`.

Use the **set** form of this command to define DHCP failover configuration

Use the **delete** form of this command to remove DHCP failover configuration.

Use the **show** form of this command to view DHCP failover configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> failover local-address <ipv4>

Specifies the IP address of the local failover peer.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net failover
local-address ipv4
```

```
delete service dhcp-server shared-network-name name subnet ipv4net failover
local-address
```

```
show service dhcp-server shared-network-name name subnet ipv4net failover
local-address
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
      subnet ipv4net {
        failover {
          local-address ipv4
        }
      }
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .
<i>ipv4</i>	The IP address for the local failover peer.

Default

None.

Usage Guidelines

Use this command to specify the DHCP failover IP address for the local failover peer.

Use the **set** form of this command to set the DHCP failover IP address.

Use the **delete** form of this command to remove local failover IP address configuration.

Use the **show** form of this command to view local failover IP address configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> failover name <peer-name>

Specifies the peer name for the local failover peer.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net failover name  
peer-name
```

```
delete service dhcp-server shared-network-name name subnet ipv4net failover name
```

```
show service dhcp-server shared-network-name name subnet ipv4net failover name
```

Command Mode

Configuration mode.

Configuration Statement

```
service {  
  dhcp-server {  
    shared-network-name name {  
      subnet ipv4net {  
        failover {  
          name peer-name  
        }  
      }  
    }  
  }  
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .
<i>peer-name</i>	The DHCP failover peer name for the local peer.

Default

None.

Usage Guidelines

Use this command to specify a name for the local peer in a DHCP failover pair.

Use the **set** form of this command to specify the DHCP failover peer name.

Use the **delete** form of this command to remove the local peer name configuration.

Use the **show** form of this command to view local peer name configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> failover peer-address <ipv4>

Specifies the IP address of the failover peer.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net failover
peer-address ipv4
```

```
delete service dhcp-server shared-network-name name subnet ipv4net failover
peer-address
```

```
show service dhcp-server shared-network-name name subnet ipv4net failover
peer-address
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
      subnet ipv4net {
        failover {
          peer-address ipv4
        }
      }
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .
<i>ipv4</i>	Specifies the IP address for the failover peer.

Default

None.

Usage Guidelines

Use this command to specify the DHCP failover IP address for the local peer.

Use the **set** form of this command to specify the DHCP failover IP address for the local peer.

Use the **delete** form of this command to remove the IP address configuration.

Use the **show** form of this command to view the IP address configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> failover status <status>

Specifies the DHCP failover status for this peer.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net failover status status
```

```
delete service dhcp-server shared-network-name name subnet ipv4net failover status
```

```
show service dhcp-server shared-network-name name subnet ipv4net failover status
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
      subnet ipv4net {
        failover {
          status status
        }
      }
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .
<i>status</i>	Indicates whether this peer is the primary or secondary peer in the failover configuration. Supported values are as follows: primary: The local system is primary peer. secondary: The local system is the secondary peer.

Default

None.

Usage Guidelines

Use this command to specify the DHCP failover status of this system.

Use the **set** form of this command to specify whether this system is primary or secondary.

Use the **delete** form of this command to remove failover status configuration.

Use the **show** form of this command to view failover status configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> ip-forwarding enable <state>

Specifies whether the client should configure its IP layer for packet forwarding.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net ip-forwarding
enable state
```

```
delete service dhcp-server shared-network-name name subnet ipv4net ip-forwarding
enable
```

```
show service dhcp-server shared-network-name name subnet ipv4net ip-forwarding
enable
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
      subnet ipv4net {
        ip-forwarding {
          enable state
        }
      }
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .

<i>state</i>	<p>Specifies whether or not the client should configure its IP layer for packet forwarding. Supported values are as follows:</p> <p>true: The client should configure its IP later for packet forwarding.</p> <p>false: The client should not configure its IP later for packet forwarding.</p> <p>The default false.</p>
--------------	--

Default

The DHCP server does not direct clients to configure for packet forwarding.

Usage Guidelines

Use this command to specify whether the DHCP server directs clients to configure the IP layer for packet forwarding.

Use the **set** form of this command to specify whether the client should configure its IP layer for packet forwarding.

Use the **delete** form of this command to restore the default configuration.

Use the **show** form of this command to view IP forwarding configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> lease <seconds>

Specifies how long the address assigned by the DHCP server will be valid.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net lease seconds  
delete service dhcp-server shared-network-name name subnet ipv4net lease  
show service dhcp-server shared-network-name name subnet ipv4net lease
```

Command Mode

Configuration mode.

Configuration Statement

```
service {  
  dhcp-server {  
    shared-network-name name {  
      subnet ipv4net {  
        lease seconds  
      }  
    }  
  }  
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .
<i>seconds</i>	Optional. Specifies how long the address assigned by the DHCP server will be valid, in seconds. The range is 120 to 4294967296.

Default

The default is 86400 (24 hours).

Usage Guidelines

Use this command to specify how long the address assigned by the DHCP server will be valid.

Use the **set** form of this command to specify how long the address assigned by the DHCP server will be valid.

Use the **delete** form of this command to remove the lease configuration.

Use the **show** form of this command to view the lease configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> ntp-server <ipv4>

Specifies the address of an NTP (Network Time Protocol) server available to clients.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net ntp-server ipv4
delete service dhcp-server shared-network-name name subnet ipv4net ntp-server
ipv4
show service dhcp-server shared-network-name name subnet ipv4net ntp-server
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
      subnet ipv4net {
        ntp-server ipv4
      }
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .
<i>ipv4</i>	Optional. Specifies the IP address of an NTP server available to clients. Multiple NTP server addresses can be specified in separate commands. The list of NTP servers should be specified in order of preference.

Default

None.

Usage Guidelines

Use this command to specify the address of an NTP (Network Time Protocol) server available to clients.

Use the **set** form of this command to specify the address of an NTP server available to clients.

Use the **delete** form of this command to remove the NTP server configuration.

Use the **show** form of this command to view the NTP server configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> pop-server <ipv4>

Specifies the address of a POP3 (Post Office Protocol 3) server available to clients.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net pop-server ipv4
delete service dhcp-server shared-network-name name subnet ipv4net pop-server ipv4
show service dhcp-server shared-network-name name subnet ipv4net pop-server
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
      subnet ipv4net {
        pop-server ipv4
      }
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .
<i>ipv4</i>	Optional. Specifies the IP address of a POP3 server available to clients. Multiple POP3 server addresses can be specified in separate commands. The list of POP3 servers should be specified in order of preference.

Default

None.

Usage Guidelines

Use this command to specify the address of an POP3 (Post Office Protocol 3) server available to clients.

Use the **set** form of this command to specify the address of an POP3 server available to clients.

Use the **delete** form of this command to remove the POP3 server configuration.

Use the **show** form of this command to view the POP3 server configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> server-identifier <ipv4>

Specifies the address for the DHCP server identifier.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net server-identifier ipv4
```

```
delete service dhcp-server shared-network-name name subnet ipv4net server-identifier
```

```
show service dhcp-server shared-network-name name subnet ipv4net server-identifier
```

Command Mode

Configuration mode.

Configuration Statement

```
service {  
  dhcp-server {  
    shared-network-name name {  
      subnet ipv4net {  
        server-identifier ipv4  
      }  
    }  
  }  
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .
<i>ipv4</i>	Optional. Specifies the address for the DHCP server identifier.

Default

None.

Usage Guidelines

Use this command to specify the address for the DHCP server identifier.

The server identifier option is a field in a DHCP message that identifies the DHCP server as the destination address from clients to servers. When the DHCP server includes this field in a DHCP Offer, the client can use it to distinguish between multiple lease offers. The server identifier must be an address that is reachable from the client.

Use the **set** form of this command to specify the address for the DHCP server identifier.

Use the **delete** form of this command to remove the address for the DHCP server identifier.

Use the **show** form of this command to view the DHCP server identifier configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> smtp-server <ipv4>

Specifies the address of a SMTP (Simple Mail Transfer Protocol) server available to clients.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net smtp-server ipv4
delete service dhcp-server shared-network-name name subnet ipv4net smtp-server ipv4
show service dhcp-server shared-network-name name subnet ipv4net smtp-server
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
      subnet ipv4net {
        smtp-server ipv4
      }
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .
<i>ipv4</i>	Optional. Specifies the IP address of an SMTP server available to clients. Multiple SMTP server addresses can be specified in separate commands. The list of SMTP servers should be specified in order of preference.

Default

None.

Usage Guidelines

Use this command to specify the address of an SMTP (Simple Mail Transfer Protocol) server available to clients.

Use the **set** form of this command to specify the address of an SMTP server available to clients.

Use the **delete** form of this command to remove the SMTP server configuration.

Use the **show** form of this command to view the SMTP server configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> start <ipv4> stop <ipv4>

Specifies the range of addresses that will be assigned to DHCP clients.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net start ipv4 stop ipv4
```

```
delete service dhcp-server shared-network-name name subnet ipv4net start [ipv4 [stop]]
```

```
show service dhcp-server shared-network-name name subnet ipv4net start [ipv4]
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
      subnet ipv4net {
        start ipv4 {
          stop ipv4
        }
      }
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .

start	Optional. Multi-node. The start address in an address range. This is the first address in the range that can be assigned. You can define multiple address ranges within an address pool, by creating multiple start configuration nodes.
stop	Mandatory. The stop address in this address range. This is the last address in the range that can be assigned.

Default

None.

Usage Guidelines

Use this command to specify the range of addresses that will be assigned to DHCP clients.

Use the **set** form of this command to specify the range of addresses that will be assigned to DHCP clients.

Use the **delete** form of this command to remove the address range configuration.

Use the **show** form of this command to view the address range configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> static-mapping <mapname>

Maps a static IP address to a specific DHCP client based on its MAC address.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net static-mapping  
mapname
```

```
delete service dhcp-server shared-network-name name subnet ipv4net  
static-mapping mapname
```

```
show service dhcp-server shared-network-name name subnet ipv4net static-mapping  
mapname
```

Command Mode

Configuration mode.

Configuration Statement

```
service {  
  dhcp-server {  
    shared-network-name name {  
      subnet ipv4net {  
        static-mapping mapname {  
        }  
      }  
    }  
  }  
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .

<i>mapname</i>	Optional. Multi-node. Allows you to statically map an IP address within an address pool to the MAC address of a device on the network. You can define multiple static mappings of this type by creating multiple static-mapping configuration nodes.
----------------	--

Default

None.

Usage Guidelines

Use this command to define a static mapping between a specific DHCP client based on its MAC address and an IP address.

Use the **set** form of this command to define a static mapping between a specific DHCP client based on its MAC address and an IP address.

Use the **delete** form of this command to remove the static mapping configuration.

Use the **show** form of this command to view the static mapping configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> static-mapping <mapname> disable

Disables DHCP configuration for the specified static mapping.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net static-mapping  
mapname disable
```

```
delete service dhcp-server shared-network-name name subnet ipv4net  
static-mapping mapname disable
```

```
show service dhcp-server shared-network-name name subnet ipv4net static-mapping  
mapname
```

Command Mode

Configuration mode.

Configuration Statement

```
service {  
  dhcp-server {  
    shared-network-name name {  
      subnet ipv4net {  
        static-mapping mapname {  
          disable  
        }  
      }  
    }  
  }  
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .

<i>mapname</i>	Optional. Multi-node. Allows you to statically map an IP address within an address pool to the MAC address of a device on the network. You can define multiple static mappings of this type by creating multiple static-mapping configuration nodes.
----------------	--

Default

The static mapping configuration is enabled.

Usage Guidelines

Use this command to disable configuration of the specified static map.

Use the **set** form of this command to disable configuration of the static map.

Use the **delete** form of this command to enable the configuration of the static map.

Use the **show** form of this command to view the static map configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> static-mapping <mapname> ip-address <ipv4>

Specifies a static IP address for a specific DHCP client.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net static-mapping
mapname ip-address ipv4
```

```
delete service dhcp-server shared-network-name name subnet ipv4net
static-mapping mapname ip-address
```

```
show service dhcp-server shared-network-name name subnet ipv4net static-mapping
mapname ip-address
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
      subnet ipv4net {
        static-mapping mapname {
          ip-address ipv4
        }
      }
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .

<i>mapname</i>	Multi-node. Allows you to statically map an IP address within an address pool to the MAC address of a device on the network. You can define multiple static mappings of this type by creating multiple static-mapping configuration nodes.
<i>ipv4</i>	Mandatory. The IP address to be statically assigned to the device.

Default

None.

Usage Guidelines

Use this command to specify a static IP address for a specific DHCP client based on its MAC address.

Use the **set** form of this command to specify a static IP address for a specific DHCP client based on its MAC address.

Use the **delete** form of this command to remove the static mapping configuration.

Use the **show** form of this command to view the static mapping configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> static-mapping <mapname> mac-address <mac>

Specifies the MAC address of a DHCP client to assign a static IP address to.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net static-mapping  
mapname mac-address mac
```

```
delete service dhcp-server shared-network-name name subnet ipv4net  
static-mapping mapname mac-address
```

```
show service dhcp-server shared-network-name name subnet ipv4net static-mapping  
mapname mac-address
```

Command Mode

Configuration mode.

Configuration Statement

```
service {  
  dhcp-server {  
    shared-network-name name {  
      subnet ipv4net {  
        static-mapping mapname {  
          mac-address mac  
        }  
      }  
    }  
  }  
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .

<i>mapname</i>	Multi-node. Allows you to statically map an IP address within an address pool to the MAC address of a device on the network. You can define multiple static mappings of this type by creating multiple static-mapping configuration nodes.
<i>mac</i>	Mandatory. The MAC address to be statically mapped to the specified IP address.

Default

None.

Usage Guidelines

Use this command to specify the MAC address of a DHCP client to assign an IP address to.

Use the **set** form of this command to specify the MAC address of the DHCP client.

Use the **delete** form of this command to remove the static mapping configuration.

Use the **show** form of this command to view the static mapping configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> static-mapping <mapname> static-mapping-parameters <params>

Specifies additional static mapping DHCP Server parameters.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net static-mapping
mapname static-mapping-parameters params
```

```
delete service dhcp-server shared-network-name name subnet ipv4net
static-mapping mapname static-mapping-parameters params
```

```
show service dhcp-server shared-network-name name subnet ipv4net static-mapping
mapname static-mapping-parameters
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
      subnet ipv4net {
        static-mapping mapname {
          static-mapping-parameters params
        }
      }
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .

<i>mapname</i>	Optional. Multi-node. Allows you to statically map an IP address within an address pool to the MAC address of a device on the network. You can define multiple static mappings of this type by creating multiple static-mapping configuration nodes.
<i>params</i>	The string of parameters to be used by the DHCP Server. The string must be enclosed in single quotes.

Default

None.

Usage Guidelines

WARNING *This is an advanced feature and should only be used by advanced users in special situations.*

Use this command to specify additional static mapping DHCP Server parameters that are not available within the **service dhcp-server** commands. The Vyatta DHCP Server commands are a subset of those available for DHCP Server configuration. This command provides access to all DHCP Server configuration parameters. Further information regarding DHCP Server configuration can be found on the **dhcpcd.conf** man page. To access it, type the following at the Vyatta command prompt:

man dhcpcd.conf

No validation is done by the Vyatta system prior to passing the parameter string to the DHCP Server process (dhcpcd). Because of this it is imperative that the syntax described in the **dhcpcd.conf** documentation be strictly followed. Failure to do so could result in the DHCP Server crashing. It is advisable to check the system log for errors when using these parameter strings. Also, the **show system processes** command can be used to determine if the **dhcpcd** process is still running.

The scope of these parameters is for the specified map name. They will apply to all **static-mappings** within this scope unless parameters with a narrower scope are specified using the **static-mapping-parameters** version of this command.

Multiple parameter strings can be specified. Each parameter string specified adds a separate line into the **dhcpcd.conf** file.

Use the **set** form of this command to specify additional static mapping DHCP Server parameters.

Use the **delete** form of this command to remove additional static mapping DHCP Server parameters.

Use the **show** form of this command to view the additional static mapping DHCP Server parameters configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> static-route destination-subnet <ipv4net>

Specifies the destination subnet of a static route for clients to store in their routing cache.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net static-route  
destination-subnet ipv4net2
```

```
delete service dhcp-server shared-network-name name subnet ipv4net static-route  
destination-subnet
```

```
show service dhcp-server shared-network-name name subnet ipv4net static-route  
destination-subnet
```

Command Mode

Configuration mode.

Configuration Statement

```
service {  
  dhcp-server {  
    shared-network-name name {  
      subnet ipv4net {  
        static-route {  
          destination-subnet ipv4net2  
        }  
      }  
    }  
  }  
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .
<i>ipv4net2</i>	Specifies the destination IP subnet of a static route for clients to store in their routing table.

Default

None.

Usage Guidelines

Use this command to specify the destination subnet of a static route for clients to store in their routing cache. The other part of the static route is defined by the [service dhcp-server shared-network-name <name> subnet <ipv4net> static-route router <ipv4> command](#). Only one static route can be defined for a given subnet.

Use the **set** form of this command to specify the destination subnet of a static route for clients to store in their routing cache.

Use the **delete** form of this command to remove the destination subnet configuration.

Use the **show** form of this command to view the destination subnet configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> static-route router <ipv4>

Specifies the router for the destination of a static route for clients to store in their routing cache.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net static-route
router ipv4
```

```
delete service dhcp-server shared-network-name name subnet ipv4net static-route
router
```

```
show service dhcp-server shared-network-name name subnet ipv4net static-route
router
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
      subnet ipv4net {
        static-route {
          router ipv4
        }
      }
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .
<i>ipv4</i>	Specifies the IP address of the router for the destination of a static route for clients to store in their routing cache.

Default

None.

Usage Guidelines

Use this command to specify the router for the destination of a static route for clients to store in their routing cache. The other part of the static route is defined by the `service dhcp-server shared-network-name <name> subnet <ipv4net> static-route destination-subnet <ipv4net> command`.

Use the **set** form of this command to specify the router for the destination of a static route for clients to store in their routing cache.

Use the **delete** form of this command to remove the router configuration.

Use the **show** form of this command to view the router configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> subnet-parameters <params>

Specifies additional subnet DHCP Server parameters.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net
subnet-parameters params

delete service dhcp-server shared-network-name name subnet ipv4net
subnet-parameters params

show service dhcp-server shared-network-name name subnet ipv4net
subnet-parameters
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
      subnet ipv4net {
        subnet-parameters params
      }
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .
<i>params</i>	The string of parameters to be used by the DHCP Server. The string must be enclosed in single quotes.

Default

None.

Usage Guidelines

WARNING *This is an advanced feature and should only be used by advanced users in special situations.*

Use this command to specify additional subnet DHCP Server parameters that are not available within the **service dhcp-server** commands. The Vyatta DHCP Server commands are a subset of those available for DHCP Server configuration. This command provides access to all DHCP Server configuration parameters. Further information regarding DHCP Server configuration can be found on the **dhcpd.conf** man page. To access it, type the following at the Vyatta command prompt:

man dhcpd.conf

No validation is done by the Vyatta system prior to passing the parameter string to the DHCP Server process (dhcpd). Because of this it is imperative that the syntax described in the **dhcpd.conf** documentation be strictly followed. Failure to do so could result in the DHCP Server crashing. It is advisable to check the system log for errors when using these parameter strings. Also, the **show system processes** command can be used to determine if the **dhcpd** process is still running.

The scope of these parameters is for the specified subnet. They will apply to all **static-mappings** within this scope unless parameters with a narrower scope are specified using the **static-mapping-parameters** version of this command.

Multiple parameter strings can be specified. Each parameter string specified adds a separate line into the **dhcpd.conf** file.

Use the **set** form of this command to specify additional subnet DHCP Server parameters.

Use the **delete** form of this command to remove additional subnet DHCP Server parameters.

Use the **show** form of this command to view the additional subnet DHCP Server parameters configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> tftp-server-name <servername>

Specifies the name of a TFTP (Trivial File Transfer Protocol) server available to clients.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net tftp-server-name servername
```

```
delete service dhcp-server shared-network-name name subnet ipv4net tftp-server-name
```

```
show service dhcp-server shared-network-name name subnet ipv4net tftp-server-name
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
      subnet ipv4net {
        tftp-server-name servername
      }
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .
<i>servername</i>	Specifies the name of a TFTP server available to clients.

Default

None.

Usage Guidelines

Use this command to specify the name of a TFTP (Trivial File Transfer Protocol) server available to clients.

Use the **set** form of this command to specify the name of a TFTP (Trivial File Transfer Protocol) server available to clients.

Use the **delete** form of this command to remove the TFTP server configuration.

Use the **show** form of this command to view the TFTP server configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> time-offset <seconds>

Specifies the offset of the client's subnet in seconds from UTC (Coordinated Universal Time).

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net time-offset seconds
delete service dhcp-server shared-network-name name subnet ipv4net time-offset
show service dhcp-server shared-network-name name subnet ipv4net time-offset
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
      subnet ipv4net {
        time-offset seconds
      }
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .
<i>seconds</i>	Specifies the offset of the client's subnet in seconds from UTC (Coordinated Universal Time).

Default

None.

Usage Guidelines

Use this command to specify the offset of the client's subnet in seconds from UTC (Coordinated Universal Time).

Use the **set** form of this command to specify the offset of the client's subnet in seconds from UTC (Coordinated Universal Time).

Use the **delete** form of this command to remove the time offset configuration.

Use the **show** form of this command to view the time offset configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> time-server <ipv4>

Specifies the address of an RFC868 time server available to clients.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net time-server ipv4
delete service dhcp-server shared-network-name name subnet ipv4net time-server ipv4
show service dhcp-server shared-network-name name subnet ipv4net time-server
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
      subnet ipv4net {
        time-server ipv4
      }
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .
<i>ipv4</i>	Optional. Specifies the IP address of an RFC868 time server available to clients. Multiple time server addresses can be specified in separate commands. The list of time servers should be specified in order of preference.

Default

None.

Usage Guidelines

Use this command to specify the address of an RFC 868 time server available to clients.

Use the **set** form of this command to specify the address of a time server available to clients.

Use the **delete** form of this command to remove the time server configuration.

Use the **show** form of this command to view the time server configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> wins-server <ipv4>

Specifies the address of a WINS server that is available to DHCP clients.

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net wins-server ipv4
delete service dhcp-server shared-network-name name subnet ipv4net wins-server
ipv4
show service dhcp-server shared-network-name name subnet ipv4net wins-server
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
      subnet ipv4net {
        wins-server ipv4
      }
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .

ipv4 Optional. Multi-node. Gives the address of a NetBIOS Windows Internet Naming Server (WINS) available to DHCP clients on this subnet. The WINS server provides a name resolution services the Microsoft DHCP clients can use to correlate host names to IP addresses.

You can specify more than one WINS server by issuing this statement multiple times. The format is an IP address.

Default

None.

Usage Guidelines

Use this command to specify the address of a WINS server that is available to DHCP clients.

Use the **set** form of this command to specify the address of a WINS server that is available to DHCP clients.

Use the **delete** form of this command to remove the wins-server configuration.

Use the **show** form of this command to view the wins-server configuration.

service dhcp-server shared-network-name <name> subnet <ipv4net> wpad-url <url>

Specifies the Web Proxy Autodiscovery (WPAD) URL

Syntax

```
set service dhcp-server shared-network-name name subnet ipv4net wpad-url url
delete service dhcp-server shared-network-name name subnet ipv4net wpad-url
show service dhcp-server shared-network-name name subnet ipv4net wpad-url
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcp-server {
    shared-network-name name {
      subnet ipv4net {
        wpad-url url
      }
    }
  }
}
```

Parameters

<i>name</i>	Mandatory. The DHCP address pool.
<i>ipv4net</i>	Mandatory. Multi-node. The IPv4 network served by the DHCP address pool. The format is <i>ip-addr/prefix</i> .
<i>url</i>	Optional. Specifies the Web Proxy Autodiscovery (WPAD) URL

Default

None.

Usage Guidelines

Use this command to specify the Web Proxy Autodiscovery (WPAD) URL

Use the **set** form of this command to specify the Web Proxy Autodiscovery (WPAD) URL

Use the **delete** form of this command to remove the WPAD URL configuration.

Use the **show** form of this command to view the WPAD URL configuration.

show dhcp client leases

Displays DHCP information for interfaces configured as DHCP clients.

Syntax

```
show dhcp client leases [interface ethx]
```

Command Mode

Operational mode.

Parameters

<i>ethx</i>	Shows client information for the specified interface.
-------------	---

Usage Guidelines

Use this command to see current DHCP client information for interfaces configured as DHCP clients.

When used with no option, this command displays client information on all interfaces configured as DHCP clients. When an interface is provided, this command displays client information for the specified interface.

To configure an interface as a DHCP client, see the documentation for the interface.

Examples

[Example 1-8](#) shows sample output of `show dhcp client leases` with no option.

Example 1-8 "show dhcp client leases"

```
vyatta@R1> show dhcp client leases
interface : eth0
ip address : 192.168.1.157      [Active]
subnet mask: 255.255.255.0
router      : 192.168.1.254
name server: 192.168.1.254 74.150.163.68 74.150.163.100
dhcp server: 192.168.1.254
lease time  : 86400
last update: Wed Feb 17 02:18:20 GMT 2010
expiry      : Thu Feb 18 02:18:18 GMT 2010
```

```
reason      : BOUND  
vyatta@R1>
```

show dhcp leases

Displays current DHCP lease information.

Syntax

```
show dhcp leases [expired | pool pool-name]
```

Command Mode

Operational mode.

Parameters

<i>expired</i>	Shows expired leases.
pool <i>pool-name</i>	Shows lease information for the specified address pool.

Usage Guidelines

Use this command to see current lease information for DHCP subscribers or expired leases.

When used with no option, this command displays all current lease information. When address **pool** is provided, this command displays lease information for the specified address pool. When the **expired** option is specified, only expired leases are displayed.

DHCP is configured using the [service dhcp-server command](#).

Examples

[Example 1-9](#) shows sample output of **show dhcp leases** with no option.

Example 1-9 "show dhcp leases"

```
vyatta@R1> show dhcp leases

IP address      Hardware Address  Lease expiration  Pool  Client Name
-----
192.168.11.101  00:12:3f:e3:af:67  2007/06/23 16:28:26  POOL1  Laptop 9

vyatta@R1>
```


show dhcp statistics

Displays DHCP server statistics.

Syntax

```
show dhcp statistics [pool pool-name]
```

Command Mode

Operational mode.

Parameters

<i>pool-name</i>	Shows DHCP statistics for the specified address pool
------------------	--

Usage Guidelines

Use this command to see current lease information for DHCP subscribers.

When used with no option, this command displays all current lease information. When address pool is provided, this command displays lease information for the specified address pool.

DHCP is configured using the [service dhcp-server command](#).

Examples

[Example 1-10](#) shows sample output of `show dhcp statistics` with no option.

Example 1-10 "show dhcp statistics"

```
vyatta@R1> show dhcp statistics

pool                               pool size  # leased  # avail
----                               -
POOL1                              100        1         99

vyatta@R1>
```

Chapter 2: DHCPv6

This chapter describes how to implement DHCPv6 on the Vyatta system.

This chapter presents the following topics:

- [DHCPv6 Overview](#)
- [DHCPv6 Configuration](#)
- [DHCPv6 Commands](#)

DHCPv6 Overview

In general, the Dynamic Host Configuration Protocol (DHCP) allows dynamic assignment of reusable IP addresses and other configuration information to DHCP clients. DHCP is described in [Chapter 1: DHCP](#). The Dynamic Host Configuration Protocol for IPv6 (DHCPv6) provides a stateful address auto-configuration service and a stateful auto-configuration protocol for the IPv6 suite of protocols.

Although it bears many features in common with DHCP and shares a common architectural model, DHCPv6 is a separate protocol and is configured independently of DHCP. It is defined in separate protocol specification documents and the functions it provides differ in significant ways from those provided by DHCP. For example, DHCP and DHCPv6 utilize different UDP port numbers and they provide different sets of configuration parameters.

The Vyatta system provides DHCPv6 server functionality, DHCPv6 client-side functionality (currently only available on Ethernet interfaces), and a DHCPv6 relay function.

There are two common usage scenarios for DHCPv6 server. The first is one where addresses are assigned using SLAAC and the DHCPv6 server is only used to assign parameters to the clients. The second is one where both addresses and parameters are supplied by the DHCPv6 server. In either case, default router discovery is provided by the Neighbor Discovery protocol and so the DHCPv6 server does not need to provide that parameter.

DHCPv6 Configuration

This section includes the following examples:

- [Enabling the DHCPv6 Server](#)
- [Configuring DHCPv6 Address Pools](#)
- [Creating a Static Mapping](#)
- [Setting up DHCPv6 Relay](#)

Enabling the DHCPv6 Server

To use the DHCPv6 server on the Vyatta System, you must enable the DHCPv6 service. To enable the DHCPv6 service, perform the following steps in configuration mode:

Example 2-1 Enabling the DHCPv6 service

Step	Command
Enable DHCPv6 server.	vyatta@R1# set service dhcpv6-server
Commit the information.	vyatta@R1# commit
Show the configuration.	vyatta@R1# show service dhcpv6-server { }

Configuring DHCPv6 Address Pools

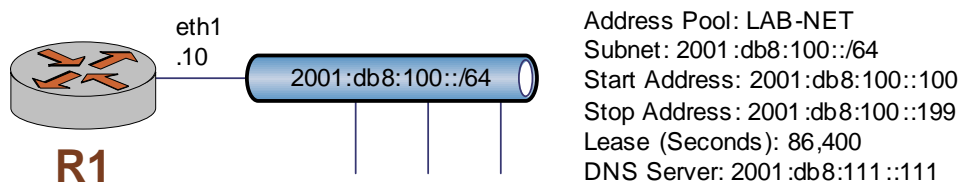
Configure DHCPv6 address pools if you want the system to act as a DHCPv6 server for the network.

[Example 2-2](#) creates an address pool within the shared network LAB-NET:

- **LAB-NET.** This shared network serves subnet 2001:db8:100::/64, which is connected directly to interface eth1. The lease time will remain at the default, 24 hours (86,400 seconds). The address pool will use the DNS name server at 2001:db8:111::111, which is on a separate subnet (not shown). The range of addresses is configured for .100 through .199.

[Figure 2-1](#) shows the sample address pool configuration.

Figure 2-1 DHCPv6 address pool configuration



To configure the DHCPv6 address pool, perform the following steps in configuration mode:

Example 2-2 Configuring a DHCPv6 address pool

Step	Command
Create the configuration node for LAB-NET on subnet 2001:db8:100::/64. Specify the start and stop IPv6 addresses for the pool.	<pre>vyatta@R1# set service dhcpv6-server shared-network-name LAB-NET subnet 2001:db8:100::/64 address-range start 2001:db8:100::100 stop 2001:db8:100::199</pre>
Specify a DNS server for LAB-NET.	<pre>vyatta@R1# set service dhcp-server shared-network-name LAB-NET subnet 2001:db8:100::/64 name-server 2001:db8:111::111</pre>
Commit the change.	<pre>vyatta@R1# commit</pre>
Show the configuration.	<pre>vyatta@R1# show service dhcpv6-server shared-network-name LAB-NET { subnet 2001:db8:100::/64 { address-range { start 2001:db8:100::100 { stop 2001:db8:100::199 } } name-server 2001:db8:111::111 } }</pre>
Show the interface configuration.	<pre>vyatta@R1# show interfaces ethernet eth1 { address 2001:db8:100::10/64 hw-id 00:0c:29:42:05:35 }</pre>

Creating a Static Mapping

There are situations where it makes sense to map a specific IPv6 address to a specific host rather than dynamically assign an IPv6 address from a pool of addresses. This is known as a “static mapping”.

Static mappings are defined using the **static-mapping** option of the **service dhcpv6-server** configuration node. This example adds a static mapping to LAB-NET created in [Example 2-2](#). [Example 2-3](#) does the following:

- Maps IP address 2001:db8:100::101 to the device with a MAC address of 00:15:c5:b3:2e:65.

Example 2-3 Creating a static mapping

Step	Command
Create a static mapping called “lab” and specify the static IP address within the LAB-NET pool.	<pre>vyatta@R1# set service dhcpv6-server shared-network-name LAB-NET subnet 2001:db8:100::/64 static-mapping lab ipv6-address 2001:db8:100::101</pre>
Specify the host identifier string (c5b32e65 - low order 4 bytes of MAC address) within the static mapping called “lab” in the LAB-NET pool.	<pre>vyatta@R1# set service dhcpv6-server shared-network-name LAB-NET subnet 2001:db8:100::/64 static-mapping lab identifier c5b32e65</pre>
Commit the information.	<pre>vyatta@R1# commit</pre>
Show the configuration.	<pre>vyatta@R1# show service dhcp-server shared-network-name LAB-NET shared-network-name LAB-NET { subnet 2001:db8:100::/64 { name-server 2001:db8:111::111 address-range { start 2001:db8:100::100 { stop 2001:db8:100::199 } } static-mapping lab { ipv6-address 2001:db8:100::101 identifier c5b32e65 } } }</pre>

Setting up DHCPv6 Relay

Configure DHCPv6 relay if you want the Vyatta system to forward DHCPv6 requests to another DHCPv6 server.

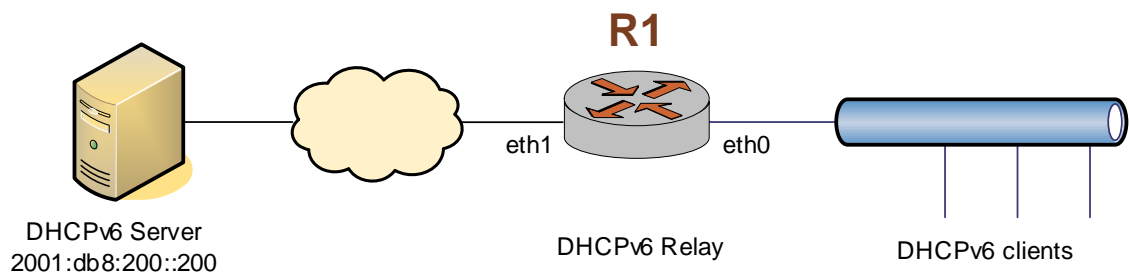
The DHCPv6 relay agent listens for requests sent by DHCPv6 clients and forwards them on to DHCPv6 servers. Since the client request packets and the relayed requests are often carried in IPv6 multicast packets, you must explicitly specify the interfaces that the relay agent is to listen for requests on, and the interfaces that it is to relay those requests on.

[Example 2-4](#) does the following:

- Configures both eth0 and eth1 for DHCPv6 relay. The system is expected to receive client requests for the DHCPv6 server through interface eth0. It will forward client-to-server DHCPv6 messages to the DHCPv6 server at 2001:db8:200::200 out through interface eth1. The DHCPv6 server refers to the interface on which client requests are received as the "listen interface", and refers to the interface out which requests are relayed as the "upstream interface."
- Other relay option parameters are left at default values. This means that R1 will use port 547 for DHCP messaging and will have a maximum hop count of 10 hops.

Figure 2-2 shows the sample DHCPv6 relay configuration.

Figure 2-2 DHCPv6 relay configuration



To configure DHCPv6 relay, perform the following steps in configuration mode:

Example 2-4 Setting up DHCPv6 relay

Step	Command
Enable DHCPv6 relay to listen on interface eth0.	<code>vyatta@R1# set service dhcpv6-relay listen-interface eth0</code>
Enable DHCPv6 relay to forward requests on interface eth1 specifying the DHCPv6 server address.	<code>vyatta@R1# set service dhcpv6-relay upstream-interface eth1 address 2001:db8:200::200</code>
Commit the change	<code>vyatta@R1# commit</code>
Show the configuration.	<code>vyatta@R1# show service dhcpv6-relay</code> <pre>listen-interface eth0 { } upstream-interface eth1 { address 2001:db8:200::200 }</pre>

Setting up DHCPv6 Client

Configure DHCPv6 client if you want the Vyatta system to acquire an IPv6 address and/or parameters from a DHCPv6 Server. Further information on configuring a DHCPv6 client can be found in the Ethernet Interfaces chapter of the *Vyatta LAN Interfaces Reference Guide*.

To configure a DHCPv6 client, perform the following steps in configuration mode:

Example 2-5 Setting up a DHCPv6 client on an Ethernet interface

Step	Command
Enable DHCPv6 client on interface eth0.	<code>vyatta@R1# set interface ethernet eth0 address dhcpv6</code>
Commit the change	<code>vyatta@R1# commit</code>
Show the configuration.	<code>vyatta@R1# show interface ethernet eth0 address dhcpv6 hw-id b6:cc:6a:95:22:b2</code>

DHCPv6 Commands

This chapter contains the following commands.

Configuration Commands

DHCPv6 Relay

<code>service dhcpv6-relay</code>	Configures the system to relay DHCPv6 client messages to a DHCPv6 server.
<code>service dhcpv6-relay listen-interface <interface></code>	Specifies the interface to use for accepting DHCPv6 requests.
<code>service dhcpv6-relay listen-port <port></code>	Specifies the port to use for accepting DHCPv6 requests.
<code>service dhcpv6-relay max-hop-count <count></code>	Specifies the maximum number of hops before discarding DHCPv6 packets.
<code>service dhcpv6-relay upstream-interface <interface></code>	Specifies the interface to use for forwarding DHCPv6 requests.
<code>service dhcpv6-relay use-interface-id-option</code>	Specifies that the relay agent is to insert the DHCPv6 interface ID option.

DHCPv6 Server

<code>service dhcpv6-server</code>	Enables DHCPv6 server functionality.
<code>service dhcpv6-server preference <preference></code>	Sets the DHCPv6 server preference.
<code>service dhcpv6-server shared-network-name <name></code>	Specifies the name of a physical subnet.
<code>service dhcpv6-server shared-network-name <name> subnet <ipv6net></code>	Specifies an IPv6 subnet that the DHCPv6 server will provide service to.
<code>service dhcpv6-server shared-network-name <name> subnet <ipv6net> address-range</code>	Specifies the ranges of IPv6 address that can be assigned to clients.
<code>service dhcpv6-server shared-network-name <name> subnet <ipv6net> address-range prefix <pool-ipv6net></code>	Specifies a pool of IPv6 addresses that can be assigned to clients.
<code>service dhcpv6-server shared-network-name <name> subnet <ipv6net> address-range start <start-ipv6></code>	Specifies an IPv6 address range that can be assigned to clients.
<code>service dhcpv6-server shared-network-name <name> subnet <ipv6net> description <desc></code>	Provides a description of the subnet.

<code>service dhcpv6-server shared-network-name <name> subnet <ipv6net> domain-search <domain></code>	Specifies the domain name to include in the domain search list.
<code>service dhcpv6-server shared-network-name <name> subnet <ipv6net> lease-time</code>	Specifies the client lease time.
<code>service dhcpv6-server shared-network-name <name> subnet <ipv6net> name-server <ipv6></code>	Specifies the address of a Recursive DNS Server for DHCPv6 clients.
<code>service dhcpv6-server shared-network-name <name> subnet <ipv6net> nis-domain <nis-domain-name></code>	Specifies the NIS domain for DHCPv6 clients.
<code>service dhcpv6-server shared-network-name <name> subnet <ipv6net> nisplus-domain <nisplus-domain-name></code>	Specifies the NIS+ domain for DHCPv6 clients.
<code>service dhcpv6-server shared-network-name <name> subnet <ipv6net> nisplus-server <ipv6></code>	Specifies the NIS+ server address for DHCPv6 clients.
<code>service dhcpv6-server shared-network-name <name> subnet <ipv6net> nis-server <ipv6></code>	Specifies the NIS server address for DHCPv6 clients.
<code>service dhcpv6-server shared-network-name <name> subnet <ipv6net> sip-server-address <ipv6></code>	Specifies the SIP server address for DHCPv6 clients.
<code>service dhcpv6-server shared-network-name <name> subnet <ipv6net> sip-server-name <sip-server-name></code>	Specifies the SIP server name for DHCPv6 clients.
<code>service dhcpv6-server shared-network-name <name> subnet <ipv6net> sntp-server-address <ipv6></code>	Specifies the SNTP server address for DHCPv6 clients.
<code>service dhcpv6-server shared-network-name <name> subnet <ipv6net> static-mapping <mapping-name></code>	Specifies an IPv6 address for a specific client.

Operational Commands

<code>release dhcpv6 interface <interface></code>	Releases the current DHCPv6 client lease on an interface.
<code>renew dhcpv6 interface <interface></code>	Renews the current DHCPv6 client lease on an interface.
<code>restart dhcpv6 relay-agent</code>	Restarts the DHCPv6 relay agent.
<code>restart dhcpv6 server</code>	Restarts the DHCPv6 server.
<code>show dhcpv6 client leases</code>	Displays DHCPv6 information for interfaces configured as DHCPv6 clients.
<code>show dhcpv6 relay-agent status</code>	Displays DHCPv6 relay agent status.
<code>show dhcpv6 server leases</code>	Displays the status of all leases assigned by the DHCPv6 server.
<code>show dhcpv6 server status</code>	Displays DHCPv6 server status.

release dhcpv6 interface <interface>

Releases the current DHCPv6 client lease on an interface.

Syntax

```
release dhcpv6 interface interface
```

Command Mode

Operational mode.

Parameters

<i>interface</i>	The interface using DHCPv6 to obtain an IP address.
------------------	---

Default

None.

Usage Guidelines

Use this command to release the DHCPv6 client lease on the specified interface. The interface must be configured to obtain an address via DHCPv6. If the DHCPv6 client was in the process of acquiring an address, it stops that process. The client will not attempt to acquire a new address via DHCPv6.

renew dhcpv6 interface <interface>

Renews the current DHCPv6 client lease on an interface.

Syntax

```
renew dhcpv6 interface interface
```

Command Mode

Operational mode.

Parameters

<i>interface</i>	The interface using DHCPv6 to obtain an IP address.
------------------	---

Default

None.

Usage Guidelines

Use this command to renew the DHCPv6 client lease on the specified interface. The interface must be configured to obtain an address via DHCPv6 server.

restart dhcpv6 relay-agent

Restarts the DHCPv6 relay agent.

Syntax

```
restart dhcpv6 relay-agent
```

Command Mode

Operational mode.

Parameters

None.

Usage Guidelines

Use this command to stop the DHCPv6 relay agent if it is running, then start it if it is configured. This command can be used if the DHCPv6 relay agent is not operating properly.

restart dhcpv6 server

Restarts the DHCPv6 server.

Syntax

```
restart dhcpv6 server
```

Command Mode

Operational mode.

Parameters

None.

Usage Guidelines

Use this command to stop and restart the DHCPv6 server. This command can be used if the DHCPv6 relay agent is not operating properly.

service dhcpv6-relay

Configures the system to relay DHCPv6 client messages to a DHCPv6 server.

Syntax

```
set service dhcpv6-relay
delete service dhcpv6-relay
show service dhcpv6-relay
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
    dhcpv6-relay {
    }
}
```

Parameters

None.

Default

None.

Usage Guidelines

Use this command to configure the system as a DHCPv6 relay agent.

The user must configure the interfaces on which the system will receive requests from DHCPv6 clients, and the interfaces that will be used to send requests to DHCPv6 servers. The relay agent will relay responses sent by the DHCPv6 servers back to the clients that sent the original request.

Use the **set** form of this command to define DHCPv6 relay configuration.

Use the **delete** form of this command to remove DHCPv6 relay configuration.

Use the **show** form of this command to view DHCPv6 relay configuration.

service dhcpv6-relay listen-interface <interface>

Specifies the interface to use for accepting DHCPv6 requests.

Syntax

```
set service dhcpv6-relay listen-interface interface [address ipv6]  
delete service dhcpv6-relay listen-interface interface [address]  
show service dhcpv6-relay listen-interface interface [address]
```

Command Mode

Configuration mode.

Configuration Statement

```
service {  
  dhcpv6-relay {  
    listen-interface interface {  
      address ipv6  
    }  
  }  
}
```

Parameters

<i>interface</i>	<p>Mandatory. Multi-node. The interface to use to accept DHCPv6 requests. At least one must be specified.</p> <p>You can assign multiple interfaces to be used for DHCPv6 by creating multiple listen-interface configuration nodes.</p>
<i>ipv6</i>	<p>Optional. IPv6 address on the named interface to listen on. If the address is not specified, one of the non-link-local addresses configured on the interface will be used.</p>

Default

None.

Usage Guidelines

Use this command to specify the interface to use to accept DHCPv6 requests.

Use the **set** form of this command to specify the interface to use to accept DHCPv6 requests.

Use the **delete** form of this command to remove the specified value.

Use the **show** form of this command to view the specified value.

service dhcpv6-relay listen-port <port>

Specifies the port to use for accepting DHCPv6 requests.

Syntax

```
set service dhcpv6-relay listen-port port
delete service dhcpv6-relay listen-port port
show service dhcpv6-relay listen-port port
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcpv6-relay {
    listen-port port
  }
}
```

Parameters

<i>port</i>	Optional. Port to listen for DHCPv6 client requests on.
-------------	---

Default

The DHCPv6 Relay agent listens on port 547.

Usage Guidelines

Use this command to specify the port to use to accept DHCPv6 requests.

Use the **set** form of this command to specify the port to use to accept DHCPv6 requests.

Use the **delete** form of this command to remove the specified value.

Use the **show** form of this command to view the specified value.

service dhcpv6-relay max-hop-count <count>

Specifies the maximum number of hops before discarding DHCPv6 packets.

Syntax

```
set service dhcpv6-relay max-hop-count count
delete service dhcpv6-relay max-hop-count count
show service dhcpv6-relay max-hop-count count
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcpv6-relay {
    max-hop-count count
  }
}
```

Parameters

<i>count</i>	Optional. Maximum hop count before discarding DHCPv6 packets. The default is 10.
--------------	--

Default

The maximum hop count is 10.

Usage Guidelines

Use this command to specify the maximum hop count on DHCPv6 packets before they are discarded. This is used to prevent loops.

Use the **set** form of this command to specify the maximum hop count on DHCPv6 packets before they are discarded.

Use the **delete** form of this command to remove the specified value.

Use the **show** form of this command to view the specified value.

service dhcpv6-relay upstream-interface <interface>

Specifies the interface to use for forwarding DHCPv6 requests.

Syntax

```
set service dhcpv6-relay upstream-interface interface [address ipv6]  
delete service dhcpv6-relay upstream-interface interface [address]  
show service dhcpv6-relay upstream-interface interface [address]
```

Command Mode

Configuration mode.

Configuration Statement

```
service {  
  dhcpv6-relay {  
    upstream-interface interface {  
      address ipv6  
    }  
  }  
}
```

Parameters

<i>interface</i>	Mandatory. Multi-node. The interface to use to forward DHCPv6 requests. At least one must be specified. You can assign multiple interfaces to be used for DHCPv6 forwarding by creating multiple upstream-interface configuration nodes.
<i>ipv6</i>	Optional. IPv6 address on the named interface to forward queries via. If the address is not specified, the queries will be sent to the all DHCP Relay Agents and Servers multicast group.

Default

None.

Usage Guidelines

Use this command to specify the interface to use to forward DHCPv6 requests.

Use the **set** form of this command to specify the interface to use to forward DHCPv6 requests.

Use the **delete** form of this command to remove the specified value.

Use the **show** form of this command to view the specified value.

service dhcpv6-relay use-interface-id-option

Specifies that the relay agent is to insert the DHCPv6 interface ID option.

Syntax

```
set service dhcpv6-relay use-interface-id-option
delete service dhcpv6-relay use-interface-id-option
show service dhcpv6-relay use-interface-id-option
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
    dhcpv6-relay {
        use-interface-id-option
    }
}
```

Parameters

None.

Default

The DHCPv6 interface ID option is not inserted if a single listen interface is defined, but is inserted automatically if more than one listen interface is defined.

Usage Guidelines

Use this command to specify that the DHCPv6 interface ID option is to be inserted. Note that this option is automatically inserted when two or more listen interfaces are configured, so this parameter only affects system behavior when only one listen interface is configured.

Use the **set** form of this command to specify that the DHCPv6 interface ID option is to be inserted.

Use the **delete** form of this command to return the system to its default behavior.

Use the **show** form of this command to view the specified value.

service dhcpv6-server

Enables DHCPv6 server functionality.

Syntax

```
set service dhcpv6-server
delete service dhcpv6-server
show service dhcpv6-server
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
    dhcpv6-server {
    }
}
```

Parameters

None.

Default

None.

Usage Guidelines

Use the **set** form of this command to enable DHCPv6 server functionality.
Use the **delete** form of this command to remove the DHCPv6 server functionality.
Use the **show** form of this command to view DHCPv6 server configuration.

service dhcpv6-server preference <preference>

Sets the DHCPv6 server preference.

Syntax

```
set service dhcpv6-server preference preference
delete service dhcpv6-server preference
show service dhcpv6-server preference
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
    dhcpv6-server {
        preference preference
    }
}
```

Parameters

<i>preference</i>	Optional. This is the preference value for the DHCPv6 server. The range is 0 to 255.
-------------------	--

Default

The DHCPv6 server preference is not set.

Usage Guidelines

Use this command to specify the DHCPv6 server preference to DHCPv6 clients. When clients receive advertise messages from multiple servers that include the preference value they choose the server with the highest preference value.

Use the **set** form of this command to specify the DHCPv6 server preference.

Use the **delete** form of this command to restore the default state.

Use the **show** form of this command to view DHCPv6 server preference.

service dhcpv6-server shared-network-name <name>

Specifies the name of a physical subnet.

Syntax

```
set service dhcpv6-server shared-network-name name
delete service dhcpv6-server shared-network-name name
show service dhcpv6-server shared-network-name name
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcpv6-server {
    shared-network-name name {
    }
  }
}
```

Parameters

<i>name</i>	Multi-node. The name for the physical subnet. You can define multiple subnets by creating multiple shared-network-name configuration nodes, each with a different name.
-------------	---

Default

None.

Usage Guidelines

Use this command to define a physical subnet with the specified name. The physical subnet created may or may not be directly connected to the system. The name is arbitrary and need not match any name used for this subnet elsewhere within the system.

Use the set form of this command to create a physical subnet definition

Use the **delete** form of this command to remove a physical subnet definition.
Use the **show** form of this command to view physical subnet configuration.

service dhcpv6-server shared-network-name <name> subnet <ipv6net>

Specifies an IPv6 subnet that the DHCPv6 server will provide service to.

Syntax

```
set service dhcpv6-server shared-network-name name subnet ipv6net
delete service dhcpv6-server shared-network-name name subnet ipv6net
show service dhcpv6-server shared-network-name name subnet ipv6net
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcpv6-server {
    shared-network-name name {
      subnet ipv6net {
      }
    }
  }
}
```

Parameters

<i>name</i>	The name of the physical subnet.
<i>ipv6net</i>	Optional. Multi-node. An IPv6 subnet that the DHCPv6 server will provide service to. The format is <i>ipv6-addr/prefix</i> .

Default

None.

Usage Guidelines

Use this command to specify an IPv6 subnet to be served. The DHCPv6 server will respond to clients on this subnet using the parameters and addresses defined in this subtree.

Use the **set** form of this command to specify the DHCPv6 subnet.

Use the **delete** form of this command to remove DHCPv6 subnet configuration.

Use the **show** form of this command to view DHCPv6 subnet configuration.

service dhcpv6-server shared-network-name <name> subnet <ipv6net> address-range

Specifies the ranges of IPv6 address that can be assigned to clients.

Syntax

```
set service dhcpv6-server shared-network-name name subnet ipv6net address-range
delete service dhcpv6-server shared-network-name name subnet ipv6net
address-range
show service dhcpv6-server shared-network-name name subnet ipv6net
address-range
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcpv6-server {
    shared-network-name name {
      subnet ipv6net {
        address-range {
          }
        }
      }
    }
  }
}
```

Parameters

<i>name</i>	The name of a physical subnet.
<i>ipv6net</i>	Optional. Multi-node. The IPv6 subnet served by the DHCPv6 server. The format is <i>ipv6-addr/prefix</i> .

Default

None.

Usage Guidelines

Use this command to specify the ranges of IPv6 address that can be assigned to clients. If no address range parameters are provided, then the DHCPv6 server will operate in a stateless mode on this subnet. That means that it will not assign dynamic IPv6 addresses and thus will not maintain state information about those assignments.

Use the **set** form of this command to create the address-range configuration node.

Use the **delete** form of this command to remove the address-range configuration.

Use the **show** form of this command to view the address-range configuration.

service dhcpv6-server shared-network-name <name> subnet <ipv6net> address-range prefix <pool-ipv6net>

Specifies a pool of IPv6 addresses that can be assigned to clients.

Syntax

```
set service dhcpv6-server shared-network-name name subnet ipv6net address-range  
prefix ipv6net [temporary]
```

```
delete service dhcpv6-server shared-network-name name subnet ipv6net  
address-range prefix ipv6net [temporary]
```

```
show service dhcpv6-server shared-network-name name subnet ipv6net  
address-range prefix ipv6net
```

Command Mode

Configuration mode.

Configuration Statement

```
service {  
  dhcpv6-server {  
    shared-network-name name {  
      subnet ipv6net {  
        address-range {  
          prefix pool-ipv6net {  
            temporary  
          }  
        }  
      }  
    }  
  }  
}
```

Parameters

<i>name</i>	The name of a physical subnet.
<i>ipv6net</i>	Optional. Multi-node. The IPv6 subnet served by the DHCPv6 server. The format is <i>ipv6-addr/prefix</i> .

<i>pool-ipv6net</i>	Optional. The IPv6 address prefix defining a pool of consecutive addresses available for assignment to clients. The prefix specified must be a subset of the subnet prefix.
temporary	Optional. If set, indicates that the range can be used for assigning privacy addresses (RFC 4941).

Default

None.

Usage Guidelines

- Use this command to specify a pool of IPv6 address that can be assigned to clients.
- Use the **set** form of this command to create the address-range prefix configuration.
- Use the **delete** form of this command to remove the address-range prefix configuration.
- Use the **show** form of this command to view the address-range prefix configuration.

service dhcpv6-server shared-network-name <name> subnet <ipv6net> address-range start <start-ipv6>

Specifies an IPv6 address range that can be assigned to clients.

Syntax

```
set service dhcpv6-server shared-network-name name subnet ipv6net address-range
start start-ipv6 [stop stop-ipv6 | temporary]
```

```
delete service dhcpv6-server shared-network-name name subnet ipv6net
address-range start start-ipv6 [stop | temporary]
```

```
show service dhcpv6-server shared-network-name name subnet ipv6net
address-range start start-ipv6 [stop | temporary]
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcpv6-server {
    shared-network-name name {
      subnet ipv6net {
        address-range {
          start start ipv6 {
            stop stop ipv6
            temporary
          }
        }
      }
    }
  }
}
```

Parameters

<i>name</i>	The name of a physical subnet.
<i>ipv6net</i>	Optional. Multi-node. The IPv6 subnet served by the DHCPv6 server. The format is <i>ipv6-addr/prefix</i> .

<i>start-ipv6</i>	Optional. Multi-node. The IPv6 start address in a range of consecutive addresses available for assignment to clients.
<i>stop-ipv6</i>	Optional. The last IPv6 address in a range of consecutive addresses available for assignment to clients. If not set, only the start address is available for assignment.
temporary	Optional. If set, indicates that the range can be used for assigning privacy addresses (RFC 4941).

Default

None.

Usage Guidelines

Use this command to specify a range of IPv6 address that can be assigned to clients.

Use the **set** form of this command to create the address-range configuration.

Use the **delete** form of this command to remove the address-range configuration.

Use the **show** form of this command to view the address-range configuration.

service dhcpv6-server shared-network-name <name> subnet <ipv6net> description <desc>

Provides a description of the subnet.

Syntax

```
set service dhcpv6-server shared-network-name name subnet ipv6net description  
desc
```

```
delete service dhcpv6-server shared-network-name name subnet ipv6net description
```

```
show service dhcpv6-server shared-network-name name subnet ipv6net description
```

Command Mode

Configuration mode.

Configuration Statement

```
service {  
    dhcp-server {  
        shared-network-name name {  
            subnet ipv6net {  
                description desc  
            }  
        }  
    }  
}
```

Parameters

<i>name</i>	The name of a physical subnet.
<i>ipv6net</i>	Optional. Multi-node. The IPv6 subnet served by the DHCPv6 server. The format is <i>ipv6-addr/prefix</i> .
<i>desc</i>	A description of the specified subnet.

Default

None.

Usage Guidelines

Use this command to provide a description of the subnet.

Use the **set** form of this command to provide a description of the subnet.

Use the **delete** form of this command to remove the subnet description.

Use the **show** form of this command to view the subnet description.

service dhcpv6-server shared-network-name <name> subnet <ipv6net> domain-search <domain>

Specifies the domain name to include in the domain search list.

Syntax

```
set service dhcpv6-server shared-network-name name subnet ipv6net domain-search domain
```

```
delete service dhcpv6-server shared-network-name name subnet ipv6net domain-search domain
```

```
show service dhcpv6-server shared-network-name name subnet ipv6net domain-search
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcpv6-server {
    shared-network-name name {
      subnet ipv6net {
        domain-search domain
      }
    }
  }
}
```

Parameters

<i>name</i>	The name of a physical subnet.
<i>ipv6net</i>	Optional. Multi-node. The IPv6 subnet served by the DHCPv6 server. The format is <i>ipv6-addr/prefix</i> .
<i>domain</i>	Multi-node. The domain name to include in the domain search list. You can specify more than one domain name by including this parameter multiple times.

Default

None.

Usage Guidelines

Use this command to specify a domain name that is to be included in the domain search list. Hosts use the domain search list when resolving hostnames in the DNS. Values are listed in the option, and communicated to the client, in the order entered.

Use the **set** form of this command to specify the domain name.

Use the **delete** form of this command to remove the domain name configuration.

Use the **show** form of this command to view the domain name configuration.

service dhcpv6-server shared-network-name <name> subnet <ipv6net> lease-time

Specifies the client lease time.

Syntax

```
set service dhcpv6-server shared-network-name name subnet ipv6net lease-time
{default default-time | maximum max-time | minimum min-time}
```

```
delete service dhcpv6-server shared-network-name name subnet ipv6net lease-time
{default | maximum | minimum}
```

```
show service dhcpv6-server shared-network-name name subnet ipv6net lease-time
{default | maximum | minimum}
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcpv6-server {
    shared-network-name name {
      subnet ipv6net {
        lease-time {
          default default-time
          maximum max-time
          minimum min-time
        }
      }
    }
  }
}
```

Parameters

<i>name</i>	The name of a physical subnet.
<i>ipv6net</i>	Optional. Multi-node. The IPv6 subnet served by the DHCPv6 server. The format is <i>ipv6-addr/prefix</i> .

<i>default-time</i>	The default lease time (in seconds). This is the lease time that will be assigned to a client if it doesn't request a specific lease time.
<i>maximum-time</i>	The maximum time (in seconds) that will be assigned to a lease. If the client requests a lease time larger than this, this value will be used instead.
<i>minimum-time</i>	The minimum time (in seconds) that will be assigned to a lease. If the client requests a lease time smaller than this, this value will be used instead.

Default

None.

Usage Guidelines

Use this command to specify parameters related to client lease time.

Use the **set** form of this command to specify the lease time parameter.

Use the **delete** form of this command to remove the lease time configuration.

Use the **show** form of this command to view the lease time configuration.

service dhcpv6-server shared-network-name <name> subnet <ipv6net> name-server <ipv6>

Specifies the address of a Recursive DNS Server for DHCPv6 clients.

Syntax

```
set service dhcpv6-server shared-network-name name subnet ipv6net name-server ipv6
```

```
delete service dhcpv6-server shared-network-name name subnet ipv6net name-server ipv6
```

```
show service dhcpv6-server shared-network-name name subnet ipv6net name-server
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcpv6-server {
    shared-network-name name {
      subnet ipv6net {
        name-server ipv6
      }
    }
  }
}
```

Parameters

<i>name</i>	The name of a physical subnet.
<i>ipv6net</i>	Optional. Multi-node. The IPv6 subnet served by the DHCPv6 server. The format is <i>ipv6-addr/prefix</i> .
<i>ipv6</i>	Multi-node. The IPv6 address of the Recursive DNS Server (RDNSS). You can specify more than one name server by specifying this parameter multiple times.

Default

None.

Usage Guidelines

Use this command to specify the address of a Recursive DNS Server that is available to DHCPv6 clients. Values are listed in the order entered.

Use the **set** form of this command to specify the address of a Recursive DNS Server.

Use the **delete** form of this command to remove Recursive DNS Server configuration.

Use the **show** form of this command to view Recursive DNS Server configuration.

service dhcpv6-server shared-network-name <name> subnet <ipv6net> nis-domain <nis-domain-name>

Specifies the NIS domain for DHCPv6 clients.

Syntax

```
set service dhcpv6-server shared-network-name name subnet ipv6net nis-domain
nis-domain-name
```

```
delete service dhcpv6-server shared-network-name name subnet ipv6net nis-domain
```

```
show service dhcpv6-server shared-network-name name subnet ipv6net nis-domain
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcpv6-server {
    shared-network-name name {
      subnet ipv6net {
        nis-domain nis-domain-name
      }
    }
  }
}
```

Parameters

<i>name</i>	The name of a physical subnet.
<i>ipv6net</i>	Optional. Multi-node. The IPv6 subnet served by the DHCPv6 server. The format is <i>ipv6-addr/prefix</i> .
<i>nis-domain-name</i>	The NIS domain name for DHCPv6 clients.

Default

None.

Usage Guidelines

Use this command to specify a Network Information Service (NIS) domain that is to be used for DHCPv6 clients.

Use the **set** form of this command to specify the NIS domain.

Use the **delete** form of this command to remove the NIS domain configuration.

Use the **show** form of this command to view the NIS domain configuration.

service dhcpv6-server shared-network-name <name> subnet <ipv6net> nisplus-domain <nisplus-domain-name>

Specifies the NIS+ domain for DHCPv6 clients.

Syntax

```
set service dhcpv6-server shared-network-name name subnet ipv6net nisplus-domain
nisplus-domain-name
delete service dhcpv6-server shared-network-name name subnet ipv6net
nisplus-domain
show service dhcpv6-server shared-network-name name subnet ipv6net
nisplus-domain
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcpv6-server {
    shared-network-name name {
      subnet ipv6net {
        nisplus-domain nisplus-domain-name
      }
    }
  }
}
```

Parameters

<i>name</i>	The name of a physical subnet.
<i>ipv6net</i>	Optional. Multi-node. The IPv6 subnet served by the DHCPv6 server. The format is <i>ipv6-addr/prefix</i> .
<i>nisplus-domain-name</i>	The NIS+ domain name for DHCPv6 clients.

Default

None.

Usage Guidelines

Use this command to specify a Network Information Service Plus (NIS+) domain that is to be used for DHCPv6 clients

Use the **set** form of this command to specify the NIS+ domain.

Use the **delete** form of this command to remove the NIS+ domain configuration.

Use the **show** form of this command to view the NIS+ domain configuration.

service dhcpv6-server shared-network-name <name> subnet <ipv6net> nisplus-server <ipv6>

Specifies the NIS+ server address for DHCPv6 clients.

Syntax

```
set service dhcpv6-server shared-network-name name subnet ipv6net nisplus-server ipv6
```

```
delete service dhcpv6-server shared-network-name name subnet ipv6net nisplus-server ipv6
```

```
show service dhcpv6-server shared-network-name name subnet ipv6net nisplus-server
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcpv6-server {
    shared-network-name name {
      subnet ipv6net {
        nisplus-server ipv6
      }
    }
  }
}
```

Parameters

<i>name</i>	The name of a physical subnet.
<i>ipv6net</i>	Optional. Multi-node. The IPv6 subnet served by the DHCPv6 server. The format is <i>ipv6-addr/prefix</i> .
<i>ipv6</i>	Multi-node. The NIS+ server address for DHCPv6 clients. You can specify more than one NIS+ server address by issuing this statement multiple times.

Default

None.

Usage Guidelines

Use this command to specify a Network Information Service Plus (NIS+) server address for DHCPv6 clients. Values are listed in the order entered.

Use the **set** form of this command to specify the NIS+ server address.

Use the **delete** form of this command to remove the NIS+ server address configuration.

Use the **show** form of this command to view the NIS+ server address configuration.

service dhcpv6-server shared-network-name <name> subnet <ipv6net> nis-server <ipv6>

Specifies the NIS server address for DHCPv6 clients.

Syntax

```
set service dhcpv6-server shared-network-name name subnet ipv6net nis-server ipv6
delete service dhcpv6-server shared-network-name name subnet ipv6net nis-server
ipv6
show service dhcpv6-server shared-network-name name subnet ipv6net nis-server
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcpv6-server {
    shared-network-name name {
      subnet ipv6net {
        nis-server ipv6
      }
    }
  }
}
```

Parameters

<i>name</i>	The name of a physical subnet.
<i>ipv6net</i>	Optional. Multi-node. The IPv6 subnet served by the DHCPv6 server. The format is <i>ipv6-addr/prefix</i> .
<i>ipv6</i>	Multi-node. The NIS server address for DHCPv6 clients. You can specify more than one NIS server address by issuing this statement multiple times.

Default

None.

Usage Guidelines

Use this command to specify a Network Information Service (NIS) server address for DHCPv6 clients. Values are listed in the order entered.

Use the **set** form of this command to specify the NIS server address.

Use the **delete** form of this command to remove the NIS server address configuration.

Use the **show** form of this command to view the NIS server address configuration.

service dhcpv6-server shared-network-name <name> subnet <ipv6net> sip-server-address <ipv6>

Specifies the SIP server address for DHCPv6 clients.

Syntax

```
set service dhcpv6-server shared-network-name name subnet ipv6net
sip-server-address ipv6

delete service dhcpv6-server shared-network-name name subnet ipv6net
sip-server-address ipv6

show service dhcpv6-server shared-network-name name subnet ipv6net
sip-server-address
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcpv6-server {
    shared-network-name name {
      subnet ipv6net {
        sip-server-address ipv6
      }
    }
  }
}
```

Parameters

<i>name</i>	The name of a physical subnet.
<i>ipv6net</i>	Optional. Multi-node. The IPv6 subnet served by the DHCPv6 server. The format is <i>ipv6-addr/prefix</i> .
<i>ipv6</i>	Multi-node. The SIP server address for DHCPv6 clients. You can specify more than one SIP server address by issuing this statement multiple times.

Default

None.

Usage Guidelines

Use this command to specify a Session Initiation Protocol (SIP) server address for DHCPv6 clients. Values are listed in the order entered.

Use the **set** form of this command to specify the SIP server address.

Use the **delete** form of this command to remove the SIP server address configuration.

Use the **show** form of this command to view the SIP server address configuration.

service dhcpv6-server shared-network-name <name> subnet <ipv6net> sip-server-name <sip-server-name>

Specifies the SIP server name for DHCPv6 clients.

Syntax

```
set service dhcpv6-server shared-network-name name subnet ipv6net  
sip-server-name sip-server-name  
  
delete service dhcpv6-server shared-network-name name subnet ipv6net  
sip-server-name sip-server-name  
  
show service dhcpv6-server shared-network-name name subnet ipv6net  
sip-server-name
```

Command Mode

Configuration mode.

Configuration Statement

```
service {  
    dhcpv6-server {  
        shared-network-name name {  
            subnet ipv6net {  
                sip-server-name sip-server-name  
            }  
        }  
    }  
}
```

Parameters

<i>name</i>	The name of a physical subnet.
<i>ipv6net</i>	Optional. Multi-node. The IPv6 subnet served by the DHCPv6 server. The format is <i>ipv6-addr/prefix</i> .
<i>sip-server-name</i>	Multi-node. The SIP server name for DHCPv6 clients. You can specify more than one SIP server name by issuing this statement multiple times.

Default

None.

Usage Guidelines

Use this command to specify a Session Initiation Protocol (SIP) server name for DHCPv6 clients. Values are listed in the order entered.

Use the **set** form of this command to specify the SIP server name.

Use the **delete** form of this command to remove the SIP server name configuration.

Use the **show** form of this command to view the SIP server name configuration.

service dhcpv6-server shared-network-name <name> subnet <ipv6net> sntp-server-address <ipv6>

Specifies the SNTP server address for DHCPv6 clients.

Syntax

```
set service dhcpv6-server shared-network-name name subnet ipv6net
sntp-server-address ipv6

delete service dhcpv6-server shared-network-name name subnet ipv6net
sntp-server-address ipv6

show service dhcpv6-server shared-network-name name subnet ipv6net
sntp-server-address
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcpv6-server {
    shared-network-name name {
      subnet ipv6net {
        sntp-server-address ipv6
      }
    }
  }
}
```

Parameters

<i>name</i>	The name of a physical subnet.
<i>ipv6net</i>	Optional. Multi-node. The IPv6 subnet served by the DHCPv6 server. The format is <i>ipv6-addr/prefix</i> .
<i>ipv6</i>	Multi-node. The SNTP server address for DHCPv6 clients. You can specify more than one SNTP server address by issuing this statement multiple times.

Default

None.

Usage Guidelines

Use this command to specify a Simple Network Time Protocol (SNTP) server address for DHCPv6 clients. Values are listed in the order entered. SNTP is a subset of the Network Time Protocol (NTP), and includes extensions to operate over IPv6. It is specified in: <http://tools.ietf.org/html/rfc4330>.

Use the **set** form of this command to specify the SNTP server address.

Use the **delete** form of this command to remove the SNTP server address configuration.

Use the **show** form of this command to view the SNTP server address configuration.

service dhcpv6-server shared-network-name <name> subnet <ipv6net> static-mapping <mapping-name>

Specifies an IPv6 address for a specific client.

Syntax

```
set service dhcpv6-server shared-network-name name subnet ipv6net static-mapping
mapping-name [ipv6-address ipv6 | identifier identifier]
```

```
delete service dhcpv6-server shared-network-name name subnet ipv6net
static-mapping mapping-name [ipv6-address | identifier]
```

```
show service dhcpv6-server shared-network-name name subnet ipv6net
static-mapping mapping-name [ipv6-address | identifier]
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dhcpv6-server {
    shared-network-name name {
      subnet ipv6net {
        static-mapping mapping-name{
          ipv6-address ipv6
          identifier identifier
        }
      }
    }
  }
}
```

Parameters

<i>name</i>	The name of a physical subnet.
<i>ipv6net</i>	Optional. Multi-node. The IPv6 subnet served by the DHCPv6 server. The format is <i>ipv6-addr/prefix</i> .
<i>mapping-name</i>	A name to identify the static mapping.
<i>ipv6</i>	The IPv6 address that will be assigned to the client.

<i>identifier</i>	The string used to identify the client. It will be compared against the ia-na option sent by the client. This value is typically the low-order 4 bytes of the client's MAC addr.
-------------------	--

Default

None.

Usage Guidelines

Use this command to specify an IPv6 address for a specific client.

Use the **set** form of this command to create the prefix-delegation configuration.

Use the **delete** form of this command to remove the prefix-delegation configuration.

Use the **show** form of this command to view the prefix-delegation configuration.

show dhcpv6 client leases

Displays DHCPv6 information for interfaces configured as DHCPv6 clients.

Syntax

```
show dhcpv6 client leases
```

Command Mode

Operational mode.

Parameters

None.

Usage Guidelines

Use this command to see current DHCPv6 client information for interfaces configured as DHCPv6 clients. If an address has been acquired, it shows the lease parameters associated with that address, including the unique ID, the IPv6 address assigned, and the time remaining.

To configure an interface as a DHCPv6 client, see the documentation for the interface.

show dhcpv6 relay-agent status

Displays DHCPv6 relay agent status.

Syntax

```
show dhcpv6 relay-agent status
```

Command Mode

Operational mode.

Parameters

None.

Usage Guidelines

Use this command to display status on the DHCPv6 relay agent. This includes an indication of whether the DHCPv6 relay agent is configured or not. If it is configured, the command indicates whether the DHCPv6 relay agent is running or not.

show dhcpv6 server leases

Displays the status of all leases assigned by the DHCPv6 server.

Syntax

```
show dhcpv6 server leases
```

Command Mode

Operational mode.

Parameters

None.

Usage Guidelines

Use this command to display the status of all leases assigned by the DHCPv6 server. For each lease, it shows the unique ID of the client, the IPv6 address assigned, and the time remaining on the lease.

show dhcpv6 server status

Displays DHCPv6 server status.

Syntax

```
show dhcpv6 server status
```

Command Mode

Operational mode.

Parameters

None.

Usage Guidelines

Use this command to display status on the DHCPv6 server. This includes an indication of whether the DHCPv6 server is configured or not. If it is configured, the command indicates whether the DHCPv6 server is running or not. The command will note whether any address ranges are configured or not. If none are configured, then the server can only assign parameters; it can not assign addresses.

Chapter 3: DNS

This chapter explains how to use Domain Name System (DNS) on the Vyatta System.

This chapter presents the following topics:

- [DNS Configuration](#)
- [DNS Commands](#)

DNS Configuration

This section presents the following topics:

- [DNS Overview](#)
- [DNS Configuration Examples](#)

DNS Overview

The Domain Name System (DNS) is an Internet directory service providing mappings between human-readable domain names and numeric IP addresses. DNS mappings are recorded in resource records that are stored on name servers distributed throughout the Internet. A device needing to access a host across the Internet sends a DNS query to a name server. The name server consults its resource records and returns an answer with the IP address of the specified name.

The DNS system forms its own network on the Internet. If the requested record is not local to the consulted name server, the name server consults another name server, and so on, until the requested information is located and returned.

There are billions of resource records in the DNS system. To keep the data manageable, the records are divided into zones, which contain resource records for a DNS domain or subdomain.

The Vyatta system supports three main DNS-related features:

- [System DNS](#)
- [Dynamic DNS](#)
- [DNS Forwarding](#)

System DNS

In system DNS, you define the list of name servers that the Vyatta system can use to resolve hostnames to IP addresses. This list is created using the `system name-server` command. (The `system name-server` command is described in the *Vyatta Basic System Reference Guide*; for your convenience, an example of system DNS is provided in this chapter in “Example 3-1 Configuring static access to a DNS name server.”)

Dynamic DNS

Originally, DNS mappings were statically specified in “zone files,” which were periodically loaded onto DNS servers. This worked reasonably well at a time when most hosts were configured with static IP addresses. However, since the 1990s, many

network endpoints have been assigned IP addresses using dynamic protocols such as Dynamic Host Configuration Protocol. Until 1997, devices with DHCP-assigned IP addresses essentially could not participate in the DNS system.

In 1997, the Internet Engineering Task Force (IETF) published RFC 2136, *Dynamic Updates in the Domain Name System*, describing the dynamic DNS update protocol. Dynamic DNS (DDNS) provides a mechanism for DNS entries to be established and removed dynamically. Devices using dynamic DNS can notify a domain name server in real time of changes to host name, IP address, or other DNS-related information.

This feature is particularly useful for systems where a dynamic IP address is provided by the Internet Service Provider (ISP). Whenever the IP address changes, the Vyatta system updates a DDNS service provider with the change. The DDNS provider is responsible for propagating this change to other DNS servers. The Vyatta system supports a number of DDNS providers.

DNS Forwarding

In many environments using consumer-level ISP connections, the ISP both assigns the client router with its IP address and notifies the client router of the DNS server to use. In many cases, the IP address of the DNS server itself is assigned through DHCP and changes periodically; the ISP notifies the client router of the change in DNS server IP address through periodic updates. This makes it problematic to statically configure a DNS server IP address on the client router's DHCP server for its LAN clients.

In cases like these, the Vyatta system can use DNS forwarding (also called DNS relay) to maintain connectivity between hosts on its network and the ISP's DNS server.

When DNS forwarding is used, the client router offers its own client-side IP address (which is static) as the DNS server address to the hosts on its network, so that all client DNS requests are made to the client router's client-side address. When DNS requests are made, the client router forwards them to the ISP DNS server; answers are directed back to the client router and forwarded through to the client hosts. If the ISP changes the address of its DNS server, the client router simply records the new address of the server. The server address remains unchanged from the point of view of the LAN clients.

Another advantage to DNS forwarding is that DNS requests are cached in the Vyatta system (until either the time-to-live value in the DNS record expires or the cache fills). Subsequent requests for a cached entry are responded to locally, with a corresponding reduction in WAN traffic.

DNS Configuration Examples

This section presents the following topics:

- [Configuring Access to a Name Server](#)
- [Configuring Dynamic DNS](#)

- [Configuring DNS Forwarding](#)
- [Statically Configured Entries and DNS Forwarding](#)

This section includes the following examples:

- Example 3-1 Configuring static access to a DNS name server
- Example 3-2 Setting up dynamic DNS
- Example 3-3 Setting up DNS forwarding

Configuring Access to a Name Server

In order to be able to translate host names (such as `www.vyatta.com`) to IP addresses (such as `69.59.150.141`), the system must be able to access a DNS server.

Configuring access to a DNS server is a function of basic system management, and is described in the *Vyatta Basic System Reference Guide*. For your convenience, the configuration example is repeated here.

[Example 3-1](#) configures a static IP address for the DNS server at address `12.34.56.100`. To configure the Vyatta system in this way, perform the following steps.

Example 3-1 Configuring static access to a DNS name server

Step	Command
Specify the IP address of the DNS server.	<code>vyatta@R1# set system name-server 12.34.56.100</code> [edit]

Configuring Dynamic DNS

[Figure 3-1](#) shows a typical DDNS scenario. In this scenario:

- The Vyatta system (R1) is connected to an ISP via `eth0`.
- The network domain is **company.com**.
- The Vyatta system hostname is **r1.company.com**.
- The company's web server is located behind the Vyatta system. Its hostname is **www.company.com**.
- The ISP is providing dynamic IP addresses to its clients through DHCP.
- The IP address of the Vyatta system's `eth0` interface changes over time due to the dynamic assignment by the ISP.

- The company's web server is behind a Network Address Translation (NAT) device on the Vyatta system, so its IP address (as viewed from the Internet) changes when the ISP assigns a new address to the eth0 interface.
- Because the web server's address changes, responses to DNS queries for **www.company.com** must also change to the new IP address. DDNS resolves this problem.

DDNS allows the Vyatta system (R1) to update the DNS system with the new IP address information for any local hostnames (for example, **r1.company.com**, and **www.company.com**) whenever the IP address on eth0 changes. The set-up process is as follows:

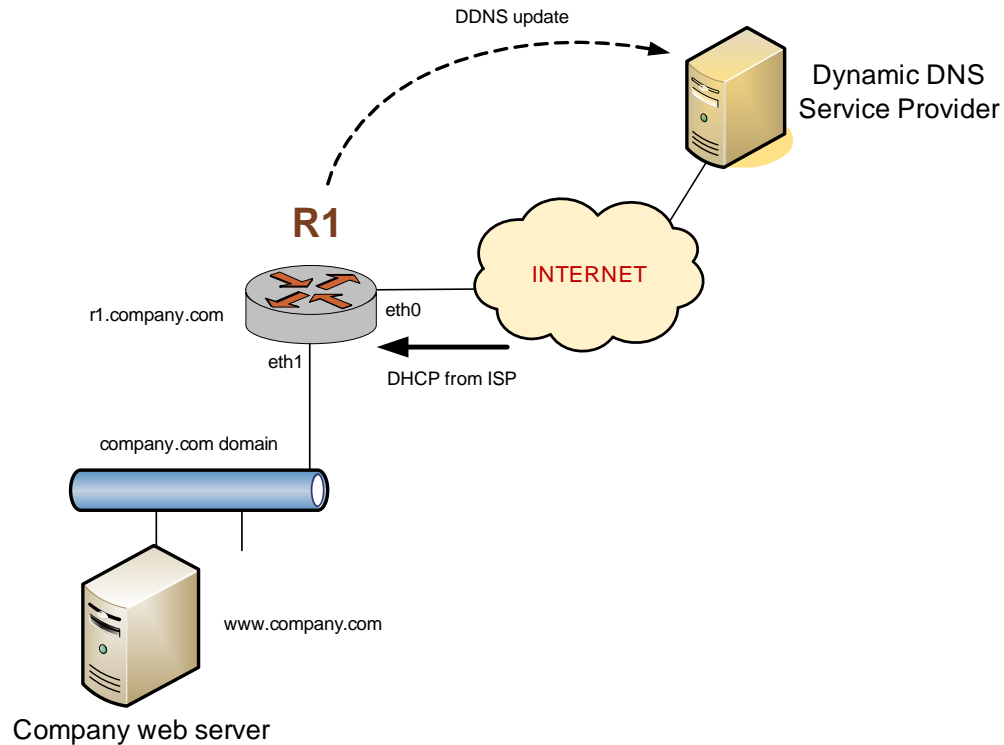
- 1 Sign up for DDNS service from one of the supported service providers:
DNS Park: www.dnspark.com
DSL Reports: www.dslreports.com
DynDNS: www.dyndns.com
easyDNS: www.easydns.com
namecheap: www.namecheap.com
SiteSolutions: www.sitelutions.com
zoneedit: www.zoneedit.com.

Instructions for sign-up are available at the individual providers.

- 2 Configure the Vyatta system (R1 in the example) with service provider information such as the service name, a login ID, and a password so that it knows how to log on and send updates to the DDNS service provider.
- 3 Configure the Vyatta system with the hostnames that must be updated in the DNS system when the IP address on eth0 changes.

NOTE Depending on the service provider, hostnames may or may not need to include the domain name (e.g. “www” versus “www.company.com”).

Figure 3-1 Dynamic DNS



Example 3-2 sets up DDNS for DDNS service provider DynDNS. This example assumes that you have already signed up with DynDNS). To configure the Vyatta system in this way, perform the following steps in configuration mode.

Example 3-2 Setting up dynamic DNS

Step	Command
Set the service provider.	<code>vyatta@R1# set service dns dynamic interface eth0 service dyndns</code>
Set the DDNS service provider login id (e.g. vtest).	<code>vyatta@R1# set service dns dynamic interface eth0 service dyndns login vtest</code>
Set the DDNS service provider password (e.g. testpwd).	<code>vyatta@R1# set service dns dynamic interface eth0 service dyndns password testpwd</code>
Specify r1 as a hostname whose DNS entry needs to be updated when the IP address on eth0 changes.	<code>vyatta@R1# set service dns dynamic interface eth0 service dyndns host-name r1.company.com</code>

Example 3-2 Setting up dynamic DNS

Specify <code>www</code> as a hostname whose DNS entry needs to be updated when the IP address on <code>eth0</code> changes.	<pre>vyatta@R1# set service dns dynamic interface eth0 service dyndns host-name www.company.com</pre>
Commit the change	<pre>vyatta@R1# commit OK</pre>
Show the dynamic DNS configuration.	<pre>vyatta@R1# show service dns dynamic interface eth0 { service dyndns { host-name r1.company.com host-name www.company.com login vtest password testpwd } }</pre>

At this point, whenever the IP address on `eth0` changes, the Vyatta system automatically logs onto the DynDNS service using login ID `vtest` and password `testpwd`. It sends an update for hostnames `r1.company.com` and `www.company.com` specifying the new IP address required to reach those hosts on the `company.com` domain. External users that query DNS for `r1.company.com` or `www.company.com` will subsequently be answered with the new address from the DNS system.

Configuring DNS Forwarding

There are two main steps to configuring the Vyatta system for DNS forwarding:

- 1 Specifying the DNS name servers to forward to
- 2 Specifying the interfaces on which to listen for DNS requests

Specifying DNS Name Servers

There are three places for which name server locations can be obtained:

- From the system name server list, defined using the `set system name-server` command.
- By DHCP.
- By listing additional name servers using the `set service dns forwarding dhcp` command

By default, the Vyatta system forwards DNS requests to name servers on the system name server list plus name servers obtained through DHCP. You can override the default behavior by specifying any or all of the following:

- Specifically use system-defined name servers. To do this, use the **set service dns forwarding** system command.
- Specifically use name servers received for the interface that is using DHCP client to get an IP. To do this use the **set service dns forwarding dhcp** command.
- List additional name servers using the **set service dns forwarding name-server** command.

These three options can be used in any combination; however, using any of them eliminates the default DNS forwarding behavior.

When DNS forwarding starts or restarts, it broadcasts a message to all the name servers in the pool and selects the first name server to answer. This name server is used unless it becomes unreachable, in which case the system sends another broadcast message to the remaining name servers in the pool.

Specifying the Listening Interfaces

The listening interfaces are the interfaces to which internal clients will forward DNS requests. The DNS forwarding service listens for these requests and forwards them to the name server.

To set the listening interface, use the **set service dns forwarding listen-on** command. You can specify more than one interface by issuing this command multiple times.

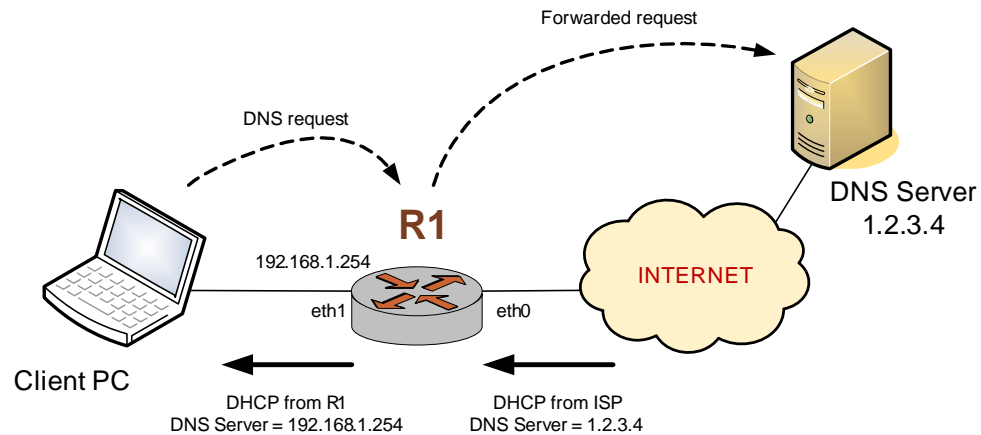
DNS Forwarding Scenario

Once these steps are complete DNS forwarding is set up. At this point, the Vyatta DHCP server can be used to distribute the DNS forwarding interface address to DHCP clients. (For information about setting up a DHCP server on the Vyatta system, see “[Chapter 1: DHCP](#).”)

[Figure 3-3](#) shows a typical scenario where DNS forwarding would be deployed. In this scenario:

- The ISP is providing dynamic IP addresses to its customers, including a Vyatta system (R1) via DHCP.
- The Vyatta system (R1) is providing DHCP service to clients on its local network.
- Local clients send DNS requests to the Vyatta device.
- The DNS forwarding service on the Vyatta device forwards the requests to the ISP's DNS server.

Figure 3-2 Scenario using DNS forwarding



Example 3-3 sets up the key parts of the Vyatta system for the scenario above. To configure the Vyatta system in this way, perform the following steps in configuration mode.

Example 3-3 Setting up DNS forwarding

Step	Command
Set IP address/prefix on eth1	<code>vyatta@R1# set interfaces ethernet eth1 address 192.168.1.254/24</code>
Set eth0 as a DHCP client	<code>vyatta@R1# set interfaces ethernet eth0 address dhcp</code>
Set up the DHCP Server on R1 by creating the configuration node for ETH1_POOL on subnet 192.168.1.0/24. Specify the start and stop IP addresses for the pool.	<code>vyatta@R1# set service dhcp-server shared-network-name ETH1_POOL subnet 192.168.1.0/24 start 192.168.1.100 stop 192.168.1.199</code>
Specify the default router for ETH1_POOL.	<code>vyatta@R1# set service dhcp-server shared-network-name ETH1_POOL subnet 192.168.1.0/24 default-router 192.168.1.254</code>
Create a DNS server list using DNS server information provided by the ISP's DHCP Server (on eth0).	<code>vyatta@R1# set service dns forwarding dhcp eth0</code>
Listen for DNS requests on eth1	<code>vyatta@R1# set service dns forwarding listen-on eth1</code>
Specify a DNS server for ETH1_POOL (in this case it will act as a DNS Forwarder).	<code>vyatta@R1# set service dhcp-server shared-network-name ETH1_POOL subnet 192.168.1.0/24 dns-server 192.168.1.254</code>
Commit the change	<code>vyatta@R1# commit</code>

Example 3-3 Setting up DNS forwarding

Show the DNS-related configuration.	vyatta@R1# show service dns forwarding { dhcp eth0 listen-on eth1 }
-------------------------------------	--

Statically Configured Entries and DNS Forwarding

Due to difficulties interworking with network address translation (NAT) on the corporate gateway, it is sometimes difficult to obtain correct IP addresses for hosts on the corporate network. To work around this problem, you can create static entries on a local Vyatta system using the `system static-host-mapping` command. Any entries configured in this way are compared with incoming DNS queries prior to the query being passed to DNS forwarding. If a match is found, the corresponding IP address is returned.

[Example 3-4](#) sets up the system to return an IP address of 12.34.56.78 if it receives a DNS query for either “vyatta.com” or “vdut1”

Example 3-4 Setting up static entries

Step	Command
Create the static host mapping configuration node.	vyatta@R1# set system static-host-mapping host-name vyatta.com
Provide an alias host name (this is optional).	vyatta@R1# set system static-host-mapping host-name vyatta.com alias vdut1
Specify the IP address to be returned in response to the DNS query.	vyatta@R1# set system static-host-mapping host-name vyatta.com inet 12.34.56.78
Commit the change	vyatta@R1# commit
Show the static host mapping configuration.	vyatta@R1# show system static-host-mapping host-name vyatta.com{ alias vdut1 inet 12.34.56.78 }

DNS Commands

This chapter contains the following commands

Configuration Commands

Dynamic DNS Configuration Commands

<code>service dns dynamic interface <interface></code>	Enables support for DDNS on an interface.
<code>service dns dynamic interface <interface> service <service></code>	Specifies a DDNS service provider.
<code>service dns dynamic interface <interface> service <service> host-name <hostname></code>	Specifies the host name to update the DNS record for with DDNS service provider.
<code>service dns dynamic interface <interface> service <service> login <service-login></code>	Specifies the login ID to use to log on to a DDNS service provider.
<code>service dns dynamic interface <interface> service <service> password <service-password></code>	Specifies the password to use to log on to a DDNS service provider.
<code>service dns dynamic interface <interface> service <service> server <addr></code>	Specifies the server to send DDNS updates to.

DNS Forwarding Configuration Commands

<code>service dns forwarding cache-size <size></code>	Specifies the size of the DNS forwarding service cache.
<code>service dns forwarding dhcp <interface></code>	Specifies an interface on which DHCP updates to name server information will be received.
<code>service dns forwarding listen-on <interface></code>	Specifies an interface on which to listen for DNS requests.
<code>service dns forwarding name-server <ipv4></code>	Specifies a name server to forward DNS requests to.
<code>service dns forwarding system</code>	Specifies DNS forwarding to system configured name servers.

Operational Commands

<code>reset dns forwarding all</code>	Resets all counters related to DNS forwarding and resets the DNS forwarding cache.
<code>reset dns forwarding cache</code>	Removes all entries in the DNS forwarding cache.
<code>show dns dynamic status</code>	Displays update status for all hosts configured for dynamic DNS updates.

<code>show dns forwarding nameservers</code>	Displays name servers being used for DNS forwarding.
<code>show dns forwarding statistics</code>	Displays counters related to DNS forwarding.
<code>update dns dynamic interface <interface></code>	Sends a forced update to a DDNS service provider on the specified interface.

reset dns forwarding all

Resets all counters related to DNS forwarding and resets the DNS forwarding cache.

Syntax

```
reset dns forwarding all
```

Command Mode

Operational mode.

Parameters

None.

Default

None.

Usage Guidelines

Use this command to reset all counters related to DNS forwarding. All entries in the DNS forwarding cache are also removed.

reset dns forwarding cache

Removes all entries in the DNS forwarding cache.

Syntax

```
reset dns forwarding cache
```

Command Mode

Operational mode.

Parameters

None.

Default

None.

Usage Guidelines

Use this command to remove all entries in the DNS forwarding cache.

service dns dynamic interface <interface>

Enables support for DDNS on an interface.

Syntax

```
set service dns dynamic interface interface
delete service dns dynamic interface interface
show service dns dynamic interface interface
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dns {
    dynamic {
      interface interface {
      }
    }
  }
}
```

Parameters

<i>interface</i>	Multi-node. The interface to support DDNS. You can have more than one interface supporting DDNS, by creating multiple interface configuration nodes.
------------------	--

Default

None.

Usage Guidelines

Use this command to specify which interfaces will support dynamic DNS (DDNS).
Use the **set** form of this command to enable DDNS on an interface.

Use the **delete** form of this command to disable DDNS on an interface and remove all its dynamic DNS configuration.

Use the **show** form of this command to view DDNS configuration.

service dns dynamic interface <interface> service <service>

Specifies a DDNS service provider.

Syntax

```
set service dns dynamic interface interface service service
delete service dns dynamic interface interface service service
show service dns dynamic interface interface service service
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dns {
    dynamic {
      interface interface {
        service service {}
      }
    }
  }
}
```

Parameters

<i>interface</i>	Multi-node. The interface supporting DDNS.
<i>service</i>	Multi-node. The name of a DDNS service provider. Supported values are as follows: dnspark , dsreports , dyndns , easydns , namecheap , sitelutions , and zoneedit . You can specify more than one DDNS provider per interface by creating multiple service configuration nodes.

Default

None.

Usage Guidelines

Use this command to specify the organizations providing the dynamic DNS (DDNS) service to the Vyatta system.

Use the **set** form of this command to specify the DDNS service provider.

Use the **delete** form of this command to remove a DDNS service provider from the configuration.

Use the **show** form of this command to view the DDNS service provider information.

service dns dynamic interface <interface> service <service> host-name <hostname>

Specifies the host name to update the DNS record for with DDNS service provider.

Syntax

```
set service dns dynamic interface interface service service host-name hostname
delete service dns dynamic interface interface service service host-name hostname
show service dns dynamic interface interface service service host-name
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dns {
    dynamic {
      interface interface {
        service service {
          host-name hostname
        }
      }
    }
  }
}
```

Parameters

<i>interface</i>	Multi-node. The interface supporting DDNS.
<i>service</i>	Multi-node. The name of a DDNS service provider. Supported values are as follows: dnspark , dsreports , dyndns , easydns , namecheap , sitelutions , and zonedit .
<i>hostname</i>	The host name to update DNS record for at the Dynamic DNS provider.

Default

None.

Usage Guidelines

Use this command to specify the host name to update DNS record for at the Dynamic DNS provider.

Use the **set** form of this command to specify the host name.

Use the **delete** form of this command to remove the host name from the configuration.

Use the **show** form of this command to view host name configuration.

service dns dynamic interface <interface> service <service> login <service-login>

Specifies the login ID to use to log on to a DDNS service provider.

Syntax

```
set service dns dynamic interface interface service service login service-login
delete service dns dynamic interface interface service service login
show service dns dynamic interface interface service service login
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dns {
    dynamic {
      interface interface {
        service service {
          login service-login
        }
      }
    }
  }
}
```

Parameters

<i>interface</i>	Multi-node. The interface supporting DDNS.
<i>service</i>	Multi-node. The name of a DDNS service provider. Supported values are as follows: dnspark , dsreports , dyndns , easydns , namecheap , sitelutions , and zonedit .
<i>login</i>	The login ID for the system to use when logging on to the DDNS service provider's system.

Default

None.

Usage Guidelines

Use this command to specify the login ID the system should use when it logs on to the system of a dynamic DNS (DDNS) service provider.

Use the **set** form of this command to specify the login ID for a DDNS service provider.

Use the **delete** form of this command to remove the login ID for a DDNS service provider.

Use the **show** form of this command to view DDNS service provider login ID configuration.

service dns dynamic interface <interface> service <service> password <service-password>

Specifies the password to use to log on to a DDNS service provider.

Syntax

```
set service dns dynamic interface interface service service password service-password
delete service dns dynamic interface interface service service password
show service dns dynamic interface interface service service password
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dns {
    dynamic {
      interface interface {
        service service {
          password service-password
        }
      }
    }
  }
}
```

Parameters

<i>interface</i>	Multi-node. The interface supporting DDNS.
<i>service</i>	Multi-node. The name of a DDNS service provider. Supported values are as follows: dnspark , dsreports , dyndns , easydns , namecheap , sitelutions , and zoneedit .
<i>password</i>	The password for the system to use when logging on to the DDNS service provider's system.

Default

None.

Usage Guidelines

Use this command to specify the password the system should use when it logs on to the system of a dynamic DNS (DDNS) service provider.

Use the **set** form of this command to specify the password for a DDNS service provider.

Use the **delete** form of this command to remove the password for a DDNS service provider.

Use the **show** form of this command to view DDNS service provider password configuration.

service dns dynamic interface <interface> service <service> server <addr>

Specifies the server to send DDNS updates to.

Syntax

```
set service dns dynamic interface interface service service server addr
delete service dns dynamic interface interface service service server
show service dns dynamic interface interface service service server
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dns {
    dynamic {
      interface interface {
        service service {
          server addr
        }
      }
    }
  }
}
```

Parameters

<i>interface</i>	Multi-node. The interface supporting DDNS.
<i>service</i>	Multi-node. The name of a DDNS service provider. Supported values are as follows: dnspark , dsreports , dyndns , easydns , namecheap , sitelutions , and zonedit .
<i>addr</i>	The IP address or hostname of the DDNS service provider's server that DDNS updates are sent to. Only some DDNS service providers require this.

Default

DDNS service provider's default servers are used.

Usage Guidelines

Use this command to specify the IP address or hostname of the DDNS service provider's server that DDNS updates are sent to. This should be set only if the DDNS service provider requires it.

Use the **set** form of this command to specify the server to send DDNS updates to.

Use the **delete** form of this command to use the default DDNS service provider servers.

Use the **show** form of this command to view DDNS service provider server configuration.

service dns forwarding cache-size <size>

Specifies the size of the DNS forwarding service cache.

Syntax

```
set service dns forwarding cache-size size
delete service dns forwarding cache-size
show service dns forwarding cache-size
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dns {
    forwarding {
      cache-size size
    }
  }
}
```

Parameters

<i>size</i>	Optional. The maximum number of DNS entries to be held in the DNS forwarding cache. The range is 0 to 10000, where 0 means an unlimited number of entries are stored. The default is 150.
-------------	---

Default

A maximum of 150 DNS entries are stored in the DNS forwarding cache.

Usage Guidelines

Use this command to specify the DNS forwarding service cache size.

Use the **set** form of this command to set the DNS forwarding service cache size.

Use the **delete** form of this command to restore the DNS forwarding service cache size to the default.

Use the **show** form of this command to view DNS forwarding service cache size configuration.

service dns forwarding dhcp <interface>

Specifies an interface on which DHCP updates to name server information will be received.

Syntax

```
set service dns forwarding dhcp interface
delete service dns forwarding dhcp interface
show service dns forwarding dhcp interface
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dns {
    forwarding {
      dhcp interface
    }
  }
}
```

Parameters

<i>interface</i>	Multi-node. An interface that is to receive name server information updates from a DHCP server.
------------------	---

Default

The system forwards DNS requests to all configured name servers and all name servers specified through DHCP.

Usage Guidelines

Use this command to specify an interface that is to act as a DHCP client and receive updates to DNS name server information. The Vyatta system will use this information to forward DNS requests from its local clients to the name server.

In order to be configured to listen for updates to name server information, the interface must be configured to obtain its own IP address through DHCP; that is, it must be configured as a DHCP client. For information about configuring the IP address of a physical interface, see the *Vyatta LAN Interfaces Reference Guide*.

By default, the DNS forwarding service creates a pool of name servers to which it forwards DNS requests; this comprises any name servers statically configured for the system (using the `system name-server`), and those of which it is notified through DHCP. This command is used to override the default behavior: when an interface is specified using this command, the system will attend to DHCP name server information updates arriving on the specified interface.

This command can be combined with `service dns forwarding name-server <ipv4>` and/or `service dns forwarding system` to provide a larger pool of candidate name servers.

Use the `set` form of this command to specify an interface to be used as the source for DHCP name server updates.

Use the `delete` form of this command to restore the default method of receiving name server updates.

Use the `show` form of this command to view DNS forwarding DHCP update configuration.

service dns forwarding listen-on <interface>

Specifies an interface on which to listen for DNS requests.

Syntax

```
set service dns forwarding listen-on interface
delete service dns forwarding listen-on interface
show service dns forwarding listen-on interface
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dns {
    forwarding {
      listen-on interface {}
    }
  }
}
```

Parameters

<i>interface</i>	Mandatory. Multi-node. The interface on which to listen for client-side DNS requests. You can specify more than one interface to receive client-side DNS requests, by creating multiple listen-on configuration nodes.
------------------	--

Default

None.

Usage Guidelines

Use this command to specify interfaces on which to listen for client DNS requests. Only queries received on interfaces specified with this command will receive DNS answers. At least one interface must be specified for DNS forwarding to operate.

Use the **set** form of this command to specify an interface on which to listen for DNS requests.

Use the **delete** form of this command to stop an interface from listening for DNS requests.

Use the **show** form of this command to view DNS request listening configuration.

service dns forwarding name-server <ipv4>

Specifies a name server to forward DNS requests to.

Syntax

```
set service dns forwarding name-server ipv4
delete service dns forwarding name-server ipv4
show service dns forwarding name-server ipv4
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dns {
    forwarding {
      name-server ipv4
    }
  }
}
```

Parameters

<i>ipv4</i>	Optional. Multi-node. The IPv4 address of a name server to which to forward DNS requests. You can forward DNS requests to more than one name server by creating multiple name-server configuration nodes.
-------------	---

Default

None.

Usage Guidelines

Use this command to specify a name server to which client DNS requests should be forwarded.

Use of this command is optional. By default, the DNS forwarding service creates a default pool of name servers comprised of those statically configured specified using the `system name-server` command plus those of which it was notified using DHCP. This command is used to override the defaults: when this command is issued, the system forwards DNS requests to the specified name server(s).

This command can be combined with `service dns forwarding dhcp <interface>` and/or `service dns forwarding system` to provide a larger pool of candidate name servers.

Use the `set` form of this command to specify a name server to forward DNS requests to.

Use the `delete` form of this command to remove a name server from the list of name servers to forward DNS requests to. If the last specified server is removed, the default forwarding behavior is restored.

Use the `show` form of this command to see which name servers DNS requests will be forwarded to.

service dns forwarding system

Specifies DNS forwarding to system configured name servers.

Syntax

```
set service dns forwarding system
delete service dns forwarding system
show service dns forwarding
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  dns {
    forwarding {
      system
    }
  }
}
```

Parameters

None

Default

None.

Usage Guidelines

Use this command to direct the system to forward DNS requests to name servers statically configured using the **system name-server** command.

By default, the DNS forwarding service forwards DNS requests to a pool of name servers comprised of the statically configured name servers plus those of which it was notified using DHCP. This command is used to override the defaults: when this command is issued, DNS requests are forwarded to statically configured name servers.

This command can be combined with `service dns forwarding dhcp <interface>` and/or `service dns forwarding name-server <ipv4>` to provide a larger pool of candidate name servers.

Use the **set** form of this command to specify the system-set name servers to forward DNS requests to.

Use the **delete** form of this command to restore the default DNS forwarding behavior.

Use the **show** form of this command to view DNS forwarding configuration.

show dns dynamic status

Displays update status for all hosts configured for dynamic DNS updates.

Syntax

```
show dns dynamic status
```

Command Mode

Operational mode.

Parameters

None

Usage Guidelines

Use this command to display the update status for all host names configured to be updated by dynamic DNS (DDNS).

Examples

[Example 3-5](#) shows sample output of `show dns dynamic status`.

Example 3-5 Displaying information for hosts configured for DDNS

```
vyatta@R1> show dns dynamic status
show dns dynamic status
interface    : eth2
ip address   : 1.2.3.4
host-name    : test1.getmyip.com
last update  : Thu Sep 11 19:30:43 2008
update-status: good

interface    : eth2
ip address   : 1.2.3.5
host-name    : test2.getmyip.com
last update  : Thu Sep 11 19:30:43 2008
update-status: good

interface    : eth3
ip address   : 1.3.4.5
host-name    : test4
last update  : Thu Sep 11 19:34:16 2008
update-status: good
```

```
vyatta@R1>
```

show dns forwarding nameservers

Displays name servers being used for DNS forwarding.

Syntax

```
show dns forwarding nameservers
```

Command Mode

Operational mode.

Parameters

None

Usage Guidelines

Use this command to display the name servers that are currently being used for DNS forwarding as well as those that are available but are not being used for DNS forwarding.

Examples

[Example 3-6](#) shows sample output of `show dns forwarding nameservers`.

Example 3-6 Displaying DNS forwarding name server information

```
vyatta@R1> show dns forwarding nameservers
-----
      Nameservers configured for DNS forwarding
-----
10.0.0.30 available via 'system'

-----
      Nameservers NOT configured for DNS forwarding
-----
10.0.0.31 available via 'dhcp eth3'

vyatta@R1>
```

show dns forwarding statistics

Displays counters related to DNS forwarding.

Syntax

```
show dns forwarding statistics
```

Command Mode

Operational mode.

Parameters

None

Usage Guidelines

Use this command to display statistics related to DNS forwarding. The statistics restart each time there is a change in name servers from any source (dhcp, system, or statically configured), a change in static host mapping (using the **system static-host-mapping** command), or a change made to the DNS forwarding configuration.

Examples

[Example 3-7](#) shows sample output of **show dns forwarding statistics**.

Example 3-7 Displaying DNS forwarding statistics

```
vyatta@R1> show dns forwarding statistics
-----
Cache statistics
-----
Cache size: 150
Queries forwarded: 5
Queries answered locally: 2
Total DNS entries inserted into cache: 23
DNS entries removed from cache before expiry: 0

-----
Nameserver statistics
-----
Server: 10.0.0.30
Queries sent: 5
```

```
Queries retried or failed: 0
```

```
vyatta@R1>
```

update dns dynamic interface <interface>

Sends a forced update to a DDNS service provider on the specified interface.

Syntax

```
update dns dynamic interface text
```

Command Mode

Operational mode.

Parameters

<i>interface</i>	The interface from which to send the forced update.
------------------	---

Usage Guidelines

Use this command to manually initiate a forced update to a dynamic DNS (DDNS) service provider. The forced update provides the DDNS service provider with the current status of the specified interface.

Note that this command should be used sparingly as frequent unnecessary updates could cause the host name to be blocked by the DDNS service provider.

Chapter 4: Web Caching

This chapter explains how to set up web caching on the Vyatta system.

This chapter presents the following topics:

- [Web Caching Configuration](#)
- [Web Caching Commands](#)

Web Caching Configuration

This section presents the following topics:

- [Web Caching Overview](#)
- [Web Caching Configuration Example](#)

Web Caching Overview

The Vyatta system can be configured to act as a web proxy server for web caching and web filtering. A client can request a web page from the Vyatta system, which connects to the web server and requests the page on the client's behalf. The Vyatta system caches the response; if the page is requested again it can be served directly from the cache, saving the time and bandwidth required for transacting with the web server.

By default, the system acts as a transparent proxy. A transparent proxy automatically redirects HTTP (port 80) traffic to the web proxy server (which, by default, listens on port 3128).

The Vyatta system can also be set as a non-transparent proxy. Non-transparent proxies require client browsers to supply the proxy address and port. The advantage of non-transparent proxying is that the client web browser can detect that a proxy is in use, and can behave accordingly. In addition, web-transmitted malware can sometimes be blocked by a non-transparent web proxy, since the malware is unlikely to be aware of the proxy settings.

To configure the Vyatta system as a non-transparent proxy, use the **service webproxy listen-address <ipv4> disable-transparent** command.

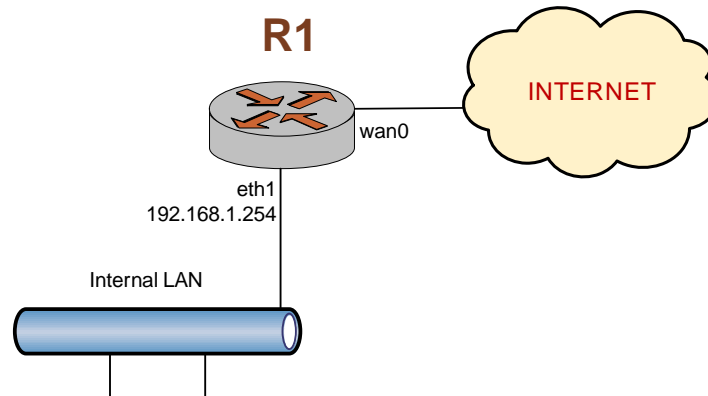
NOTE Vyatta recommends against enabling web caching on systems with flash memory storage as the cache will repeatedly write to disk and wear out the flash storage medium over time. Web caching should only be used in environments with a hard disk drive.

Web Caching Configuration Example

Figure 4-1 shows the web proxy deployment used in the examples in this section. In this scenario:

- Devices on the company's internal LAN are accessing the Internet through the Vyatta system (R1).
- The web proxy is deployed on R1 to provide web caching functionality to employees accessing the Internet.

Figure 4-1 Web proxy



This section presents the following example:

- Example 4-1 Setting up web caching

Configuring Web Caching

Example 4-1 sets up simple, transparent, web caching. In this example:

- The listen address is set to the primary IP address of the internal interface.
- The default cache-size is set to 100MB.
- The default port for the web proxy service is 3128. HTTP traffic (that is, traffic on port 80) will be redirected to this port.

To set up web caching on the Vyatta system perform the following steps:

Example 4-1 Setting up web caching

Step	Command
Set web proxy to listen on address 192.168.1.254 for web requests.	<code>vyatta@R1# set service webproxy listen-address 192.168.1.254</code>
Commit the change	<code>vyatta@R1# commit</code>
Show web proxy-related configuration.	<code>vyatta@R1# show service webproxy listen-address 192.168.1.254 { }</code>

Web Caching Commands

This chapter contains the following commands.

Configuration Commands	
<code>service webproxy append-domain <domain></code>	Appends a domain name to URLs not containing a dot.
<code>service webproxy cache-size <size></code>	Sets the size of the web proxy service cache.
<code>service webproxy default-port <port></code>	Sets the default port for web proxy listen addresses.
<code>service webproxy disable-access-log</code>	Disables logging of HTTP accesses.
<code>service webproxy domain-noncache <domain></code>	Exempts a domain from caching when the web proxy is enabled.
<code>service webproxy listen-address <ipv4></code>	Specifies a web proxy listening address.
<code>service webproxy listen-address <ipv4> disable-transparent</code>	Disables web proxy transparent mode at a listening address.
<code>service webproxy listen-address <ipv4> port <port></code>	Sets the listening port for a listening address.
<code>service webproxy maximum-object-size <size></code>	Sets the maximum size of object the web proxy service will cache.
<code>service webproxy mem-cache-size <size></code>	Sets the size of the web proxy service in-memory cache.
<code>service webproxy minimum-object-size <size></code>	Sets the minimum size of object the web proxy service will cache.
<code>service webproxy proxy-bypass <address></code>	Specifies an address or subnet to bypass the webproxy service.
<code>service webproxy reply-body-max-size <size></code>	Specifies the maximum size of a reply body.
Operational Commands	
<code>restart webproxy</code>	Restarts the webproxy service.
<code>show webproxy log</code>	Displays the web proxy log.

restart webproxy

Restarts the webproxy service.

Syntax

```
restart webproxy
```

Command Mode

Operational mode.

Parameters

None.

Usage Guidelines

Use this command to restart the webproxy service.

Examples

[Example 4-2](#) displays output for `restart webproxy`.

Example 4-2 Restarting the webproxy service

```
vyatta@R1> restart webproxy
Restarting Squid HTTP Proxy 3.0: squid3 Waiting.....done.
.
vyatta@R1>
```

service webproxy append-domain <domain>

Appends a domain name to URLs not containing a dot.

Syntax

```
set service webproxy append-domain domain
delete service webproxy append-domain
show service webproxy append-domain
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
    webproxy {
        append-domain domain
    }
}
```

Parameters

<i>domain</i>	Optional. The domain name to be appended to the domain name within URLs.
---------------	--

Default

None.

Usage Guidelines

Use this command to specify a domain name to be appended to domain names within URLs that do not include a dot (“.”). For example, if the domain to be appended is set to “vyatta.com” and the URL received is “www/xyz.htm,” the system renders the final URL as “www.vyatta.com/xyz.htm.”

Use the **set** form of this command to specify a domain name to be appended.

Use the **delete** form of this command to remove the domain name configuration.

Use the **show** form of this command to view the domain name configuration.

service webproxy cache-size <size>

Sets the size of the web proxy service cache.

Syntax

```
set service webproxy cache-size size
delete service webproxy cache-size
show service webproxy cache-size
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  webproxy {
    cache-size size
  }
}
```

Parameters

<i>size</i>	Optional. The amount of disk space, in megabytes, to allocate for the web proxy cache. The range is 0 to 4294967295, where 0 disables web caching. The default is 100 MB.
-------------	---

Default

The web cache is 100 MB.

Usage Guidelines

Use this command to specify the size of the web proxy service cache size.

Use the **set** form of this command to modify the web proxy service cache size.

Use the **delete** form of this command to restore the default web proxy service cache size.

Use the **show** form of this command to view web proxy service cache size configuration.

service webproxy default-port <port>

Sets the default port for web proxy listen addresses.

Syntax

```
set service webproxy default-port port
delete service webproxy default-port
show service webproxy default-port
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  webproxy {
    default-port port
  }
}
```

Parameters

<i>port</i>	Optional. The port number to use for the web proxy service. The range is 1025 to 65535. The default is 3128.
-------------	--

Default

Port 3128 is used for web proxy listen addresses.

Usage Guidelines

Use this command to specify the port on which the web proxy service is to listen for web requests from clients. This port is used by default on web proxy listen addresses.

Use the **set** form of this command to specify the default listening port.

Use the **delete** form of this command to restore the default listening port.

Use the **show** form of this command to view web proxy listening port configuration.

service webproxy disable-access-log

Disables logging of HTTP accesses.

Syntax

```
set service webproxy disable-access-log
delete service webproxy disable-access-log
show service webproxy disable-access-log
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  webproxy {
    disable-access-log
  }
}
```

Parameters

None.

Default

HTTP accesses are logged.

Usage Guidelines

Use this command to disable logging of HTTP accesses.

Use the **set** form of this command to disable HTTP access logging.

Use the **delete** form of this command to restore the default behavior for HTTP access logging.

Use the **show** form of this command to view HTTP access logging configuration.

service webproxy domain-noncache <domain>

Exempts a domain from caching when the web proxy is enabled.

Syntax

```
set service webproxy domain-noncache domain
delete service webproxy domain-noncache domain
show service webproxy domain-noncache
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  webproxy {
    domain-noncache domain
  }
}
```

Parameters

<i>domain</i>	Multi-node. The domain to be exempted from caching.
---------------	---

Default

When this parameter is not set, accesses to all sites are cached when the web proxy is enabled.

Usage Guidelines

Use this command to specify domains that are to be accessed without caching.

Unless a site is exempted from caching using this command, any accesses of it are cached.

Use the **set** form of this command to specify a domain to be exempted from caching.

Use the **delete** form of this command to restore caching for a domain.

Use the **show** form of this command to view domain exemption configuration.

service webproxy listen-address <ipv4>

Specifies a web proxy listening address.

Syntax

```
set service webproxy listen-address ipv4
delete service webproxy listen-address ipv4
show service webproxy listen-address ipv4
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  webproxy {
    listen-address ipv4 {
    }
  }
}
```

Parameters

<i>ipv4</i>	Multi-node. The IP address the web proxy service listens on. You can set the system to listen for client web requests at more than one IP address by creating multiple listen-address configuration nodes.
-------------	--

Default

None.

Usage Guidelines

Use this command to specify the web proxy listen address. This must be the primary address on whatever interface it is configured on.

The listen address is the IP address on which the web proxy service listens for client web requests. For security, a listen address should only be used on internal/trusted networks, since a proxy can be used to hide the client's true IP address.

Use the **set** form of this command to set a specific listening address for the web proxy service.

Use the **delete** form of this command to restore the web proxy's use of the configured default listen address.

Use the **show** form of this command to view web proxy listen address configuration.

service webproxy listen-address <ipv4> disable-transparent

Disables web proxy transparent mode at a listening address.

Syntax

```
set service webproxy listen-address ipv4 disable-transparent
delete service webproxy listen-address ipv4 disable-transparent
show service webproxy listen-address ipv4
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  webproxy {
    listen-address ipv4 {
      disable-transparent
    }
  }
}
```

Parameters

<i>ipv4</i>	The IP address on which the web proxy service is listening for web requests.
disable-transparent	Disables transparent mode.

Default

Transparent mode is enabled.

Usage Guidelines

Use this command to disable web proxy transparent mode for the specified listen address.

In transparent mode, all traffic arriving on port 80 and destined for the Internet is automatically forwarded through the web proxy. This allows immediate proxy forwarding without configuring client browsers.

Non-transparent proxying requires that the client browsers be configured with the proxy settings before requests are redirected. The advantage of this is that the client web browser can detect that a proxy is in use and can behave accordingly. In addition, web-transmitted malware can sometimes be blocked by a non-transparent web proxy, since they are not aware of the proxy settings.

Use the **set** form of this command to disable web proxy transparent mode for the specified listening address.

Use the **delete** form of this command to re-enable transparent mode.

Use the **show** form of this command to view the configuration for the specified listening address.

service webproxy listen-address <ipv4> port <port>

Sets the listening port for a listening address.

Syntax

```
set service webproxy listen-address ipv4 port port
delete service webproxy listen-address ipv4 port
show service webproxy listen-address ipv4 port
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  webproxy {
    listen-address ipv4 {
      port port
    }
  }
}
```

Parameters

<i>ipv4</i>	An IP address the web proxy service is listening on.
<i>port</i>	The port on which the web proxy service is to listen. The default is the value configured as the default listening port.

Default

The default listening port is specified using the `service webproxy default-port <port>` command.

Usage Guidelines

Use this command to specify the listening port for a listening address.

By default, the web proxy service listens on the port defined as the default listening port, which is configurable using the **service webproxy default-port <port>** command. This command allows you to override the default listening port for a specific IP address. In general, changing the port that the web proxy listens on is only of use when in non-transparent mode.

Use the **set** form of this command to specify the listening port for a listening address.

Use the **delete** form of this command to restore the default listening port.

Use the **show** form of this command to view listening port configuration.

service webproxy maximum-object-size <size>

Sets the maximum size of object the web proxy service will cache.

Syntax

```
set service webproxy maximum-object-size size
delete service webproxy maximum-object-size
show service webproxy maximum-object-size
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  webproxy {
    maximum-object-size size
  }
}
```

Parameters

<i>size</i>	The maximum size (in Kbytes) of object that the web proxy will cache. The range is minimum-object-size to 4294967295. The default is 4096 KB.
-------------	--

Default

The maximum object size is 4096 KB.

Usage Guidelines

Use this command to specify the maximum size of object the web proxy service will cache. A higher maximum setting is appropriate for some implementations where disk space is readily available but bandwidth is scarce.

Use the **set** form of this command to specify the maximum size object the web proxy service will cache.

Use the **delete** form of this command to restore the default web proxy service maximum object size.

Use the **show** form of this command to view web proxy service maximum object size configuration.

service webproxy mem-cache-size <size>

Sets the size of the web proxy service in-memory cache.

Syntax

```
set service webproxy mem-cache-size size
delete service webproxy mem-cache-size
show service webproxy mem-cache-size
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  webproxy {
    mem-cache-size size
  }
}
```

Parameters

<i>size</i>	Optional. The amount of space, in megabytes, to allocate for the web proxy in-memory cache. The range is 0 to 4294967295, where 0 disables the in-memory web cache. The default is 20 MB.
-------------	---

Default

The in-memory web cache is 20 MB.

Usage Guidelines

Use this command to specify the size of the web proxy service in-memory cache size.

Use the **set** form of this command to modify the web proxy service in-memory cache size.

Use the **delete** form of this command to restore the default web proxy service in-memory cache size.

Use the **show** form of this command to view web proxy service in-memory cache size configuration.

service webproxy minimum-object-size <size>

Sets the minimum size of object the web proxy service will cache.

Syntax

```
set service webproxy minimum-object-size size
delete service webproxy minimum-object-size
show service webproxy minimum-object-size
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  webproxy {
    minimum-object-size size
  }
}
```

Parameters

<i>size</i>	The minimum size (in Kbytes) of object that the web proxy will cache. The range is 0 to maximum-object-size . The default is 0 KB.
-------------	---

Default

The minimum object size is 0 KB.

Usage Guidelines

Use this command to specify the minimum size of object the web proxy service will cache. A higher minimum setting is useful to reduce disk i/o and avoid issues with stale caches of smaller objects (like dynamically-generated HTML pages) while retaining larger objects which consume more bandwidth.

Use the **set** form of this command to specify the minimum size object the web proxy service will cache.

Use the **delete** form of this command to restore the default web proxy service minimum object size.

Use the **show** form of this command to view web proxy service minimum object size configuration.

service webproxy proxy-bypass <address>

Specifies an address or subnet to bypass the webproxy service.

Syntax

```
set service webproxy proxy-bypass address
delete service webproxy proxy-bypass address
show service webproxy proxy-bypass
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  webproxy {
    proxy-bypass address
  }
}
```

Parameters

<i>address</i>	Multi-node. An IPv4 address or IPv4 subnet to bypass the webproxy.
----------------	--

Default

All addresses and subnets are processed by the webproxy when it is enabled.

Usage Guidelines

Use this command to allow packets destined for a specific address or subnet to bypass the webproxy when it is enabled. When the webproxy is enabled, all traffic bound for port 80 is redirected to port 3128 and is processed by the webproxy. This command allows specific traffic to bypass this redirection.

Proxy bypass applies only if the webproxy is in transparent mode.

Use the **set** form of this command to specify the IPv4 address or subnet that should bypass the webproxy.

Use the **delete** form of this command to remove an IPv4 address or subnet from bypassing the webproxy.

Use the **show** form of this command to view the configuration.

service webproxy reply-body-max-size <size>

Specifies the maximum size of a reply body.

Syntax

```
set service webproxy reply-body-max-size size
delete service webproxy reply-body-max-size size
show service webproxy reply-body-max-size
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
    webproxy {
        reply-body-max-size size
    }
}
```

Parameters

<i>size</i>	The maximum size (in K bytes) of a web reply. The range is 0 to 4294967295. The default is unlimited.
-------------	---

Default

All reply sizes are accepted.

Usage Guidelines

Use this command to limit the size of replies accepted. This provides the capability to limit download sizes.

Use the **set** form of this command to specify the maximum reply body size.

Use the **delete** form of this command to remove the limit and restore the default behavior.

Use the **show** form of this command to view the configuration.

show webproxy log

Displays the web proxy log.

Syntax

```
show webproxy log
```

Command Mode

Operational mode.

Parameters

None.

Usage Guidelines

Use this command to display the web proxy log.

Examples

[Example 4-3](#) displays a portion of the web proxy log.

Example 4-3 Viewing the web proxy log

```
vyatta@R1> show webproxy log
1220642370.525    708 172.16.117.25 TCP_REFRESH_MODIFIED/200 17825 GET
http://newsrss.bbc.co.uk/rss/newsonline_world_edition/front_page/rss.xml
- DIRECT/212.58.226.29 text/xml
1220642699.568    830 172.16.117.25 TCP_MISS/200 46448 GET
http://sb.google.com/safebrowsing/update? - DIRECT/209.85.133.136
text/html
1220644499.691   1274 172.16.117.25 TCP_MISS/200 53832 GET
http://sb.google.com/safebrowsing/update? - DIRECT/209.85.133.93
text/html
1220645984.836    34 172.16.117.25 TCP_MISS/302 694 GET
http://en-us.fxfeeds.mozilla.com/en-US/firefox/headlines.xml -
DIRECT/63.245.209.121 text/html
1220645984.881    31 172.16.117.25 TCP_MISS/302 736 GET
http://fxfeeds.mozilla.com/firefox/headlines.xml - DIRECT/63.245.209.121
text/html
:
:
```


Chapter 5: LLDP

This chapter explains how to configure LLDP for use on the Vyatta system.

This chapter presents the following topics:

- [LLDP Configuration](#)
- [LLDP Commands](#)

LLDP Configuration

This section presents the following topics:

- [LLDP Overview](#)
- [Configuring LLDP](#)
- [Displaying LLDP Information](#)

LLDP Overview

The Link Layer Discovery Protocol (LLDP) is an open standard for network devices to communicate link layer topology and connection endpoint information on IEEE 802 (Ethernet) LANs and MANs. LLDP is described in the IEEE standards document 802.1AB, *Station and Media Access Control Connectivity Discovery*. It allows a station on the network to advertise information about its capabilities, configuration, and identity to other LLDP-enabled stations on the same physical network. This information is stored in the device as a standard management information base (MIB) as specified in RFC 2922. A network management system can query these MIBs using SNMP to model the topology of the network.

Configuring LLDP

To enable LLDP on a Vyatta system, you must enable the service by setting its configuration node, as in the following example.

Example 5-1 Enabling LLDP on a system

Step	Command
Create the LLDP service configuration node..	<code>vyatta@vyatta#set service lldp</code>
Commit the configuration.	<code>vyatta@vyatta#commit</code>

Once the service is enabled, you can record information about the device's location, management address, and port, as well as the legacy protocols it supports. Additional information, including the system's configured capabilities and neighbors, is extracted automatically from the system and stored in a MIB.

The following example shows how to configure a civic-based location for the system, as follows:

```
Suite 200 - 1301 Shoreway Road
Belmont, CA, USA
```

94002-4157

Example 5-2 Configuring a civic-based location for LLDP

Step	Command
Configure the language.	<code>vyatta@vyatta#set service lldp interface eth0 location civic-based ca-type 0 ca-value English</code>
Configure the occupant.	<code>vyatta@vyatta#set service lldp interface eth0 location civic-based ca-type 23 ca-value "Vyatta, Inc. Corporate Headquarters"</code>
Configure the suite number.	<code>vyatta@vyatta#set service lldp interface eth0 location civic-based ca-type 26 ca-value "Suite 200"</code>
Configure the floor number.	<code>vyatta@vyatta#set service lldp interface eth0 location civic-based ca-type 27 ca-value 2nd</code>
Configure the street address.	<code>vyatta@vyatta#set service lldp interface eth0 location civic-based ca-type 6 ca-value "1301 Shoreway Road"</code>
Configure the city.	<code>vyatta@vyatta#set service lldp interface eth0 location civic-based ca-type 3 ca-value Belmont</code>
Configure the country.	<code>vyatta@vyatta#set service lldp interface eth0 location country-code US</code>
Configure the ZIP.	<code>vyatta@vyatta#set service lldp interface eth0 location civic-based ca-type 24 ca-value 94002-4157</code>
Commit the configuration.	<code>vyatta@vyatta#commit</code>

Example 5-2 Configuring a civic-based location for LLDP

```
Show the LLDP configuration.  vyatta@vyatta#show service lldp
                             interface eth0 {
                               location {
                                 civic-based {
                                   ca-type 0 {
                                     ca-value English
                                   }
                                   ca-type 3 {
                                     ca-value Belmont
                                   }
                                   ca-type 6 {
                                     ca-value "1301 Shoreway Road"
                                   }
                                   ca-type 23 {
                                     ca-value "Vyatta, Inc. Corporate Headquarters"
                                   }
                                   ca-type 24 {
                                     ca-value 94002-4157
                                   }
                                   ca-type 26 {
                                     ca-value "Suite 200"
                                   }
                                   ca-type 27 {
                                     ca-value 2nd
                                   }
                                   country-code US
                                 }
                               }
                             }

```

Location can be coordinate-based rather than civic-based, as shown in the following example.

Example 5-3 Configuring a system's physical coordinates

Step	Command
Configure the latitude coordinate.	<code>vyatta@vyatta#set service lldp interface eth3 location coordinate-based latitude 37.524449N</code>
Configure the longitude coordinate.	<code>vyatta@vyatta#set service lldp interface eth3 location coordinate-based longitude 122.267255W</code>

Example 5-3 Configuring a system's physical coordinates

```

Commit the configuration.      vyatta@vyatta#commit
Show the LLDP configuration for interface eth3.
vyatta@vyatta#show service lldp interface eth3
location {
    coordinate-based {
        latitude 37.524449N
        longitude 122.267255W
    }
}
  
```

Displaying LLDP Information

When the system is enabled for LLDP, it can gather and display information about link-layer neighbors, as shown below.

Example 5-4 Showing LLDP neighbors

```

vyatta@vyatta:~$show lldp neighbors
Capability Codes: R - Router, B - Bridge, W - Wlan r - Repeater, S - Station
                  D - Docsis, T - Telephone, O - Other

Device ID          Local Proto Cap Platform          Port ID
-----
medusa             eth0 CDPv1 R   cisco 2511         Eth0
tethys             eth0 LLDP  R   Vyatta Series 3500 eth0
00:1e:4f:04:ab:4f eth0 LLDP  ?   Not received       g47
2821-vyatta        eth0 CDPv2 BR  Cisco 2821         GigE0/0
2821-vyatta        eth0 CDPv1 BR  Cisco 2821         GigE0/0
Router             eth0 CDPv2 R   Cisco 7204VXR      GigE0/1
Router             eth0 CDPv1 R   Cisco 7204VXR      GigE0/1
vDUT-stig         eth0 LLDP  R   Vyatta Router      eth3
vDUT-stig         eth3 LLDP  R   Vyatta Router      eth2
debian-etch       eth1 LLDP  ?   Linux 2.6.26-2-686 # eth1
  
```

The following example shows detailed information on LLDP neighbors.

Example 5-5 Showing detailed information on LLDP neighbors

```

vyatta@vyatta:~$show lldp neighbors detail
-----
LLDP neighbors:
-----
  
```

Interface: eth0, via: CDPv1, RID: 3, Time: 0 day, 00:19:34

Chassis:

ChassisID: local medusa

SysName: medusa

SysDescr: cisco 2511 running on

Cisco Internetwork Operating System Software

IOS (tm) 2500 Software (C2500-I-L), Version 12.0(14), RELEASE SOFTWARE (fc1)

Copyright (c) 1986-2000 by cisco Systems, Inc.

Compiled Tue 31-Oct-00 23:59 by linda

MgmtIP: 10.1.0.9

Capability: Router, on

Port:

PortID: ifname Ethernet0

PortDescr: Ethernet0

Interface: eth0, via: LLDP, RID: 4, Time: 0 day, 00:19:28

Chassis:

ChassisID: mac 00:1b:21:44:70:44

SysName: tethys

SysDescr: Vyatta Series 3500 running on 999.larkspurse.04270036

MgmtIP: 10.1.0.40

Capability: Bridge, off

Capability: Router, on

Capability: Wlan, off

Port:

PortID: mac 00:24:e8:7b:ca:6c

PortDescr: eth0

PMD autoneg: supported: yes, enabled: yes

Adv: 10Base-T, HD: yes, FD: yes

Adv: 100Base-T, HD: yes, FD: yes

Adv: 1000Base-T, HD: no, FD: yes

MAU oper type: 100BaseTXFD - 2 pair category 5 UTP, full duplex mode

LLDP-MED:

Device Type: Network Connectivity Device

Capability: Capabilities

Capability: Location

Capability: Inventory

LLDP-MED Location Identification: Type: elin

ECS ELIN: 0000000911

Inventory:

Software Revision: 2.6.32-1-586-vyatta

Firmware Revision: 2.0.11

Serial Number: JGSM3K1

Manufacturer: Vyatta

Model: Series 3500

Interface: eth3, via: LLDP, RID: 6, Time: 0 day, 00:00:03

Chassis:

```
ChassisID:    mac 00:0c:29:8c:53:7c
SysName:      R1
SysDescr:     Vyatta Router running on Vyatta Subscription Edition 6.0 2010.03.22
MgmtIP:       20.0.0.2
Capability:    Bridge, off
Capability:    Router, on
Capability:    Wlan, off
Port:
  PortID:      ifname eth0
  PortDescr:   bridge
  PMD autoneg: supported: yes, enabled: yes
    Adv:        10Base-T, HD: yes, FD: yes
    Adv:        100Base-T, HD: yes, FD: yes
    Adv:        1000Base-T, HD: no, FD: yes
    MAU oper type: 1000BaseTFD - Four-pair Category 5 UTP, full duplex mode
LLDP-MED:
  Device Type: Network Connectivity Device
  Capability:   Capabilities
  Capability:   Location
  Capability:   Inventory
LLDP-MED Location Identification: Type: address
  Country:      US
  Language:     English
  City, township: Belmont
  Street:       1301 Shoreway Road
  Name:         Vyatta, Inc. Corporate Headquarters
  Postal/ZIP code: 94002-4157
  Floor:        2nd
  Room number:  Suite 200
Inventory:
  Hardware Revision: None
  Software Revision: 2.6.32-1-586-vyatta-virt
  Firmware Revision: 6.00
  Serial Number:  VMware-56 4d 6b 88 64 cc 44 27-2
  Manufacturer:  VMware, Inc.
  Model:         VMware Virtual Platform
  Asset ID:      No Asset Tag
-----
```

LLDP Commands

Table 5-1

Configuration Commands	
<code>service lldp</code>	Enables the LLDP service.
<code>service lldp interface <interface> location civic-based</code>	Records a civic-based location for an LLDP-enabled device.
<code>service lldp interface <interface> location coordinate-based</code>	Records a coordinate-based location for an LLDP-enabled device.
<code>service lldp interface <interface> location elin <phone-num></code>	Records an Emergency Line Identification Number for an LLDP-enabled device.
<code>service lldp legacy-protocols <protocol></code>	Specifies which proprietary link-layer discovery protocols to support.
<code>service lldp management-address <ipv4></code>	Records the management address of the system.

Table 5-2

Operational Commands	
<code>show lldp neighbors</code>	Displays a summary of link layer neighbors.

service lldp

Enables the LLDP service.

Syntax

```
set service lldp
delete service lldp
show service lldp
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  lldp {}
}
```

Parameters

None

Default

None.

Usage Guidelines

Use this command to enable LLDP on the system.

Use the **set** form of this command to enable the LLDP service.

Use the **delete** form of this command to disable the LLDP service.

Use the **show** form of this command to show LLDP configuration.

service lldp interface <interface> location civic-based

Records a civic-based location for an LLDP-enabled device.

Syntax

```
set service lldp interface interface location civic-based [ca-type type ca-value value |
country-code code]
```

```
delete service lldp interface interface location civic-based ca-type type ca-value
```

```
show service lldp interface interface location civic-based ca-type type ca-value
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  lldp {
    interface interface {
      location {
        civic-based {
          ca-type type {
            ca-value value
          }
          country-code code
        }
      }
    }
  }
}
```

Parameters

<i>interface</i>	The interface for which the configured information applies. The name of any IEEE 802.1-compatible interface can be specified or the keyword all , where all refers to all 802.1-compatible interfaces.
------------------	--

ca-type <i>type</i>	<p>Multi-node. Records a civic address type as defined in the ANSI document http://www.tiaonline.org/standards/technology/voip/documents/ANSI-TIA-1057_final_for_publication.pdf. Supported values are as follows:</p> <ul style="list-style-type: none"> 0 — Language 1 — National subdivisions 2 — County, parish, district 3 — City, township 4 — City division, borough, ward 5 — Neighborhood, block 6 — Street 16 — Leading street direction 17 — Trailing street suffix 18 — Street suffix 19 — House number 20 — House number suffix 21 — Landmark or vanity address 22 — Additional location info 23 — Name 24 — Postal/ZIP code 25 — Building 26 — Unit 27 — Floor 28 — Room number 29 — Place type 128 — Script <p>You can record multiple civic address components by creating multiple ca-type/ca-value pairs, where each pair represents a different component.</p>
ca-value <i>value</i>	The value for the specified civic address type.
country-code <i>code</i>	A two-letter code, as defined in ISO 3166, representing the country in which the device is located.

Default

None.

Usage Guidelines

Use this command to record the components of a civic address identifying the location of the device. Civic address–based location requires a country code and at least one **ca-type/ca-value** pair.

Use the **set** form of this command to specify a component of a civic address.

Use the **delete** form of this command to remove civic address configuration.

Use the **show** form of this command to show civic address component configuration.

service lldp interface <interface> location coordinate-based

Records a coordinate-based location for an LLDP-enabled device.

Syntax

```
set service lldp interface interface location coordinate-based [altitude altitude | datum datum | latitude latitude | longitude longitude]
```

```
delete service lldp interface interface location coordinate-based [altitude | datum | latitude | longitude]
```

```
show service lldp interface interface location coordinate-based [altitude | datum | latitude | longitude]
```

Command Mode

Configuration mode.

Configuration Statement

```
service {  
  lldp {  
    interface interface {  
      location {  
        coordinate-based {  
          altitude altitude  
          datum datum  
          latitude latitude  
          longitude longitude  
        }  
      }  
    }  
  }  
}
```

Parameters

<i>interface</i>	The interface for which the configured information applies. The name of any IEEE 802.1-compatible interface can be specified or the keyword all , where all refers to all 802.1-compatible interfaces.
------------------	--

altitude <i>altitude</i>	The altitude of the device (in meters). The default is 0.
datum <i>datum</i>	The reference datum for the coordinate system. Supported values are WGS84 , NAD83 , and MLLW . The default is WGS84 .
latitude <i>latitude</i>	The latitude of the device. The format is deg.minD, where deg is degrees, min is minutes to any level of precision, and D is N or S representing North and South, respectively; for example 37.524449N.
longitde <i>longitude</i>	The longitude of the device. The format is deg.minD, where deg is degrees, min is minutes to any level of precision, and D is E or W representing East and West, respectively; for example, 122.267255W.

Default

No location is configured.

Usage Guidelines

Use this command to specify a location for a device based on its coordinates.

When coordinate-based location is used, latitude and longitude must both be configured; other values are optional.

Use the **set** form of this command to specify coordinate-based location.

Use the **delete** form of this command to remove coordinate-based location configuration and restore any default values.

Use the **show** form of this command to show coordinate-based configuration.

service lldp interface <interface> location elin <phone-num>

Records an Emergency Line Identification Number for an LLDP-enabled device.

Syntax

```
set service lldp interface interface location elin phone-num
delete service lldp interface interface location elin
show service lldp interface interface location elin
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  lldp {
    interface interface {
      location {
        elin phone-num
      }
    }
  }
}
```

Parameters

<i>interface</i>	The interface for which the configured information applies. The name of any IEEE 802.1-compatible interface can be specified or the keyword all , where all refers to all 802.1-compatible interfaces.
<i>phone-num</i>	The Emergency Line Identification Number. This is a 10- to 25-digit phone number. Phone numbers with fewer than 10 digits must be padded with zeros; for example, 911 must be represented as 0000000911.

Default

None.

Usage Guidelines

Use this command to specify the Emergency Call Service (ECS) Emergency Line Identification Number (ELIN).

Use the **set** form of this command to record the ELIN.

Use the **delete** form of this command to remove ELIN configuration.

Use the **show** form of this command to show ELIN configuration.

service lldp legacy-protocols <protocol>

Specifies which proprietary link-layer discovery protocols to support.

Syntax

```
set service lldp legacy-protocol protocol
delete service lldp legacy-protocol protocol
show service lldp legacy-protocol
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  lldp {
    legacy-protocol protocol
  }
}
```

Parameters

<i>protocol</i>	Multi-node. A proprietary link-layer discovery protocol. Supported values are as follows: cdp —Cisco Discovery Protocol edp —Extreme Discovery Protocol fdp —Foundry Discovery Protocol sonmp —Nortel Discovery Protocol You can enable support for multiple legacy protocols by creating multiple legacy-protocol configuration nodes.
-----------------	---

Default

None.

Usage Guidelines

Use this command to specify a legacy (proprietary) link-layer discovery protocol to support in addition to LLDP.

If a frame from one of the specified protocols is received on an interface, the system begins to send begin sending frames for that protocol on the interface. .

Use the **set** form of this command to enable support for a legacy protocol.

Use the **delete** form of this command to disable support for a legacy protocol.

Use the **show** form of this command to show legacy protocol configuration.

service lldp management-address <ipv4>

Records the management address of the system.

Syntax

```
set service lldp management-address ipv4
delete service lldp management-address
show service lldp management-address
```

Command Mode

Configuration mode.

Configuration Statement

```
service {
  lldp {
    management-address ipv4
  }
}
```

Parameters

<i>ipv4</i>	The IP address of the management system. Only IPv4 addresses are supported.
-------------	---

Default

The system automatically determine which address to advertise as the management address.

Usage Guidelines

Use this command to specify the IP address to be advertised as the management address by LLDP.

Use the **set** form of this command to set the management address.

Use the **delete** form of this command to restore the default behavior.

Use the **show** form of this command to show LLDP management address configuration.

show lldp neighbors

Displays a summary of link layer neighbors.

Syntax

```
show lldp neighbors [detail]
```

Command Mode

Operational mode.

Parameters

detail	Optional. Displays detailed information about the link layer neighbors.
---------------	---

Default

When used with no option, this command displays a summary of information about link layer neighbors.

Usage Guidelines

Use this command to display information about link layer neighbors running LLDP. If support for any legacy link-layer discovery protocols has been enabled (using the [service lldp legacy-protocols <protocol>](#) command), the system also displays neighbors discovered using those protocols.

Examples

[Example 5-6](#) shows a summary of link layer neighbors.

Example 5-6 “show lldp neighbors”: Displaying a summary of link layer neighbors.

```
vyatta@vyatta:~$ show lldp neighbors
Capability Codes: R - Router, B - Bridge, W - Wlan r - Repeater, S - Station
                  D - Docsis, T - Telephone, O - Other

Device ID          Local Proto  Cap  Platform          Port ID
-----
medusa             eth0  CDPv1  R    cisco 2511        Eth0
```

```

tethys                eth0  LLDP  R    Vyatta Series 3500  eth0
00:1e:4f:04:ab:4f     eth0  LLDP  ?    Not received       g47
2821-vyatta           eth0  CDPv2 BR   Cisco 2821         GigE0/0
2821-vyatta           eth0  CDPv1 BR   Cisco 2821         GigE0/0
Router                eth0  CDPv2 R    Cisco 7204VXR      GigE0/1
Router                eth0  CDPv1 R    Cisco 7204VXR      GigE0/1
Vyatta-xg             eth0  LLDP  R    Vyatta Router      eth3
Vyatta-yg             eth3  LLDP  R    Vyatta Router      eth2
debian-etch           eth1  LLDP  ?    Linux 2.6.26-2-686 # eth1
vyatta@vyatta:~$

```

[Example 5-7](#) shows details of link layer neighbors.

Example 5-7 “show lldp neighbors detail”: Displaying details of link layer neighbors.

```

vyatta@vyatta:~$ show lldp neighbors detail
-----
LLDP neighbors:
-----
Interface:   eth0, via: CDPv1, RID: 3, Time: 0 day, 00:19:34
Chassis:
  ChassisID:  local medusa
  SysName:    medusa
  SysDescr:   cisco 2511 running on
Cisco Internetwork Operating System Software
IOS (tm) 2500 Software (C2500-I-L), Version 12.0(14), RELEASE SOFTWARE (fc1)
Copyright (c) 1986-2000 by cisco Systems, Inc.
Compiled Tue 31-Oct-00 23:59 by linda
  MgmtIP:    10.1.0.9
  Capability: Router, on
Port:
  PortID:    ifname Ethernet0
  PortDescr: Ethernet0
-----
Interface:   eth0, via: LLDP, RID: 4, Time: 0 day, 00:19:28
Chassis:
  ChassisID:  mac 00:1b:21:44:70:44
  SysName:    tethys
  SysDescr:   Vyatta Series 3500 running on 999.larkspurse.04270036
  MgmtIP:    10.1.0.40
  Capability: Bridge, off
  Capability: Router, on
  Capability: Wlan, off
Port:
  PortID:    mac 00:24:e8:7b:ca:6c
  PortDescr: eth0

```

```

PMD autoneg: supported: yes, enabled: yes
  Adv:          10Base-T, HD: yes, FD: yes
  Adv:          100Base-T, HD: yes, FD: yes
  Adv:          1000Base-T, HD: no, FD: yes
  MAU oper type: 100BaseTXFD - 2 pair category 5 UTP, full duplex mode

```

LLDP-MED:

```

Device Type: Network Connectivity Device
Capability: Capabilities
Capability: Location
Capability: Inventory
LLDP-MED Location Identification: Type: elin
  ECS ELIN:      0000000911
Inventory:
  Software Revision: 2.6.32-1-586-vyatta
  Firmware Revision: 2.0.11
  Serial Number: JGSM3K1
  Manufacturer: Vyatta
  Model:         Series 3500

```

```
-----
Interface: eth3, via: LLDP, RID: 6, Time: 0 day, 00:00:03
```

Chassis:

```

ChassisID: mac 00:0c:29:8c:53:7c
SysName: R1
SysDescr: Vyatta Router running on Vyatta Subscription Edition 6.0 2010.03.22
MgmtIP: 20.0.0.2
Capability: Bridge, off
Capability: Router, on
Capability: Wlan, off

```

Port:

```

PortID: ifname eth0
PortDescr: bridge
PMD autoneg: supported: yes, enabled: yes
  Adv:          10Base-T, HD: yes, FD: yes
  Adv:          100Base-T, HD: yes, FD: yes
  Adv:          1000Base-T, HD: no, FD: yes
  MAU oper type: 1000BaseTFD - Four-pair Category 5 UTP, full duplex mode

```

LLDP-MED:

```

Device Type: Network Connectivity Device
Capability: Capabilities
Capability: Location
Capability: Inventory
LLDP-MED Location Identification: Type: address
  Country:      US
  Language:     English
  City, township: Belmont
  Street:       1301 Shoreway Road
  Name:         Vyatta, Inc. Corporate Headquarters
  Postal/ZIP code: 94002-4157

```

```
Floor:      2nd
Room number: Suite 200
Inventory:
Hardware Revision: None
Software Revision: 2.6.32-1-586-vyatta-virt
Firmware Revision: 6.00
Serial Number: VMware-56 4d 6b 88 64 cc 44 27-2
Manufacturer: VMware, Inc.
Model:      VMware Virtual Platform
Asset ID:   No Asset Tag
```

```
-----
vyatta@vyatta:~$
```

Glossary of Acronyms

ACL	access control list
ADSL	Asymmetric Digital Subscriber Line
AMI	Amazon Machine Image
API	Application Programming Interface
AS	autonomous system
ARP	Address Resolution Protocol
AWS	Amazon Web Services
BGP	Border Gateway Protocol
BIOS	Basic Input Output System
BPDU	Bridge Protocol Data Unit
CA	certificate authority
CCMP	AES in counter mode with CBC-MAC
CHAP	Challenge Handshake Authentication Protocol
CLI	command-line interface
DDNS	dynamic DNS
DHCP	Dynamic Host Configuration Protocol
DHCPv6	Dynamic Host Configuration Protocol version 6

DLCI	data-link connection identifier
DMI	desktop management interface
DMZ	demilitarized zone
DN	distinguished name
DNS	Domain Name System
DSCP	Differentiated Services Code Point
DSL	Digital Subscriber Line
eBGP	external BGP
EBS	Amazon Elastic Block Storage
EC2	Amazon Elastic Compute Cloud
EGP	Exterior Gateway Protocol
ECMP	equal-cost multipath
ESP	Encapsulating Security Payload
FIB	Forwarding Information Base
FTP	File Transfer Protocol
GRE	Generic Routing Encapsulation
HDLC	High-Level Data Link Control
I/O	Input/Output
ICMP	Internet Control Message Protocol
IDS	Intrusion Detection System
IEEE	Institute of Electrical and Electronics Engineers
IGP	Interior Gateway Protocol
IPS	Intrusion Protection System
IKE	Internet Key Exchange
IP	Internet Protocol
IPOA	IP over ATM

IPsec	IP security
IPv4	IP Version 4
IPv6	IP Version 6
ISP	Internet Service Provider
KVM	Kernel-Based Virtual Machine
L2TP	Layer 2 Tunneling Protocol
LACP	Link Aggregation Control Protocol
LAN	local area network
LDAP	Lightweight Directory Access Protocol
LLDP	Link Layer Discovery Protocol
MAC	medium access control
MIB	Management Information Base
MLPPP	multilink PPP
MRRU	maximum received reconstructed unit
MTU	maximum transmission unit
NAT	Network Address Translation
ND	Neighbor Discovery
NIC	network interface card
NTP	Network Time Protocol
OSPF	Open Shortest Path First
OSPFv2	OSPF Version 2
OSPFv3	OSPF Version 3
P2P	peer-to-peer
PAM	Pluggable Authentication Module
PAP	Password Authentication Protocol
PAT	Port Address Translation

PCI	peripheral component interconnect
PKI	Public Key Infrastructure
PPP	Point-to-Point Protocol
PPPoA	PPP over ATM
PPPoE	PPP over Ethernet
PPTP	Point-to-Point Tunneling Protocol
PVC	permanent virtual circuit
QoS	quality of service
RADIUS	Remote Authentication Dial-In User Service
RHEL	Red Hat Enterprise Linux
RIB	Routing Information Base
RIP	Routing Information Protocol
RIPng	RIP next generation
Rx	receive
S3	Amazon Simple Storage Service
SLAAC	Stateless Address Auto-Configuration
SNMP	Simple Network Management Protocol
SMTP	Simple Mail Transfer Protocol
SONET	Synchronous Optical Network
SSH	Secure Shell
SSID	Service Set Identifier
STP	Spanning Tree Protocol
TACACS+	Terminal Access Controller Access Control System Plus
TCP	Transmission Control Protocol
TKIP	Temporal Key Integrity Protocol
ToS	Type of Service

Tx	transmit
UDP	User Datagram Protocol
vif	virtual interface
VLAN	virtual LAN
VPC	Amazon virtual private cloud
VPN	Virtual Private Network
VRRP	Virtual Router Redundancy Protocol
WAN	wide area network
WAP	wireless access point
WPA	Wired Protected Access
