DNS Commands

ddns (DDNS-update-method)

To specify an update method for address (A) Resource Records (RRs) as IETF standardized Dynamic Domain Name System (DDNS), use the **ddns** command in DDNS-update-method configuration mode. To disable the DDNS method for updating, use the **no** form of this command.

ddns [**both**]

no ddns

Syntax Description

both	(Optional) Both A and PTR RRs are updated.

Defaults

No DDNS updating is configured.

Command Modes

DDNS-update-method configuration

Command History

Release	Modification
12.3(8)YA	This command was introduced.
12.3(14)T	This command was integrated into Cisco IOS Release 12.3(14)T.

Usage Guidelines

If Dynamic Host Configuration Protocol (DHCP) is used to configure the IP address on the interface, a DHCP client may not perform both A and PTR RRs or any updates. Also, if the DHCP server notifies the client during the DHCP interaction that it will perform the updates, then the DHCP client will not perform the updates. The DHCP server can always override the client even if the client is configured to perform the updates.

If the interface is configured using DHCP and if the DDNS update method is configured on that interface, then the DHCP fully qualified domain name (FQDN) option is included in the DHCP packets between the client and the server. The FQDN option contains the hostname, which is used in the update as well as information about what types of updates the client has been configured to perform.

If the **ddns** keyword is specified, the A RRs only are updated, but if the **ddns both** keyword are specified, both the A and the PTR RRs are updated. Also, if the DHCP server returns the the FQDN option with an updated hostname, that hostname is used in the update instead.

Examples

The following example shows how to configure a DHCP server to perform both A and PTR RR updates:

```
ip ddns update method unit-test
 ddns both
```

Related Commands

Command	Description
ip ddns update method	Enables DDNS as the update method and assigns a method name.

dns forwarder

To add an address to the end of the ordered list of IP addresses for a Domain Name System (DNS) view to use when forwarding incoming DNS queries, use the **dns forwarder** command in DNS view configuration mode. To remove an IP address from the list, use the **no** form of this command.

dns forwarder [**vrf** *vrf-name*] *forwarder-ip-address*

no dns forwarder [**vrf** *vrf-name*] *forwarder-ip-address*

Syntax Description

vrf *vrf-name*	(Optional) The *vrf-name* argument specifies the name of the Virtual Private Network (VPN) routing and forwarding (VRF) instance of the *forwarder-ip-address*. **Note** If no VRF is specified, the default is the global VRF.
forwarder-ip-address	IP address to use when forwarding DNS queries handled using the DNS view.

Command Default

Provided that DNS forwarding (configured by using the **dns forwarding** command) is enabled and the interface to use when forwarding incoming DNS queries is configured (if using the **dns forwarding source-interface** command) and not shut down, incoming DNS queries handled using the DNS view are forwarded to one of the DNS forwarding name servers.

If no forwarding name servers are configured for the DNS view, the router uses any configured domain name server addresses.

If there are no domain name server addresses configured either, the router forwards incoming DNS queries to the limited broadcast address (255.255.255.255) so that the queries are received by all hosts on the local network segment but not forwarded by routers.

Command Modes

DNS view configuration

Command History

Release	Modification
12.4(9)T	This command was introduced.

Usage Guidelines

This command can be entered multiple times to specify a maximum of six forwarding name servers. After six forwarding name servers have been specified, additional forwarding name servers cannot be specified unless an existing entry is removed.

To display the list of DNS forwarding name server addresses configured for the DNS view, use the **show ip dns view** command.

Note DNS resolving name servers and DNS forwarding name servers are configured separately. The **domain name-server** and **domain name-server interface** commands are used to specify the DNS resolving name servers (the ordered list of IP addresses to use when *resolving internally generated DNS queries* handled using the DNS view). The **dns forwarder** command specifies the forwarder addresses (the

ordered list of IP addresses to use when *forwarding incoming DNS queries* handled using the DNS view).

Versions of Cisco IOS prior to Release 12.4(9)T used the resolving name server list for both resolving internal DNS queries and forwarding DNS queries received by the DNS server. For backward compatibility, if there are no forwarding name servers configured, the resolving name server list will be used instead.

Examples

The following example shows how to add three IP addresses to the list of forwarder addresses for the DNS view named user3 that is associated with the VRF vpn32:

```
Router(config)# ip dns view vrf vpn32 user3
Router(cfg-dns-view)# dns forwarder 192.168.2.0
Router(cfg-dns-view)# dns forwarder 192.168.2.1
Router(cfg-dns-view)# dns forwarder 192.168.2.2
```

The following example shows how to add the IP address 192.0.2.3 to the list of forwarder addresses for the DNS view named user1 that is associated with the VRF vpn32, with the restriction that incoming DNS queries will be forwarded to 192.0.2.3 only if the queries are from the VRF named vpn1:

```
Router(config)# ip dns view vrf vpn32 user1
Router(cfg-dns-view)# dns forwarder vrf vpn1 192.168.2.3
```

Related Commands

Command	Description
dns forwarding	Enables forwarding of incoming DNS queries by the DNS view.
dns forwarding source-interface	Specifies the interface to use when forwarding incoming DNS queries handled using the DNS view.
domain name-server	Specifies the ordered list of IP addresses to use when resolving internally generated DNS queries handled using the DNS view.
domain name-server interface	Specifies the interface from which the router can learn (through either DHCP or PPP interaction on the interface) a DNS resolving name server address for the DNS view.
show ip dns view	Displays information about a particular DNS view or about all configured DNS views, including the number of times the DNS view was used.

dns forwarding

To enable forwarding of incoming Domain Name System (DNS) queries handled using the DNS view, use the **dns forwarding** command in DNS view configuration mode. To disable forwarding and revert to the default configuration, use the **no** form of this command.

dns forwarding [**retry** *number* | **timeout** *seconds*]

no dns forwarding [**retry** | **timeout**]

Syntax Description

retry	(Optional) Specifies the time to retry forwarding a DNS query.
number	(Optional) Number of retries. The range is from 0 to 100.
timeout	(Optional) Specifies the timeout waiting for response to a forwarded DNS.
seconds	(Optional) Timeout in seconds. The range is from 1 to 3600.

Command Default

The default value is inherited from the global setting configured using the **ip domain lookup** global configuration command. However, the **dns forwarding** command for the DNS view does not have a reciprocal side effect on the setting configured by the **ip domain lookup** command.

Command Modes

DNS view configuration (cfg-dns-view)

Command History

Release	Modification
12.4(9)T	This command was introduced.
15.0(1)M	This command was modified. The **retry** *number* and **timeout** *seconds* keywords and arguments were added.

Usage Guidelines

This command enables forwarding of incoming DNS queries handled using the DNS view.

To display the DNS forwarding setting for a DNS view, use the **show ip dns view** command.

If you configure the **no domain lookup** command for a DNS view while the **dns forwarding** command has not been disabled for that view, then the **dns forwarding** command setting will appear in the **show ip dns view** command output in order to make it clear that DNS forwarding is still enabled.

If you configure the **no ip domain lookup** global configuration command, however, the **no dns forwarding** setting is automatically configured also, in order to be backward compatible with the global command form.

Note DNS lookup and DNS forwarding are configured separately. The **domain lookup** command enables the resolution of internally generated DNS queries handled using the DNS view. The **dns forwarding** command enables the forwarding of incoming DNS queries handled using the DNS view.

By default, domain lookup and DNS forwarding are both enabled for a view. If you then configure the **no domain lookup** command, DNS forwarding is still enabled. However, if you instead use the older

Cisco IOS command **no ip domain lookup** to disable domain lookup for the global default view, then DNS forwarding is disabled automatically. This is done for backward compatibility with the functionality of the **no ip domain lookup** global configuration command.

Examples

The following example shows how to enable forwarding of incoming DNS queries handled using the DNS view named user3 that is associated with the VRF vpn32:

```
Router(config)# ip dns view vrf vpn32 user3
Router(cfg-dns-view)# dns forwarding
```

Related Commands

Command	Description
dns forwarding source-interface	Specifies the interface to use when forwarding incoming DNS queries handled using the DNS view.
domain lookup	Enables the IP DNS-based hostname-to-address translation for internally generated DNS queries handled using the DNS view.
ip domain lookup	Enables the IP DNS-based hostname-to-address translation.
show ip dns view	Displays information about a particular DNS view or about all configured DNS views, including the number of times the DNS view was used.

dns forwarding source-interface

To specify the interface to use when forwarding incoming Domain Name System (DNS) queries handled using the DNS view, use the **dns forwarding source-interface** command in DNS view configuration mode. To remove the specification of the source interface for a DNS view to use when forwarding DNS queries, use the **no** form of this command.

dns forwarding source-interface *interface*

no dns forwarding source-interface

Syntax Description

interface	Router interface to use when forwarding DNS queries.

Command Default

No interface is specified for forwarding incoming DNS queries handled using the DNS view, so the router selects the appropriate source IP address automatically, according to the interface used to send the packet, when the query is forwarded.

Command Modes

DNS view configuration

Command History

Release	Modification
12.4(9)T	This command was introduced.

Usage Guidelines

This command specifies the interface to use when forwarding incoming DNS queries handled using the DNS view.

To display the interface configured by this command, use the **show ip dns view** command.

Tip To list all the interfaces configured on the router or access server, use the **show interfaces** command with the **summary** keyword. Use the appropriate interface specification, typed exactly as it is displayed under the Interface column of the **show interfaces** command output, to replace the *interface* argument in the **dns forwarding source-interface** command.

Examples

The following is sample output from the **show interfaces** command used with the **summary** keyword:

```
Router# show interfaces summary

 *: interface is up
 IHQ: pkts in input hold queue     IQD: pkts dropped from input queue
 OHQ: pkts in output hold queue    OQD: pkts dropped from output queue
 RXBS: rx rate (bits/sec)          RXPS: rx rate (pkts/sec)
 TXBS: tx rate (bits/sec)          TXPS: tx rate (pkts/sec)
 TRTL: throttle count
```

```
  Interface              IHQ    IQD  OHQ    OQD  RXBS RXPS  TXBS TXPS TRTL
------------------------------------------------------------------------------
* FastEthernet0/0          0      0    0      0     0    0     0    0     0
  FastEthernet0/1          0      0    0      0     0    0     0    0     0
  ATM2/0                   0      0    0      0     0    0     0    0     0
  Ethernet3/0              0      0    0      0     0    0     0    0     0
  Ethernet3/1              0      0    0      0     0    0     0    0     0
  Ethernet3/2              0      0    0      0     0    0     0    0     0
  Ethernet3/3              0      0    0      0     0    0     0    0     0
  ATM6/0                   0      0    0      0     0    0     0    0     0
NOTE:No separate counters are maintained for subinterfaces
     Hence Details of subinterface are not shown
```

The following example shows how to configure FastEthernet slot 0, port 1 as the interface to be used to forward DNS queries for the DNS view named user3 that is associated with the VRF vpn32:

```
Router(config)# ip dns view vrf vpn32 user3
Router(cfg-dns-view)# dns forwarder source-interface FastEthernet0/1
```

Related Commands

Command	Description
dns forwarding	Enables forwarding of incoming DNS queries by the DNS view.
show interfaces	Display statistics for all interfaces configured on the router or access server.
show ip dns view	Displays information about a particular DNS view or about all configured DNS views, including the number of times the DNS view was used.

domain list

To add a domain name to the end of the ordered list of domain names used to complete unqualified hostnames (names without a dotted-decimal domain name) in Domain Name System (DNS) queries handled using the DNS view, use the **domain list** command in DNS view configuration mode. To remove a name from the domain search list, use the **no** form of this command.

domain list *domain-name*

no domain list *domain-name*

Syntax Description

domain-name	Domain name to add or delete from the domain search list. **Note** Do not include the initial period that separates an unqualified name from the domain name.

Command Default

No domain list is defined for the DNS view.

Command Modes

DNS view configuration

Command History

Release	Modification
12.4(9)T	This command was introduced.

Usage Guidelines

This command adds a domain name to the end of the domain search list for the DNS view.

Note The **domain list** and **domain name** commands are similar, except that the **domain list** command can be used to define a list of domain names for the view, each to be tried in turn. If DNS lookup is enabled for the DNS view but the domain search list (specified using the **domain list** command) is empty, the default domain name (specified by using the **domain name** command) is used instead. If the domain search list is not empty, the default domain name is not used.

To display the list of domain names used to complete unqualified hostnames in DNS queries received by a DNS view, use the **show hosts** command or the **show ip dns view** command.

Examples

The following example shows how to add two domain names to the list for the DNS view named user3 that is associated with the VRF vpn32:

```
Router(config)# ip dns view vrf vpn32 user3
Router(cfg-dns-view)# domain list example1.com
Router(cfg-dns-view)# domain list example1.org
```

The following example shows how to add two domain names to the list for the DNS view and then delete one of the domain names from the list:

```
Router(cfg-dns-view)# domain list example2.com
Router(cfg-dns-view)# domain list example2.org
Router(cfg-dns-view)# no domain list example2.net
```

Related Commands

Command	Description
domain name	Specifies a single default domain name to use to complete unqualified hostnames in internally generated DNS queries handled using the DNS view.
show hosts	Displays the default domain name, the style of name lookup service, a list of name server hosts, and the cached list of hostnames and addresses specific to a particular DNS view or for all configured DNS views.
show ip dns view	Displays information about a particular DNS view or about all configured DNS views, including the number of times the DNS view was used.

domain lookup

To enable the IP Domain Name System (DNS)-based hostname-to-address translation for internally generated DNS queries handled using the DNS view, use the **domain lookup** command in DNS view configuration mode. To disable domain lookup for hostname resolution, use the **no** form of this command.

domain lookup

no domain lookup

Syntax Description

This command has no arguments or keywords.

Command Default

The default value is inherited from the global setting configured using the **ip domain lookup** global command. However, the **domain lookup** DNS view command does not have a reciprocal side effect on the setting configured by the **ip domain lookup** global command.

Command Modes

DNS view configuration

Command History

Release	Modification
12.4(9)T	This command was introduced.

Usage Guidelines

This command enables DNS-based hostname-to-address translation for internally generated DNS queries handled using the DNS view.

To display the DNS lookup setting for a DNS view, use the **show ip dns view** command.

If you configure **no dns forwarding** for a DNS view while **domain lookup** has not been disabled for that view, then the **domain lookup** setting will appear in the **show ip dns view** command output in order to make it clear that domain lookup is still enabled.

If you configure the **no ip domain lookup** global command, however, the **no domain lookup** setting is automatically configured also, in order to be backward compatible with the global command form.

Note DNS lookup and DNS forwarding are configured separately. The **domain lookup** command enables the resolution of internally generated DNS queries handled using the DNS view. The **dns forwarding** command enables the forwarding of incoming DNS queries handled using the DNS view.

By default, both domain lookup and DNS forwarding are both enabled for a view. If you then configure **no domain lookup**, DNS forwarding is still enabled. However, if you instead uses the older Cisco IOS command **no ip domain lookup** to disable domain lookup for the global default view, then DNS forwarding is disabled automatically. This is done for backward compatibility with the functionality of the **no ip domain lookup** global command.

Examples

The following example shows how to enable IP DNS-based hostname-to-address translation in the DNS view named user3 that is associated with the VRF vpn32:

```
Router(config)# ip dns view vrf vpn32 user3
Router(cfg-dns-view)# domain lookup
```

Related Commands

Command	Description
dns forwarding	Enables forwarding of incoming DNS queries by the DNS view.
domain name-server	Specifies the ordered list of IP addresses to use when resolving internally generated DNS queries handled using the DNS view.
domain name-server interface	Specifies the interface from which the router can learn (through either DHCP or PPP interaction on the interface) a DNS resolving name server address for the DNS view.
ip domain lookup	Enables the IP DNS-based hostname-to-address translation.
show ip dns view	Displays information about a particular DNS view or about all configured DNS views, including the number of times the DNS view was used.

domain multicast

To configure the domain name to be used when performing multicast address lookups for internally generated Domain Name System (DNS) queries handled using the DNS view, use the **domain multicast** command in DNS view configuration mode. To remove the specification of the domain name for multicast address lookups, use the **no** form of this command.

domain multicast *domain-name*

no domain multicast

Syntax Description

domain-name	Domain name to be used when performing multicast address lookups.

Command Default

No IP address is specified for performing multicast address lookups for the DNS view.

Command Modes

DNS view configuration

Command History

Release	Modification
12.4(9)T	This command was introduced.

Usage Guidelines

This command configures the domain name to be used when performing multicast address lookups for internally generated DNS queries handled using the DNS view.

To display the domain name for multicast address lookups, use the **show ip dns view** command.

Examples

The following example shows how to configure the domain name www.example.com as the domain name to be used when performing multicast lookups for internally generated DNS queries handled using the DNS view named user3 that is associated with the VRF vpn32:

```
Router(config)# ip dns view vrf vpn32 user3
Router(cfg-dns-view)# domain multicast www.example.com
```

Related Commands

Command	Description
ip domain multicast	Changes the domain prefix used by Cisco IOS software for DNS-based SSM mapping.
show ip dns view	Displays information about a particular DNS view or about all configured DNS views, including the number of times the DNS view was used.

domain name

To specify the default domain for a Domain Name System (DNS) view to use to complete unqualified hostnames (names without a dotted-decimal domain name), use the **domain name** command in DNS view configuration mode. To remove the specification of the default domain name for a DNS view, use the **no** form of this command.

domain name *domain-name*

no domain name

Syntax Description

domain-name	Default domain name used to complete unqualified hostnames. **Note** Do not include the initial period that separates an unqualified name from the domain name.

Command Default

No default domain name is defined for the DNS view.

Command Modes

DNS view configuration

Command History

Release	Modification
12.4(9)T	This command was introduced.

Usage Guidelines

This command configures the default domain name used to complete unqualified hostnames in DNS queries handled using the DNS view.

Note The **domain list** and **domain name** commands are similar, except that the **domain list** command can be used to define a list of domain names for the view, each to be tried in turn. If DNS lookup is enabled for the DNS view but the domain search list (specified using the **domain list** command) is empty, the default domain name (specified by using the **domain name** command) is used instead. If the domain search list is not empty, the default domain name is not used.

To display the default domain name configured for a DNS view, use the **show hosts** command or the **show ip dns view** command.

Examples

The following example shows how to define example.com as the default domain name for the DNS view named user3 that is associated with the VRF vpn32:

```
Router(config)# ip dns view vrf vpn32 user3
Router(cfg-dns-view)# domain name example.com
```

Related Commands

Command	Description
domain list	Defines the ordered list of default domain names to use to complete unqualified hostnames in internally generated DNS queries handled using the DNS view.
show hosts	Displays the default domain name, the style of name lookup service, a list of name server hosts, and the cached list of hostnames and addresses specific to a particular DNS view or for all configured DNS views.
show ip dns view	Displays information about a particular DNS view or about all configured DNS views, including the number of times the DNS view was used.

domain name-server

To add a name server to the list of Domain Name System (DNS) name servers to be used for a DNS view to resolve internally generated DNS queries, use the **domain name-server** command in DNS view configuration mode. To remove a DNS name server from the list, use the **no** form of this command.

domain name-server *name-server-ip-address*

no domain name-server *name-server-ip-address*

Syntax Description

name-server-ip-address	IP address of a DNS name server.

Command Default

No IP address is explicitly added to the list of resolving name servers for this view, although an IP address can be added to the list if dynamic name server acquisition is enabled. If the list of resolving name servers is empty, the router will send the query to the limited broadcast address 255.255.255.255 when this view is used.

Command Modes

DNS view configuration

Command History

Release	Modification
12.4(9)T	This command was introduced.

Usage Guidelines

This command can be entered multiple times to specify a maximum of six resolving name servers. After six resolving name servers have been specified, additional resolving name servers cannot be specified unless an existing entry is removed.

This method of explicitly populating the list of resolving name servers is useful in an enterprise network where the population of available DNS servers is relatively static. In an Internet service provider (ISP) environment, where primary and secondary DNS server addresses can change frequently, the router can learn a DNS server address through either DHCP or PPP on the interface. To configure the dynamic acquisition of DNS resolving name server addresses, use the **domain name-server interface** command. Regardless of the method or methods used to populate the list of DNS resolving name servers for the view, no more than six resolving name servers are maintained for the view.

To display the list of DNS resolving name server IP addresses configured for a DNS view, use the **show hosts** command or the **show ip dns view** command.

Note The DNS resolving name servers and DNS forwarding name servers are configured separately. The **domain name-server** and **domain name-server interface** commands are used to specify the DNS resolving name servers (the ordered list of IP addresses to use when *resolving internally generated DNS queries* for the DNS view). The **dns forwarder** command specifies the forwarder addresses (the ordered list of IP addresses to use when *forwarding incoming DNS queries* for the DNS view).

If there is no DNS forwarder configuration in a view, then the domain name server list will be used when forwarding DNS queries. This is done for backward compatibility with the **ip name-server** global command.

Examples

The following example shows how to specify the hosts at 192.168.2.111 and 192.168.2.112 as the name servers for the DNS view named user3 that is associated with the VRF vpn32:

```
Router(config)# ip dns view vrf vpn32 user3
Router(cfg-dns-view)# domain name-server 192.168.2.111
Router(cfg-dns-view)# domain name-server 192.168.2.112
```

Related Commands

Command	Description
dns forwarder	Specifies the ordered list of IP addresses to use when forwarding incoming DNS queries handled using the DNS view.
domain name-server interface	Specifies the interface from which the router can learn (through either DHCP or PPP interaction on the interface) a DNS resolving name server address for the DNS view.
ip name-server	Specifies the address of one or more name servers to use for name and address resolution.
show hosts	Displays the default domain name, the style of name lookup service, a list of name server hosts, and the cached list of hostnames and addresses specific to a particular DNS view or for all configured DNS views.
show ip dns view	Displays information about a particular DNS view or about all configured DNS views, including the number of times the DNS view was used.

domain name-server interface

To specify the interface on which the router can learn (through either DHCP or PPP) Domain Name System (DNS) a resolving name server address for the DNS view, use the **domain name-server interface** command in DNS view configuration mode. To remove the definition of the interface, use the **no** form of this command.

domain name-server interface *interface*

no domain name-server interface *interface*

Syntax Description

interface	Interface on which to acquire the IP address of a DNS name server that the DNS view can use to resolve internally generated DNS queries. The interface must connect to another router on which the DHCP agent or the PPP agent has been configured to allocate the IP address of the DNS server.

Command Default

No interface is used to acquire the DHCP or PPP address to be used for a DNS view to resolve internally generated DNS queries.

Command Modes

DNS view configuration

Command History

Release	Modification
12.4(9)T	This command was introduced.

Usage Guidelines

This command specifies the interface from which to acquire (through DHCP or PPP interaction on the interface) the IP address of a DNS server to add to the list of DNS name servers used to resolve internally generated DNS queries for the DNS view.

The dynamic acquisition of DNS resolving name server addresses is useful in an Internet service provider (ISP) environment, where primary and secondary DNS server addresses can change frequently. To explicitly populate the list of resolving name servers in an enterprise network where the population of available DNS servers is relatively static, use the **domain name-server** command. Regardless of the method or methods used to populate the list of DNS resolving name servers for the view, no more than six resolving name servers are maintained for the view.

Note The DNS resolving name servers and DNS forwarding name servers are configured separately. The **domain name-server** and **domain name-server interface** commands are used to specify the DNS resolving name servers (the ordered list of IP addresses to use when *resolving internally generated DNS queries* for the DNS view). The **dns forwarder** command specifies the forwarder addresses (the ordered list of IP addresses to use when *forwarding incoming DNS queries* for the DNS view).

If there is no DNS forwarder configuration in a view, then the domain name server list will be used when forwarding DNS queries. This is done for backward compatibility with the **ip name-server** global command.

Tip To list all the interfaces configured on the router or access server, use the **show interfaces** command with the **summary** keyword. Use the appropriate interface specification, typed exactly as it is displayed under the Interface column of the **show interfaces** command output, to replace the *interface* argument in the **domain name-server interface** command.

Examples

The following is sample output from the **show interfaces** command used with the **summary** keyword:

```
Router# show interfaces summary

 *: interface is up
 IHQ: pkts in input hold queue     IQD: pkts dropped from input queue
 OHQ: pkts in output hold queue    OQD: pkts dropped from output queue
 RXBS: rx rate (bits/sec)          RXPS: rx rate (pkts/sec)
 TXBS: tx rate (bits/sec)          TXPS: tx rate (pkts/sec)
 TRTL: throttle count

  Interface              IHQ   IQD  OHQ   OQD  RXBS RXPS  TXBS TXPS TRTL
------------------------------------------------------------------------
* FastEthernet0/0          0     0    0     0     0    0     0    0    0
  FastEthernet0/1          0     0    0     0     0    0     0    0    0
  ATM2/0                   0     0    0     0     0    0     0    0    0
  Ethernet3/0              0     0    0     0     0    0     0    0    0
  Ethernet3/1              0     0    0     0     0    0     0    0    0
  Ethernet3/2              0     0    0     0     0    0     0    0    0
  Ethernet3/3              0     0    0     0     0    0     0    0    0
  ATM6/0                   0     0    0     0     0    0     0    0    0
NOTE:No separate counters are maintained for subinterfaces
     Hence Details of subinterface are not shown
```

The following example shows how to specify a list of name servers for the DNS view named user3 that is associated with the VRF vpn32. First, the list of name server addresses is cleared, then five DNS server IP addresses are added to the list. Finally, FastEthernet slot 0, port 0 is specified as the interface on which to acquire, by DHCP or PPP interaction, a sixth DNS server IP address.

```
Router(config)# ip dns view vrf vpn32 user3
Router(cfg-dns-view)# no domain name-server
Router(cfg-dns-view)# domain name-server 192.168.2.1
Router(cfg-dns-view)# domain name-server 192.168.2.2
Router(cfg-dns-view)# domain name-server 192.168.2.3
Router(cfg-dns-view)# domain name-server 192.168.2.4
Router(cfg-dns-view)# domain name-server 192.168.2.5
Router(cfg-dns-view)# domain name-server interface FastEthernet0/0
```

Related Commands

Command	Description
domain name-server	Specifies the ordered list of IP addresses to use when resolving internally generated DNS queries handled using the DNS view.
show interfaces	Display statistics for all interfaces configured on the router or access server.
show ip dns view	Displays information about a particular DNS view or about all configured DNS views, including the number of times the DNS view was used.

domain resolver source-interface

To set the source IP address of the Domain Name Server (DNS) queries for the DNS resolver functionality, use the **domain resolver source-interface** command in DNS view configuration mode. To disable the configuration, use the **no** form of this command.

domain resolver source-interface *interface-type number*

no domain resolver source-interface

Syntax Description

interface-type	Interface type. For more information, use the question mark (?) online help function.
number	Interface or subinterface number. For more information about the numbering syntax for your networking device, use the question mark (?) online help function.

Command Default

Disabled. (DNS queries are not forwarded through the expected interface.)

Command Modes

DNS view configuration (cfg-dns-view)

Command History

Release	Modification
12.4(9)T	This command was introduced.

Usage Guidelines

Sometimes, when a source interface is configured on a router with the split DNS feature to forward DNS queries, the router does not forward the DNS queries through the configured interface. If you want the router to forward the DNS queries through a particular source interface, configure the router using the **domain resolver source-interface** command.

Examples

The following example shows how to set the source IP address of the DNS queries for the DNS resolver functionality:

```
Router(config)# ip dns view vrf vpn32 user3
Router(cfg-dns-view)# domain resolver source-interface fastethernet 0/0
```

Related Commands

Command	Description
ip dns view	Creates the DNS view of the specified name associated with the specified VRF instance and then enters DNS view configuration mode.

domain retry

To configure the number of retries to perform when sending or forwarding Domain Name System (DNS) queries handled using the DNS view, use the **domain retry** command in DNS view configuration mode. To remove the specification of the number of retries for a DNS view, use the **no** form of this command.

domain retry *number*

no domain retry

Syntax Description

number	Number of times to retry sending or forwarding a DNS query. The range is from 0 to 100.

Command Default

number: 2 times

Command Modes

DNS view configuration

Command History

Release	Modification
12.4(9)T	This command was introduced.

Usage Guidelines

This command configures the number of retries to perform when sending or forwarding DNS queries handled using the DNS view.

To display the number of retries configured for the DNS view, use the **show ip dns view** command.

Examples

The following example shows how to configure the router to send out or forward ten DNS queries from the DNS view named user3 that is associated with the VRF vpn32 before giving up:

```
Router(config)# ip dns view vrf vpn32 user3
Router(cfg-dns-view)# domain retry 10
```

Related Commands

Command	Description
show ip dns view	Displays information about a particular DNS view or about all configured DNS views, including the number of times the DNS view was used.

domain round-robin

To enable round-robin rotation of multiple IP addresses associated with a name in the hostname cache used by the DNS view, use the **domain round-robin** command in DNS view configuration mode. To disable round-robin functionality for the DNS view, use the **no** form of this command.

domain round-robin

no domain round-robin

Syntax Description

This command has no arguments or keywords.

Command Default

Round-robin rotation of multiple IP addresses associated with a name in the hostname cache is disabled for the DNS view.

Command Modes

DNS view configuration

Command History

Release	Modification
12.4(9)T	This command was introduced.

Usage Guidelines

This command enables round-robin rotation such that each time a hostname in the internal cache is accessed, the system returns the next IP address in the cache, rotated such that the second IP address in the list becomes the first one and the first one is moved to the end of the list. For a more detailed description of round-robin functionality, see the description of the **ip domain round-robin** global command in the *Cisco IOS IP Addressing Services Command Reference*.

To display the cached list of hostnames and addresses specific to a particular DNS view or for all configured DNS views, use the **show hosts** command. To define static hostname-to-address mappings in the global hostname cache or VRF hostname cache for the specified DNS view, use the **ip host** command. To display the round-robin setting for the DNS view, use the **show ip dns view** command.

Examples

The following example shows how to define the hostname www.example.com with three IP addresses and then enable round-robin rotation for the default DNS view associated with the global VRF. Each time that hostname is referenced internally or queried by a DNS client sending a query to the Cisco IOS DNS server on this system, the order of the IP addresses associated with the host www.example.com will be changed. Because most client applications look only at the first IP address associated with a hostname, this results in different clients using each of the different addresses and thus distributing the load among the three different IP addresses.

```
Router(config)# ip host view www.example.com 192.168.2.100 192.168.2.200 192.168.2.250
Router(config)# ip dns view default
Router(cfg-dns-view)# domain lookup
Router(cfg-dns-view)# domain round-robin
```

Related Commands

Command	Description
ip host	Defines static hostname-to-address mappings in the DNS hostname cache for a DNS view.
ip domain round-robin	Enables round-robin functionality on DNS servers.
show hosts	Displays the default domain name, the style of name lookup service, a list of name server hosts, and the cached list of hostnames and addresses specific to a particular DNS view or for all configured DNS views.
show ip dns view	Displays information about a particular DNS view or about all configured DNS views, including the number of times the DNS view was used.

domain timeout

To configure the number of seconds to wait for a response to a Domain Name System (DNS) query sent or forwarded by the DNS view, use the **domain timeout** command in DNS view configuration mode. To remove the specification of the number of seconds for a DNS view to wait, use the **no** form of this command.

domain timeout *seconds*

no domain timeout

Syntax Description

seconds	Time, in seconds, to wait for a response to a DNS query. The range is from 0 to 3600.

Command Default

number: 3 seconds

Command Modes

DNS view configuration

Command History

Release	Modification
12.4(9)T	This command was introduced.

Usage Guidelines

This command configures the number of seconds to wait for a response to a DNS query sent or forwarded by the DNS view.

To display the number of seconds configured for the DNS view, use the **show ip dns view** command.

Examples

The following example shows how to configure the router to wait 8 seconds for a response to a DNS query received in the DNS view named user3 that is associated with the VRF vpn32:

```
Router(config)# ip dns view vrf vpn32 user3
Router(cfg-dns-view)# domain timeout 8
```

Related Commands

Command	Description
show ip dns view	Displays information about a particular DNS view or about all configured DNS views, including the number of times the DNS view was used.

host (host-list)

To specify a list of hosts that will receive Dynamic Domain Name System (DDNS) updates of address (A) and pointer (PTR) Resource Records (RRs), use the **host** command in host-list configuration mode. To disable the host list, use the **no** form of this command.

host [**vrf** *vrf-name*] {*host-ip-address* | *hostname*}

no host [**vrf** *vrf-name*] {*host-ip-address* | *hostname*}

Syntax Description

vrf *vrf-name*	(Optional) Specifies the virtual routing and forwarding (VRF) table. The *vrf-name* argument is a name with which the address pool is associated. **Note** All hostnames or IP addresses specified on the same line as the **vrf** keyword are associated with that VRF.
host-ip-address	List of server IP addresses that will receive DDNS updates.
hostname	Specifies a hostname.

Defaults

No list is configured for hosts.

Command Modes

Host-list configuration

Command History

Release	Modification
12.3(8)YA	This command was introduced.
12.3(14)T	This command was integrated into Cisco IOS Release 12.3(14)T.

Examples

The following example shows how to configure a list of hosts:

```
ip host-list test
 host vrf abc 10.10.0.0
```

Related Commands

Command	Description
ip host-list	Specifies a list of hosts that will receive DDNS updates of A and PTR RRs.

http (DDNS-update-method)

To specify an update method for address (A) and pointer (PTR) Resource Records (RRs) as HTTP and enter DDNS-HTTP configuration mode, use the **http** command in DDNS-update-method configuration mode. To disable HTTP dynamic updates, use the **no** form of this command.

http {**add** *url-string* | **remove** *url-string*}

no http

Syntax Description

add *url-string*	URL to be used to add or change a mapping between a hostname and an IP address. The *url-string* argument takes the following form: http://*userid*:*password*@*domain-name*/*update-folder-name*/**update?system=***system-name***&hostname=***hostname***&myip=***myipaddr* • *userid* and *password*—Strings for the organization website that you use for performing the A and PTR RRs updates. • *domain-name*—String for the organizational URL that you are using for the updates; for example www.Cisco.com. • *update-folder-name*—String of the folder name within the organizational website in which your updates are stored. • **update?system=***system-name*—Update system (method) being used; for example, dydns is DDNS and dyn is EasyDNS. **Note** Before entering the question mark (?) character, press the control (Ctrl) key and the v key together on your keyboard. This will allow you to enter the ? without the software interpreting the ? as a help query. • **&hostname=***hostname*—Hostname to update. • **&myip=***myipaddr*—IP address with which the specified hostname is associated, respectively. **Note** There is one additional special character string, <s>, which could also be entered into the *url-string*. If <s> is entered, when the update is processed, the IP address of the server to which the update is being sent is substituted at that location.
remove *url-string*	URL to be used to remove a mapping between a hostname and an IP address. The *url-string* argument takes the same form as the one shown in the **add** keyword description.

Defaults

No HTTP update method is configured.

Command Modes

DDNS-update-method configuration

Command History

Release	Modification
12.3(8)YA	This command was introduced.
12.3(14)T	This command was integrated into Cisco IOS Release 12.3(14)T.

Examples

The following example shows how to specify the DynDNS.org to process the updates:

```
ip ddns update method unit-test
 http add http://myuserid:secret@members.dyndns.org/nic/update?system=dyndns&hostname=
mywebsite&myip=10.10.10.10
```

The following are examples of URLs that can be used to update some HTTP DNS update services. These URLs are correct to the best of the knowledge of Cisco but have not been tested in all cases. Where the word "USERNAME:" appears in the URL, your account username at the HTTP site should be used. Where the word "PASSWORD" appears in the URL, your password for that account should be used:

DDNS

```
http://USERNAME:PASSWORD@members.dyndns.org/nic/update?system=dyndns&hostname=<h>&myip=<a>

!Requires "interval max 28 0 0 0" in the update method definition.
```

TZO

```
http://cgi.tzo.com/webclient/signedon.html?TZOName=<h>&Email=USERNAME&TZOKey=PASSWORD&IP
Address=<a>
```

EASYDNS

```
http://USERNAME:PASSWORD@members.easydns.com/dyn/ez-ipupdate.php?action=edit&myip=<a>&
host_id=<h>
```

JUSTLINUX

```
http://USERNAME:PASSWORD@www.justlinux.com/bin/controlpanel/dyndns/jlc.pl?direst=1&
username=USERNAME&password=PASSWORD&host=<h>&ip=<a>
```

DYNS

```
http://USERNAME:PASSWORD@www.dyns.cx/postscript.php?username=USERNAME&password=PASSWORD&
host=<h>&ip=<a>
```

HN

```
http://USERNAME:PASSWORD@dup.hn.org/vanity/update?ver=1&IP=<a>
```

ZONEEDIT

```
http://USERNAME:PASSWORD@www.zoneedit.com/auth/dynamic.html?host=<h>&dnsto=<a>
```

Note Because these services are provided by the respective companies, the URLs may be subject to change or the service could be discontinued at any time. Cisco takes no responsibility for the accuracy or use of any of this information. The URLs were obtained using an application called "ez-ipupdate," which is available for free on the Internet.

Related Commands

Command	Description
ddns	Specifies DDNS as the update method for A and PTR RRs.
debug dhcp	Displays debugging information about the DHCP client and monitors the status of DHCP packets.
debug ip ddns update	Enables debugging for DDNS updates.
debug ip dhcp server	Enables DHCP server debugging.
default	Specifies the command default.
host (host-list)	Specifies a list of hosts that will receive DDNS updates of A and PTR RRs.
internal	Specifies the internal Cisco IOS cache is used for DDNS updates of A and PTR RRs.
interval maximum	Specifies a maximum interval for DDNS updates of A and PTR RRs.
ip ddns update hostname	Enables a host to be used for DDNS updates of A and PTR RRs.
ip ddns update method	Enables DDNS as the update method and assigns a method name.
ip dhcp client update dns	Enables DDNS updates of A RRs using the same hostname passed in the hostname and FQDN options by a client.
ip dhcp-client update dns	Enables DDNS updates of A RRs using the same hostname passed in the hostname and FQDN options by a client.
ip dhcp update dns	Enables DDNS updates of A and PTR RRs for most address pools.
ip host-list	Specifies a list of hosts that will receive DDNS updates of A and PTR RRs.
show ip ddns update	Displays information about the DDNS updates.
show ip ddns update method	Displays information about the DDNS update method.
show ip host-list	Displays the assigned hosts in a list.
update dns	Dynamically updates a DNS with A and PTR RRs for some address pools.

internal (DDNS-update-method)

To specify an update method for Dynamic Domain Name System (DDNS) address (A) and pointer (PTR) Resource Records (RRs) as a Cisco IOS internal cache, use the **internal** command in DDNS-update-method configuration mode. To disable the internal dynamic updates, use the **no** form of this command.

internal

no internal

Syntax Description

This command has no arguments or keywords.

Defaults

No internal cache update method is configured.

Command Modes

DDNS-update-method configuration

Command History

Release	Modification
12.3(8)YA	This command was introduced.
12.3(14)T	This command was integrated into Cisco IOS Release 12.3(14)T.

Usage Guidelines

This command is useful in conjunction with turning on the internal Cisco IOS DNS name-server. The DNS name-server is enabled by using the **ip dns server** command. This command enables the name-server to reply to requests for an IP address associated with the hostname that was added to the internal name cache. Not all images have Cisco IOS DNS name-server functionality, so the internal command will not be available. Refer to Feature Navigator at http://www.cisco.com/go/fn to verify the name-server functionality in your image.

When the internal type of update is specified, an entry into the Cisco IOS name cache is added, which is basically the same as entering the **ip host abc.com 10.0.0.1** command. The hostname “abc” and the IP address “10.0.0.1” are associated with an interface.

Examples

The following example shows how to configure a server to send DDNS updates to the internal Cisco IOS cache:

```
ip ddns update method mytest
 internal
```

Related Commands

Command	Description
ip ddns update method	Enables DDNS as the update method and assigns a method name.

interval maximum

To specify a maximum interval at which Dynamic Domain Name System (DDNS) updates of address (A) and pointer (PTR) Resource Records (RRs) occur, use the **interval maximum** command in DDNS-update-method configuration mode. To disable the interval, use the **no** form of this command.

interval maximum *days hours minutes seconds*

no interval maximum

Syntax Description

days	Maximum interval, in days, at which updates occur. The range is from 0 to 365.
hours	Maximum interval, in hours, at which updates occur. The range is from 0 to 23.
minutes	Maximum interval, in minutes, at which updates occur. The range is from 0 to 59.
seconds	Maximum interval, in seconds, at which updates occur. The range is from 0 to 59.

Defaults

No maximum interval is configured.

Command Modes

DDNS-update-method configuration

Command History

Release	Modification
12.3(8)YA	This command was introduced.
12.3(14)T	This command was integrated into Cisco IOS Release 12.3(14)T.

Examples

The following example shows how to configure the update method, the maximum interval of the updates (globally), and the hostname on the interface:

```
interface ethernet1
 ip ddns update hostname abc.dyndns.org
 ip ddns update mytest

ip ddns update method mytest
 http add http://test:test@members.dyndns.org/nic/update?system=dyndns&hostname=myhost&
 myip=10.10.10.10
 interval maximum 1 0 0 0
```

Related Commands

Command	Description
ip ddns update method	Enables DDNS as the update method and assigns a method name.

interval minimum

To specify a minimum interval at which Dynamic Domain Name System (DDNS) updates of address (A) and pointer (PTR) Resource Records (RRs) occur, use the **interval minimum** command in DDNS-update-method configuration mode. To disable the minimum interval, use the **no** form of this command.

interval minimum *days hours minutes seconds*

no interval minimum

Syntax Description

days	Minimum interval, in days, at which updates occur. The range is from 0 to 365.
hours	Minimum interval, in hours, at which updates occur. The range is from 0 to 23.
minutes	Minimum interval, in minutes, at which updates occur. The range is from 0 to 59.
seconds	Minimum interval, in seconds, at which updates occur. The range is from 0 to 59.

Command Default

No minimum interval is configured.

Command Modes

DDNS-update-method configuration

Usage Guidelines

DDNS updates for interfaces acquiring their address through DHCP occur every time the DHCP lease is renewed. If the lease is renewed more often than the minimum update interval needed, then a problem may occur with the updates. Sites accepting HTTP-style updates, such as DynDNS.org, may report an error if the updates occur too often. The **interval minimum** command forces the system to ignore updates that would occur too often.

Currently, the DynDNS.org policy is that updates can not be made more often than once every 10 minutes. This policy is subject to change in the future. The **interval minimum** command helps to guarantee that updates will not be sent too often.

Command History

Release	Modification
12.4	This command was introduced.

Examples

The following example shows how to configure the minimum interval so that updates would not be sent to DynDNS.org any more often than once every 15 minutes.

```
!
 ip ddns update method my test
 interval minimum 0 0 15 0
 http
 add  http://test:test@members.dyndns.org/nic/update?system=dyndns&hostname=myhostname&
 myip=10.10.10 .1
```

Related Commands

Command	Description
ip ddns update method	Enables DDNS as the update method and assigns a method name.

ip ddns update hostname

To enable a host to be used for Dynamic Domain Name System (DDNS) updates of address (A) and pointer (PTR) Resource Records (RRs), use the **ip ddns update hostname** command in interface configuration mode. To disable the dynamic updates, use the **no** form of this command.

ip ddns update hostname *hostname*

no ip ddns update hostname *hostname*

Syntax Description

hostname	Specifies a hostname of the server that will receive updates. **Note** It is expected that the hostname will be an fully qualified domain name (FQDN). Using an FQDN hostname enables the specification of a hostname in a different domain that the default domain of the device.

Defaults

No host is configured.

Command Modes

Interface configuration

Command History

Release	Modification
12.3(8)YA	This command was introduced.
12.3(14)T	This command was integrated into Cisco IOS Release 12.3(14)T.

Usage Guidelines

The interface configuration overrides the global configuration.

Examples

The following example shows how to configure the testhost host to update A and PTR RRs:

```
interface ethernet1/0
 ip ddns update hostname testhost
```

Related Commands

Command	Description
ip ddns update method	Specifies a method of DDNS updates of A and PTR RRs and the maximum interval between the updates.

ip ddns update method

To specify a method and method name for updating Dynamic Domain Name System (DDNS) address (A) and pointer (PTR) Resource Records (RRs) and enter DDNS-update-method configuration mode, use the **ip ddns update method** command in global configuration mode. To disable the dynamic updating, use the **no** form of this command.

ip ddns update method *method-name*

no ip ddns update method

Syntax Description

method-name	IETF standardized DDNS update method name.

Defaults

No DDNS update method is configured.

Command Modes

Global configuration

Command History

Release	Modification
12.3(8)YA	This command was introduced.
12.3(14)T	This command was integrated into Cisco IOS Release 12.3(14)T.

Usage Guidelines

The interface configuration overrides the global configuration.

Examples

The following example shows how to assign a DDNS update method name:

```
ip ddns update method unit-test
```

Once you have assigned the method name, you can specify the type of update (DDNS or HTTP) and set a maximum interval. Refer to the **ddns** and **http** commands for more information.

Related Commands

Command	Description
ddns	Specifies DDNS as the update method for A and PTR RRs.
http	Specifies HTTP as the update method for A and PTR RRs.

ip dhcp client update dns

To enable Dynamic Domain Name System (DDNS) updates of address (A) Resource Records (RRs) using the same hostname passed in the hostname and fully qualified domain name (FQDN) options by a client, use the **ip dhcp client update dns** command in interface configuration mode. To disable dynamic updates of A RRs, use the **no** form of this command.

ip dhcp client update dns [**server** {**both** | **none**}]

no ip dhcp client update dns [**server** {**both** | **none**}]

Syntax Description

server	(Optional) Specifies that the client will include an FQDN option specifying the "N" flag. The server will not perform any DDNS updates for the client. The server can, of course, override this configuration and do the updates anyway. • **both**—Enables the DHCP client to perform DDNS updates on both A (forward) and PTR (reverse) RRs in the primary DNS server unless the DHCP server has specified in the DHCP ACK FQDN option that it has overridden the client request and has updated the information previously. **Note** If the **both** keyword is specified, it means that the client will include an FQDN option specifying the S flag. This keyword instructs the server that it should attempt to dynamically update both the A and PTR RRs. • **none**—On the client side, specifies that the DHCP client should include the FQDN option; however, it should not attempt any DDNS updates. **Note** If the **none** keyword is not specified, the FQDN option will result in the server updating the PTR RR and neither the server nor the client will update the A RR.

Defaults

No default behavior.

Command Modes

Interface configuration

Command History

Release	Modification
12.3(8)YA	This command was introduced.
12.3(14)T	This command was integrated into Cisco IOS Release 12.3(14)T.

Usage Guidelines

Commands that are configured in interface configuration mode override the commands configured using global configuration mode. The **ip dhcp-client update dns** command (hyphenated) is the global configuration command.

If you specify the **both** and **none** keywords in separate configurations, the DHCP client will update both the A and PTR RRs, and the DHCP server will not perform any updates. If you specify the **none** and **both** keywords (in this order), the DHCP client will not perform any updates and the server will update both the A and PTR RRs.

There are two parts to the DDNS update configuration on the client side. First, if the **ip ddns update method** command is configured on the client, which specifies the DDNS-style updates, then the client will be trying to generate or perform A updates. If the **ip ddns update method ddns both** command is configured, then the client will be trying to update both A and PTR RRs.

Second, the only way for the client to communicate with the server, with reference to what updates it is generating or expecting the server to generate, is to include an FQDN option when communicating with the server. Whether or not this option is included is controlled on the client side by the **ip dhcp-client update dns** command in global configuration mode or the **ip dhcp client update dns** command in interface configuration mode.

Even if the client instructs the server to update both or update none, the server can override the client request and do whatever it was configured to do anyway. If there is an FQDN option in the DHCP interaction as above, then the server can communicate to the client that it was overridden, in which case the client will not perform the updates because it knows that the server has done the updates. Even if the server is configured to perform the updates after sending the ACK (the default), it can still use the FQDN option to instruct the client what updates it will be performing and thus the client will not do the same types of updates.

If the server is configured with the **update dns** command with or without any keywords, and if the server does not see an FQDN option in the DHCP interaction, then it will assume that the client does not understand DDNS and will automatically act as though it were configured to update both A and PTR RRs on behalf of the client.

Examples

The following example shows how to configure the DHCP client to perform A and PTR RR updates, but the DHCP server will not perform the updates:

```
ip dhcp client update dns server none
```

Related Commands

Command	Description
ip ddns update method	Specifies a method of DDNS updates of A and PTR RRs and the maximum interval between the updates.

ip dhcp-client update dns

To enable Dynamic Domain Name System (DDNS) updates of address (A) Resource Records (RRs) using the same hostname passed in the hostname and fully qualified domain name (FQDN) options by a client, use the **ip dhcp-client update dns** command in global configuration mode. To disable dynamic updates, use the **no** form of this command.

ip dhcp-client update dns [**server** {**both** | **none**}]

no ip dhcp client update dns

Syntax Description

server	(Optional) Enables the Dynamic Host Control Protocol (DHCP) server to perform DDNS updates of forward or A RRs in the primary DNS server, unless the DHCP server reports in the ACK FQDN option that it has overridden the client request and updated this information previously. The keywords are as follows: • **both**—Enables the DHCP server to perform DDNS updates on both A (forward) and PTR (reverse) RRs in the primary DNS server unless the DHCP server has specified in the DHCP ACK FQDN option that it has overridden the client request and has updated the information previously. **Note** If the **both** keyword is specified, it means that the client will include an FQDN option specifying the S flag. This instructs the server that it should attempt to dynamically update both the A and PTR RRs. • **none**—On the client side, specifies that the DHCP client should include the FQDN option, however, it should not attempt any DDNS updates. On the server side, specifies that the client will include an FQDN option specifying the "N" flag. The server will not perform any DDNS updates for the client. The server can, of course, override this and do the updates anyway. **Note** If the **none** keyword is not specified, the FQDN option will result in the server updating the PTR RR and neither the server nor the client will update the A RR.

Defaults

No default behavior.

Command Modes

Global configuration

Command History

Release	Modification
12.3(8)YA	This command was introduced.
12.3(14)T	This command was integrated into Cisco IOS Release 12.3(14)T.

Usage Guidelines

Commands that are configured in interface configuration mode override the commands configured using global configuration mode. The **ip dhcp client update dns** command (no hyphen) is the interface configuration command.

If you specify the **both** and **none** keywords, the DHCP client will update both the A and PTR RRs, and the DHCP server will not perform any updates. The DHCP server can override the DHCP client using the **ip dhcp update dns override** command.

If you specify the **none** and **both** keywords (in this order), the DHCP client will not perform any updates and the server will update both the A and PTR RRs.

There are two parts to the DDNS update configuration on the client side. First, if the **ip ddns update method** command is configured on the client, which specifies the DDNS-style updates, then the client will be trying to generate or perform A updates. If the **ip ddns update method ddns both** command is configured, then the client will be trying to update both A and PTR RRs.

Second, the only way for the client to communicate with the server, with reference what updates it is generating or expecting the server to generate, is to include an FQDN option when communicating with the server. Whether or not this option is included is controlled on the client side by the **ip dhcp-client update dns** command in global configuration mode or the **ip dhcp client update dns** command in interface configuration mode.

If the FQDN option is included in the DHCP interaction, then the client may instruct the server to update "reverse" (the default), "both", or "none." Obviously, if the **ip ddns update method** command is configured with the **ddns both** keyword combination, then the FQDN option configuration should reflect an IP DHCP client update DNS server none, but you have to configure the system correctly.

Even if the client instructs the server to update both or update none, the server can override the client request and do whatever it was configured to do anyway. If there is an FQDN option in the DHCP interaction as above, then the server can communicate to the client that it was overridden, in which case the client will not perform the updates because it knows that the server has done the updates. Even if the server is configured to perform the updates after sending the ACK (the default), it can still use the FQDN option to instruct the client what updates it will be performing and thus the client will not do the same types of updates.

If the server is configured with the update dns command with or without any keywords, and if the server does not see an FQDN option in the DHCP interaction, then it will assume that the client does not understand DDNS and will automatically act as though it were configured to update both A and PTR RRs on behalf of the client.

Examples

The following example shows how to configure the DHCP server to perform A and PTR RR updates:

```
ip dhcp-client update dns server both
```

Related Commands

Command	Description
ip ddns update method	Specifies a method of DDNS updates of A and PTR RRs and the maximum interval between the updates.

ip dhcp update dns

To enable Dynamic Domain Name System (DDNS) updates of address (A) and pointer (PTR) Resource Records (RRs) for most address pools, use the **ip dhcp update dns** command in global configuration mode. To disable dynamic updates, use the **no** form of this command.

ip dhcp update dns [**both**] [**override**] [**before**]

no ip dhcp update dns [**both**] [**override**] [**before**]

Syntax Description

both	(Optional) Enables the Dynamic Host Control Protocol (DHCP) server to perform DDNS updates on both A and PTR RRs unless the DHCP client has specified that the server not perform the updates in the fully qualified domain name (FQDN) option.
override	(Optional) Enables the DHCP server to override the DHCP client specification not to perform DDNS updates for both the A and PTR RRs.
before	(Optional) Enables the DHCP server to perform DDNS updates before sending the DHCP ACK back to the DHCP client.

Defaults

Perform DDNS updates after sending a DHCP ACK.

Command Modes

Global configuration

Command History

Release	Modification
12.3(8)YA	This command was introduced.
12.3(14)T	This command was integrated into Cisco IOS Release 12.3(14)T.

Usage Guidelines

Some address pools are configured using the **update dns** command, and that configuration overrides the global configuration. See the **update dns** command for more information.

If you specify the **both** and **override** keywords, the DHCP server will perform the updates for both A and PTR RRs overriding anything that the DHCP client has specified in the FQDN option.

Examples

The following example shows how to configure the DHCP server to perform A and PTR RR updates and to override the DHCP client FQDN option:

```
ip dhcp update dns both override
```

Related Commands

Command	Description
update dns	Dynamically updates a DNS with A and PTR RRs for some address pools.

ip dns name-list

To add a hostname pattern-matching rule to the end of a Domain Name System (DNS) name list, use the **ip dns name-list** command in global configuration mode. To remove a rule from a DNS name list or to remove an entire name-list, use the **no** form of this command.

ip dns name-list *name-list-number* {**deny** | **permit**} *pattern*

no ip dns name-list *name-list-number* [{**deny** | **permit**} *pattern*]

Syntax Description

name-list-number	Integer from 1 to 500 that identifies the DNS name list.
deny	Specifies that any name matching the specified pattern immediately terminates matching the name list with a negative result.
permit	Specifies that any name matching the specified pattern immediately terminates matching the name list with a positive result.
pattern	Regular expression, case-insensitive, to be compared to the a DNS query hostname.

Command Default

No DNS name list is defined or modified. The access list defaults to an implicit **deny .*** clause. The access list is always terminated by an implicit **deny .*** clause.

Command Modes

Global configuration

Command History

Release	Modification
12.4(9)T	This command was introduced.

Usage Guidelines

This command adds a hostname pattern-matching rule to the end of the specified DNS name list. A DNS name list is identified by a unique *name-list-number* value and defines an ordered list of hostname pattern-matching rules that the Cisco IOS software can use to match hostnames in a DNS query.

If the DNS name list does not exist yet, it is automatically created.

When a DNS name list is used to determine if a DNS view list member can be used to handle an incoming DNS query, the individual deny and permit clauses function as follows:

- If the query hostname matches the pattern in a deny clause, the DNS view is rejected; the view-selection process moves on to the next member of the DNS view list.
- If the query hostname matches the pattern in a permit clause, the DNS view is selected to handle the query; the view-selection process is finished.
- There is an implicit deny statement at the end of the access list. If the view-selection process reaches the end of the DNS name list without either a deny clause that causes the view to be rejected or a permit clause that causes the view to be selected, the DNS view is rejected; the view-selection process moves onto the next member of the DNS view list.

For any DNS name list number, the **ip dns name-list** command can be entered multiple times to specify any number of pattern-matching rules in a single name list.

To display a particular DNS name list or all configured name lists, use the **show ip dns name-list** command.

Use of Pattern Matching Characters to Specify the Hostname Pattern

Any rule in a DNS name list can include Cisco regular expression pattern-matching characters in the regular expression that defines the hostname pattern. For a detailed description of regular expressions and regular expression pattern-matching characters, see the *Cisco IOS Terminal Services Configuration Guide*.

Use of a DNS Name List Definition

A DNS name list can be referenced by a DNS view list (accessed by using the **ip dns view-list** command), within a DNS view list member definition (accessed by using the **view** command) that has been configured to deny or permit the use of that DNS view for handling a given DNS query based on whether the destination hostname adheres to a particular DNS name list. To configure this type of usage restriction on the view list member, use the **restrict name-group** command.

Examples

The following example shows how to configure DNS name list number 9 so that the name list will be matched if the query hostname matches either www.example2.com or *.example3.com:

```
Router(config)# ip dns name-list 9 permit www.example2.com
Router(config)# ip dns name-list 9 permit .*.example3.org
```

Related Commands

Command	Description
debug ip dns name-list	Enables debugging output for DNS name list events.
ip dns name-list	Defines a list of pattern-matching rules in which each rule permits or denies the use of a DNS view list member to handle a DNS query based on whether the query hostname matches the specified regular expression.
restrict name-group	Restricts the use of the DNS view list member to DNS queries for which the query hostname matches a particular DNS name list.
show ip dns name-list	Displays a particular DNS name list or all configured name lists.
view	Enters DNS view list member configuration mode so that usage restrictions can be configured for the view list member.

ip dns primary

To configure the router as authoritative for a zone, use the **ip dns primary** command in global configuration mode. To configure the router as nonauthoritative for a zone, use the **no** form of this command.

ip dns primary *domain-name* **soa** *primary-server-name mailbox-name* [*refresh-interval* [*retry-interval* [*expire-ttl* [*minimum-ttl*]]]]

no ip dns primary *domain-name*

Syntax Description

domain-name	Name of the Domain Name System (DNS).
soa	Start of authority record parameters.
primary-server-name	Authoritative name server.
mailbox-name	DNS mailbox of administrative contact.
refresh-interval	(Optional) Refresh time in seconds. This time interval must elapse between each poll of the primary by the secondary name server. The range is from 0 to 4294967295. The default is 21600 (6 hours).
retry-interval	(Optional) Refresh retry time in seconds. This time interval must elapse between successive connection attempts by the secondary to reach the primary name server in case the first attempt failed. The range is from 0 to 4294967295. The default is 900 (15 minutes).
expire-ttl	(Optional) Authority expire time in seconds. The secondary expires its data if it cannot reach the primary name server within this time interval. The range is from 0 to 4294967295. The default is 7776000 (90 days).
minimum-ttl	(Optional) Minimum Time to Live (TTL) in seconds for zone information. Other servers should cache data from the name server for this length of time. The range is from 0 to 4294967295. The default is 86400 (1 day).

Command Default

No authority record parameters are configured for the DNS name server, so queries to the DNS server for locally defined hosts will not receive authoritative responses from this server.

Command Modes

Global configuration

Command History

Release	Modification
12.2	This command was introduced.

Usage Guidelines

Use this command to configure the router as an authoritative name server for the host table, or zone file, of a DNS domain. The primary name server name and a DNS mailbox name are required authority record parameters. Optionally, you can override the default values for the polling refresh interval, the refresh retry interval, the authority expire time, and the minimum TTL for zone information.

To display the authoritative name server configuration for the router, use the **show ip dns primary** command.

Examples

The following example shows how to configure the router as the primary DNS server authoritative for the example.com domain, or zone:

```
Router(config)# ip dns primary example.com soa ns1.example.com mb1.example.com 10800 900
5184000 172800
```

In the above example, the DNS domain name of the router is ns1.example.com, and the administrative contact for this zone is mb1@example.com. The refresh time is 3 hours, the refresh retry time is 15 minutes, the authority expire time is 60 days, and the minimum TTL is 2 days.

Related Commands

Command	Description
ip dns server	Enables the DNS server on a router.
ip host	Defines static hostname-to-address mappings in the DNS hostname cache for a DNS view.
ip name-server	Specifies the address of one or more name servers to use for name and address resolution.
show ip dns primary	Displays the authoritative name server configuration for the router.

ip dns server queue limit

To configure a limit to the size of the queues used by the Domain Name System (DNS) server processes, use the **ip dns server queue limit** command in global configuration mode. To remove any limit on the queue, use the **no** form of this command.

ip dns server queue limit forwarder *queue-size-limit*

no ip dns server queue limit forwarder

Syntax Description

forwarder	Sets the queue limit for the forwarder queue.
queue-size-limit	Specifies the maximum size to be used for the queue. Valid range is from 0 to 1000000. Value 0 indicates no limit.

Command Default

The queue limit is set to 0, indicating there is no limit on the queue.

Command Modes

Global configuration (config)

Command History

Release	Modification
12.4(20)T	This command was introduced.
12.4(24)T	The **director** keyword was removed.

Usage Guidelines

When a DNS query is forwarded to another nameserver for resolution, some memory space is held for the corresponding DNS query until an appropriate response is received or until there is a timeout. If the queries are being received at a very high rate, this may result in the free I/O memory getting exhausted.

Use the **ip dns server queue limit** command to set a limit to the size of the queue.

Examples

The following example shows how to set the limit to the forwarder queue used by the DNS server:

```
Router(config)# ip dns server queue limit forwarder 10
Router(config)#
```

Related Commands

Command	Description
show ip dns statistics	Displays packet statistics for the DNS server.

ip dns server view-group

To specify the default Domain Name System (DNS) server view list for the router, use the **ip dns server view-group** command in global configuration mode. To remove this definition, use the **no** form of this command.

ip dns server view-group *view-list-name*

no ip dns server view-group

Syntax Description

view-list-name	Name of a DNS view list. **Note** If the specified view list does not exist, a warning is displayed but the default view list setting is configured anyway. The specified view list can be defined after the default DNS server view list is configured.

Command Default

No default DNS view list is configured; incoming queries arriving on an interface not assigned a specific DNS view list will be handled using the global default view.

Command Modes

Global configuration

Command History

Release	Modification
12.4(9)T	This command was introduced.

Usage Guidelines

This command configures the router to use the specified DNS server view list as the default DNS view list. The default DNS view list is used to determine which DNS view the router will use to handle a given incoming DNS query that arrives on an interface that is not configured with a DNS view list. The router checks these types of DNS queries against the DNS view list entries (in the order specified in the DNS view list) and uses the first DNS view list member whose restrictions allow the view to handle that query.

To specify that the router uses a particular DNS view list to choose the DNS view to use to handle incoming DNS queries that arrives on a specific interface, use the **ip dns view-group** command.

Note The *view-list-name* argument referenced in this command is configured using the **ip dns view-list** command. The DNS view list is referred to as a "view list" when it is defined and as a "view group" when it is referenced in other commands.

Examples

The following example shows how to configure the DNS name list userlist1 as the default name list:

```
Router(config)# ip dns server view-group userlist1
```

Related Commands

Command	Description
ip dns view-group	Specifies the DNS view list to use to determine which DNS view to use to handle incoming DNS queries that arrive on a specific interface.
ip dns view-list	Enters DNS view list configuration mode so that DNS views can be added to or removed from the ordered list of DNS views.
show ip dns view-list	Displays information about a particular DNS view list or about all configured DNS view lists.