



DNS Server Support for NS Records

This feature module describes the DNS Server Support for NS Records feature and includes the following sections:

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Feature Overview

Domain Name System (DNS) is a client/server mechanism used to access a distributed database. The server portion of the DNS client/server mechanism is the name server (NS). An NS can be responsible for presenting information about a portion of the DNS distributed database or can be a forwarding/caching NS. In the latter case, the NS queries other NSs rather than maintaining a local portion of the DNS database.

DistributedDirector has improved server load-balancing capacity with the DNS Server Support for NS Records feature. This feature adds support for NS records to the Cisco IOS DNS server. With this feature, the DistributedDirector can distribute the server-selection process to multiple DistributedDirectors, improving overall server capacity.

Benefits

This feature allows an NS to delegate server responsibility for a domain by returning an NS record when queried. This function is useful to DistributedDirector because a computationally load can be distributed over a large number of DistributedDirectors, so each DistributedDirector can be free to perform computational expensive actions to select the best server.

Related Documents

For more information on the Cisco DistributedDirector, see the following documents, which are located on Cisco.com at <http://www.cisco.com/univercd/cc/td/doc/product/iaabu/distrdir/index.htm>:

- *Cisco DistributedDirector 4700-M Installation and Configuration Guide*
- *Release Notes for Cisco DistributedDirector System Software*
- *Cisco DistributedDirector Enhancements for Release 11.1(18)IA*
- *Cisco DistributedDirector Enhancements for Release 11.1(25)IA*
- *Cisco DistributedDirector Enhancements for Release 11.1(28)IA*
- *Cisco DistributedDirector Enhancements for Release 12.1(5)T*
- *Dynamic Feedback Protocol Support in DistributedDirector*

Supported Platforms

- Cisco DistributedDirector 4500

Supported Standards, MIBs, and RFCs

Standards

None

MIBs

None

To obtain lists of supported MIBs by platform and Cisco IOS release, and to download MIB modules, go to the Cisco MIB website on Cisco.com at the following URL:

<http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml>

RFCs

DNS is defined in RFC 1035.

Configuration Tasks

See the following sections for configuration tasks for this feature. Each task in the list is identified as either required or optional.

- [Configuring DNS Server Support for NS Records](#) (required)
- [Verifying DNS Server Support for NS Records](#) (optional)

Configuring DNS Server Support for NS Records

To configure the DistributedDirector to create an NS resource record to be returned when the DNS server is queried for the associated domain, use the following commands in global configuration mode:

	Command	Purpose
Step 1	Router(config)# ip host www.xyz.com ns ns.xyz.com	Configures the DistributedDirector to create an NS resource record to be returned when the DNS server is queried for the associated domain.
Step 2	Router(config)# ip host ns.xyz.com 10.0.0.1 10.0.0.2 10.0.0.3	Defines a static host-name-to-address mapping in the host cache.
Step 3	Router(config)# ip director host ns.xyz.com priority random 1	Configures the order in which the DistributedDirector considers metrics when picking a server.
Step 4	Router(config)# ip dns primary xyz.com soa ns.xyz.com	Identifies the DistributedDirector as the primary DNS NS for a domain and as the SOA record source.

Verifying DNS Server Support for NS Records

To verify that the DistributedDirector is configured with NS record support, use the **show running-config** command or the **show host** command.

Configuration Examples

This section provides the following configuration example:

- [DNS Server Support for NS Records Example](#)

DNS Server Support for NS Records Example

The following example shows a top-level DistributedDirector using a low-cost metric, such as portion or random, to distribute load over second-level DistributedDirectors. Second-level DistributedDirectors then use more expensive metrics, such as drp-ext or drp-rtt, to perform more precise server selection. The relevant portions of this configuration are show below:

Top-Level DistributedDirector

```
ip host www.xyz.com ns ns.xyz.com
ip host ns2.xyz.com 10.0.0.1 10.0.0.2 10.0.0.3
ip director host ns.xyz.com priority random 1
ip dns primary www.xyz.com soa ns2.xyz.com
```

Second-Level DistributedDirector

```
ip host www.xyz.com 10.0.0.4 10.0.0.5 10.0.0.6
ip director host www.xyz.com priority drp-ext 1
ip director host www.xyz.com priority drp-rtt 2
ip director server 10.0.0.4 drp-association 10.0.0.7
ip director server 10.0.0.5 drp-association 10.0.0.8
ip director server 10.0.0.6 drp-association 10.0.0.9
```

Command Reference

This section documents new commands. All other commands used with the DistributedDirector are documented in the “Command Summary” and “Reference” sections of the Cisco DistributedDirector installation and configuration guides.

- [ip host ns](#)

ip host ns

To configure the DistributedDirector to create a name server (NS) resource record to be returned when the Domain Name System (DNS) server is queried for the associated domain, use the **ip host ns** command in global configuration mode. To remove the NS records, use the **no** form of this command.

ip host *domain-name ns server-name*

no ip host *domain-name ns server-name*

Syntax Description

<i>domain-name</i>	Name for which authority is delegated to another NS such as a second-level DistributedDirector.
<i>server-name</i>	Name of the second-level DNS server.

Defaults

None

Command Modes

Global configuration

Command History

Release	Modification
12.2(2)T	This command was introduced.

Usage Guidelines

The **ip host ns** command allows the DistributedDirector to distribute the server selection process to multiple DistributedDirectors, providing greater scalability and better administrative control.

A DNS server can delegate responsibility for a domain to another DNS server by returning an NS record when queried. This task is especially useful to DistributedDirector because in some cases the work required to determine the best DNS reply cannot be computed fast enough. Instead, DistributedDirector can return an NS record, delegating the authority for the requested data to one or more second-level DistributedDirectors.

Examples

The following example shows a top-level DistributedDirector that uses a low-cost metric, such as portion or random, to distribute load over second-level DistributedDirectors. Second-level DistributedDirectors then use more expensive metrics, such as drp-ext or drp-rtt, to perform more precise server selection. The relevant portions of this configuration are shown below.

Top-Level DistributedDirector

```
ip host www.xyz.com ns ns.xyz.com
ip host ns2.xyz.com 10.0.0.1 10.0.0.2 10.0.0.3
ip director host ns.xyz.com priority random 1
ip dns primary www.xyz.com soa ns2.xyz.com
```

Second-Level DistributedDirector

```
ip host www.xyz.com 10.0.0.4 10.0.0.5 10.0.0.6
ip director host www.xyz.com priority drp-ext 1
ip director host www.xyz.com priority drp-rtt 2
ip director server 10.0.0.4 drp-association 10.0.0.7
ip director server 10.0.0.5 drp-association 10.0.0.8
ip director server 10.0.0.6 drp-association 10.0.0.9
```