



# Domain Name System Server Round-Robin Functionality for the Cisco AS5800

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This feature module describes Domain Name System (DNS) server round-robin functionality for the Cisco AS5800 universal access server. It includes information on the benefits of the new feature, supported platforms, related documents, and so on.

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## Feature Overview

In a multiple server configuration *without* the DNS round-robin functionality, the first host server/IP address is used for the whole time to live (TTL) of the cache, and uses the second and third only in the event of host failure. This presents a problem when a high volume of users all arrive at the first host during the TTL time. The network access server (NAS) then sends out a DNS query; the DNS servers reply with a list of the configured IP addresses to the NAS. The NAS then caches these IP addresses for a given time (for example, five minutes). All users that dial in during the five minute TTL time will land on one host, the first IP address in the list.

In a multiple server configuration *with* the DNS round-robin functionality, the DNS server returns the IP address of all hosts to rotate between the cache of host names. During the TTL of the cache, users are distributed among the hosts. This functionality distributes calls across the configured hosts and reduces the amount of DNS queries.

## Domain Name System

The Domain Name System (DNS) is a distributed database for objects in a computer network. The basic function of name servers is to provide information about network objects by answering queries. By using a name server approach, the network can be organized into a hierarchy of autonomous domains. The name space is organized as a tree that often resembles the organizations that are responsible for the administration boundaries.

You can configure the Network Registrar DNS server and zones by accepting the system defaults or changing them through the Network Registrar graphical user interface (GUI) or the command line interface (CLI) tool.

## Round Robin

Round robin is a scheduling algorithm in which processes are activated in a fixed cyclic order. Those processes which cannot proceed because they are waiting for some event (for example, termination of a child process or an input/output operation), return control to the scheduler. The benefit of round-robin scheduling is its simplicity: only the processes themselves need to know what they are waiting for or how to tell if the scheduling has happened. However, if the TTL of the process times out just before the event for which it is waiting occurs, then the event will not get handled until all the other processes have been activated.

The round-robin algorithm specifies that the real server used for a new connection to the virtual server is chosen from the server farm in a circular fashion. Round robin sends out packets from a queue until the byte count on the queue is met, then moves on to the next queue. This ensures that no queue gets starved.

## Benefits

Enabling DNS round-robin functionality ensures successive clients resolving the same name will connect to different IP addresses. This operation causes the Network Registrar DNS server to rearrange the order of the records each time the server is queried.

## Related Documents

- *Cisco IOS IP and IP Routing Configuration Guide*, Cisco IOS Release 12.1
- *Cisco IOS IP and IP Routing Command Reference*, Cisco IOS Release 12.1

## Supported Platforms

Cisco AS5800

## Supported Standards, MIBs, and RFCs

### Standards

No new or modified standards are supported by this feature.

### MIBs

No new or modified MIBs are supported by this feature.

### RFCs

No new or modified RFCs are supported by this feature.

## Configuration Tasks

See the following section for configuration tasks for the DNS server round robin feature:

- Configuring DNS Server Round-Robin Functionality (Required)
- Verifying DNS Server Round-Robin Functionality (Optional)

## Configuring DNS Server Round-Robin Functionality

	Command	Purpose
Step 1	Router# <b>conf term</b>	Enters global configuration mode. You have entered global configuration mode when the prompt changes to Router(config)#.
Step 2	Router(config)# <b>ip host name ip-address1 [ip-address2...ip-address8]</b>	Defines a static host name-to-address mapping in the host cache.
Step 3	Router(config)# <b>ip domain round-robin</b>	Enables round-robin functionality on a DNS server(s).

## Verifying DNS Server Round-Robin Functionality

	Command	Purpose
Step 1	Router# <b>show running-config</b>	Displays the configuration information currently running on the terminal

# Configuration Examples

This section provides the following configuration example:

## DNS Server Round-Robin Example

### DNS Server Round-Robin Example

The example configuration, with **ip domain round-robin** configured, allows a Telnet to `www.company.com` to connect to each of the three IP addresses specified in the following order: The first time the Telnet command is given, it would connect to 10.0.0.1; the second time the command is given, it would connect to 20.0.0.1; and the third time the command is given, it would connect to 30.0.0.1. In each case, the other two addresses would also be tried if the first one failed; this is the normal operation of the Telnet command.

```
Router# conf term
Router(config)# ip host www.company.com 10.0.0.1 20.0.0.1 30.0.0.1
Router(config)# ip domain round-robin
!
Router# show running-config

Current configuration:
!
! Last configuration change at 12:08:21 PDT Thu Aug 31 2000
!
version 12.1
service timestamps debug datetime msec localtime show-timezone
service timestamps log datetime msec localtime show-timezone
service password-encryption
!
hostname Router
!
!
clock timezone PST -8
clock summer-time PDT recurring
clock calendar-valid
ip subnet-zero
ip domain round-robin
ip domain-name company.com
ip host www.company.com 10.1.1.1 20.1.1.1 30.1.1.1
!
end
```

## Command Reference

This section documents new and modified commands. All other commands used with these features are documented in the Cisco IOS Release 12.1 command references.

### **ip domain round-robin**

# ip domain round-robin

To enable round-robin functionality on DNS servers, use the **ip domain round-robin** global configuration command. To disable round-robin functionality, use the no form of the command.

**ip domain round-robin**

**no ip domain round-robin**

**Syntax Description** This command has no arguments or keywords.

**Defaults** Round robin is not enabled.

**Command Modes** Global configuration

Command History	Release	Modification
	12.1(3)T	This command was first supported on the Cisco AS5800.

**Examples** The example configuration, with **ip domain round-robin** configured, allows a Telnet to www.company.com to connect to each of the three IP addresses specified in the following order: The first time the Telnet command is given, it would connect to 10.0.0.1; the second time the command is given, it would connect to 20.0.0.1; and the third time the command is given, it would connect to 30.0.0.1. In each case, the other two addresses would also be tried if the first one failed; this is the normal operation of the Telnet command.

```
Router(config)# ip host www.company.com 10.0.0.1 20.0.0.1 30.0.0.1
Router(config)# ip domain round-robin
```

Related Commands	Command	Description
	<b>ip domain-list</b>	Defines a list of default domain names to complete unqualified host names.
	<b>ip domain-lookup</b>	Enables the IP Domain Name System-based host name-to-address translation.
	<b>ip domain-name</b>	Defines a default domain name that the Cisco IOS software uses to complete unqualified host names.
	<b>ip host</b>	Defines a static host name-to-address mapping in the host cache.

# Glossary

**DNS**—Domain Name System. System used in the Internet for translating names of network nodes into addresses.

**NAS**—network access server. Cisco platform (or collection of platforms such as an AccessPath system which interfaces between the packet world (for example, the Internet) and the circuit world (for example, the PSTN).

**TTL**—Time To Live. Field in an IP header that indicates how long a packet is considered valid.

**Note**

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For a list of other internetworking terms, see *Internetworking Terms and Acronyms*, available on the Documentation CD-ROM and Cisco Connection Online (CCO) at the following URL: <http://www.cisco.com/univercd/cc/td/doc/cisintwk/ita/index.htm>.

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