



# DistributedDirector Enhancements for Cisco IOS Release 12.1(5)T

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**Note**

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Effective with Cisco IOS Release 12.4(24)T, this feature is not available in Cisco IOS software.

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This feature module describes the DistributedDirector Enhancements for Cisco IOS Release 12.1(5)T feature and includes the following sections:

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- [Supported Platforms, page 3](#)
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- [Configuration Tasks, page 4](#)
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## Feature Overview

The DistributedDirector Enhancements for Cisco IOS Release 12.1(5)T feature consists of the following modified features for the DistributedDirector, which were introduced in Cisco IOS Release 11.1(28)IA:

- [Enhanced Fault Tolerance with Multiple Resource Records](#)
- [Event Recording with Syslog](#)
- [Enhanced Server Verification with Multiple Port Connect Tests](#)

The DistributedDirector Enhancements for Cisco IOS Release 12.1(5)T feature also consists of several unrelated new commands. These commands can be found in the Command Reference section.

### **Enhanced Fault Tolerance with Multiple Resource Records**

Before this enhancement, DistributedDirector would return a single Resource Record (RR) in each Domain Name System (DNS) response. A single RR is normally sufficient, but for some applications, server failover will occur more rapidly when applications are provided IP addresses of multiple servers.



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The Enhanced Fault Tolerance with Multiple Resource Records feature enables DistributedDirector to return multiple RRs. The number of RRs returned in a single reply is configurable. The default number of RRs returned is one.

#### **Event Recording with Syslog**

The Event Recording with Syslog feature enables DistributedDirector to log events by way of the industry-standard syslog system. Server state is logged, providing a useful log of when servers are considered up or down. The logging priority level is notification with priority level five. Additionally, the server selection process, DNS request, and DNS response may be logged. The logging priority level is informational with priority level six.

#### **Enhanced Server Verification with Multiple Port Connect Tests**

Before this enhancement, DistributedDirector could evaluate server status by performing a TCP connect test to a single server port. The Enhanced Server Verification with Multiple Port Connect Tests feature allows multiple port connect tests to be specified. If any one of the connect tests fails, the server is considered down.

## **Benefits**

The features provided in Cisco IOS Release 12.1(5)T help make networks that use DistributedDirector more robust. These features ensure that applications have more useful information and perform better server verification, and they allow administrators to track DistributedDirector better. In particular:

- The Enhanced Fault Tolerance with Multiple Resource Records feature provides better fault tolerance for clients.
- The Event Recording with Syslog feature provides the ability to examine DNS traffic and the way in which servers are chosen.
- The Enhanced Server Verification with Multiple Port Connect Tests feature better reflects the reality that some services span several ports and require that all ports be up.

## **Restrictions**

#### **Enhanced Fault Tolerance with Multiple Resource Records**

Configuring DistributedDirector to return a large number of records can reduce the benefit of using DistributedDirector to select the best server.

#### **Event Recording with Syslog**

Extensive syslog output is provided when logging server selection. Therefore, this feature should not be used when a heavy request load is expected.

## **Related Documents**

For more information on the Cisco DistributedDirector, see the following documents, which are located on Cisco Connection Online (CCO) at <http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml>:

- Cisco DistributedDirector 2500 Series Installation and Configuration Guide
- 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

## Supported Platforms

- Cisco DistributedDirector 2501
- Cisco DistributedDirector 2502
- Cisco DistributedDirector 4700

### Determining Platform Support Through Cisco Feature Navigator

Cisco IOS software is packaged in feature sets that support specific platforms. To get updated information regarding platform support for this feature, access Cisco Feature Navigator. Cisco Feature Navigator dynamically updates the list of supported platforms as new platform support is added for the feature.

Cisco Feature Navigator is a web-based tool that enables you to determine which Cisco IOS software images support a specific set of features and which features are supported in a specific Cisco IOS image. You can search by feature or release. Under the release section, you can compare releases side by side to display both the features unique to each software release and the features in common.

To access Feature Navigator, you must have an account on Cisco.com. If you have forgotten or lost your account information, send a blank e-mail to [cco-locksmith@cisco.com](mailto:cco-locksmith@cisco.com). An automatic check will verify that your e-mail address is registered with Cisco.com. If the check is successful, account details with a new random password will be e-mailed to you. Qualified users can establish an account on Cisco.com by following the directions at <http://www.cisco.com/register>.

Cisco Feature Navigator is updated regularly when major Cisco IOS software releases and technology releases occur. For the most current information, go to the Cisco Feature Navigator home page at the following URL:

<http://www.cisco.com/go/fn>

### Availability of Cisco IOS Software Images

Platform support for particular Cisco IOS software releases is dependent on the availability of the software images for those platforms. Software images for some platforms may be deferred, delayed, or changed without prior notice. For updated information about platform support and availability of software images for each Cisco IOS software release, refer to the online release notes or, if supported, Cisco Feature Navigator.

## 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

None

## Configuration Tasks

See the following sections for configuration tasks for this feature. Each task is optional.

- [Configuring Enhanced Fault Tolerance with Multiple Resource Records](#)(Optional)
- [Configuring Event Recording with Syslog](#) (Optional)
- [Configuring Enhanced Server Verification with Multiple Port Connect Tests](#) (Optional)
- [Verifying Enhanced Fault Tolerance with Multiple Resource Records](#) (Optional)
- [Verifying Event Recording with Syslog](#) (Optional)
- [Verifying Enhanced Server Verification with Multiple Port Connect Tests](#) (Optional)

### Configuring Enhanced Fault Tolerance with Multiple Resource Records

To configure the Enhanced Fault Tolerance with Multiple Resource Records feature on the DistributedDirector for a host name, use the following command in global configuration mode:

Command	Purpose
Router(config)# <b>ip director host</b> <i>host-name</i> [ <b>a</b>   <b>mx</b> ] <b>multiple</b> <i>integer</i>	Configures the number of RRs that the DistributedDirector returns for each DNS response.

### Configuring Event Recording with Syslog

To configure the Event Recording with Syslog feature on the DistributedDirector for a host name, use the following commands in global configuration mode:

Command	Purpose
Router(config)# <b>logging</b> <i>host</i> Router(config)# <b>logging trap informational</b> Router(config)# <b>ip director host</b> <i>host-name</i> [ <b>a</b>   <b>mx</b> ] <b>logging</b>	Configures the DistributedDirector to log events to syslog.

## Configuring Enhanced Server Verification with Multiple Port Connect Tests

To configure the Enhanced Server Verification with Multiple Port Connect Tests feature on the DistributedDirector, use the following commands in global configuration mode:

Command	Purpose
Router(config)# <b>ip director host</b> <i>host-name</i> [ <b>a</b>   <b>mx</b> ] <b>connect</b> <i>port-1</i> [ <b>interval</b> ] <i>connection-interval</i> <i>n</i>	Enables the DistributedDirector to verify that a server is available.
Router(config)# <b>ip director host</b> <i>host-name</i> [ <b>a</b>   <b>mx</b> ] <b>connect</b> <i>port-2</i> [ <b>interval</b> ] <i>connection-interval</i> <i>n</i>	When you configure multiple <b>ip director host connect</b> commands for the same host name but with different port numbers, the DistributedDirector verifies that all of the ports are accessible. If any of the ports is not accessible, the host is considered down.
Router(config)# <b>ip director host</b> <i>host-name</i> [ <b>a</b>   <b>mx</b> ] <b>connect</b> <i>port-n</i> [ <b>interval</b> ] <i>connection-interval</i> <i>n</i>	

## Verifying Enhanced Fault Tolerance with Multiple Resource Records

To verify that the DistributedDirector is configured to return the best servers for RRs for each DNS, use the **show ip director hosts** command.

## Verifying Event Recording with Syslog

To verify that the DistributedDirector is configured to send to syslog the DNS request and response information, use the **show ip director hosts** command.

## Verifying Enhanced Server Verification with Multiple Port Connect Tests

To verify that the DistributedDirector is configured with a specific connection interval to specified distributed servers, use the **show ip director hosts** command.

## Configuration Examples

This section provides the following configuration examples:

- [Enhanced Fault Tolerance with Multiple Resource Records Example](#)
- [Event Recording with Syslog Example](#)
- [Enhanced Server Verification with Multiple Port Connect Tests Example](#)

## Enhanced Fault Tolerance with Multiple Resource Records Example

In the following examples, the DistributedDirector is configured to return the best three servers for A resource record on host name `www.xyz.com`, the best two servers for A resource record on host name `alias.xyz.com`, and the best two servers for MX resource `mail.xyz.com`, respectively:

```
ip director host www.xyz.com multiple 3
ip director host alias.xyz.com a multiple 2
ip director host mail.xyz.com mx multiple 2
```

## Event Recording with Syslog Example

Before configuring the DistributedDirector to syslog events regarding DNS requests on a specific resource record, the following must be typed on the command line:

```
logging 172.21.34.2
logging trap informational
```



### Note

The IP address specified above is the IP address of the log server in which the syslog messages get recorded.

In the following examples, the DistributedDirector is configured to syslog events regarding DNS requests on A resource record for host name `www.xyz.com`, DNS requests on A resource record for host name `alias.xyz.com`, and DNS requests on MX host name `mail.xyz.com`, respectively:

```
ip director host www.xyz.com logging
ip director host alias.xyz.com a logging
ip director host mail.xyz.com mx logging
```

## Enhanced Server Verification with Multiple Port Connect Tests Example

In the following example, the DistributedDirector is configured with a connection interval of 5 minutes to distributed servers on port 80 and port 90. The distributed servers will only be considered accessible if both port 80 and port 90 are accessible:

```
ip director host www.xyz.com connect 80 5
ip director host www.xyz.com connect 90 5
```

## Command Reference

The following new and modified commands are pertinent to this feature. To see the command pages for these commands and other commands used with this feature, go to the *Cisco IOS Master Commands List*, Release 12.4, at <http://www.cisco.com/univercd/cc/td/doc/product/software/ios124/124mindx/124index.htm>.

### New Commands

- **ip director access-group local**
- **ip director drp retries**
- **ip director drp timeout**
- **ip director drp timeout lookup**
- **ip director drp timeout measure**
- **ip director host active-close**
- **ip director host tolerance**
- **ip director host verify-url**
- **ip director server reinstatement**
- **ip director server route-map**
- **ip director server verify-url**

- **ip director server weights**
- **show ip director drp**

#### **Modified Commands**

- **ip director host connect**
- **ip director host logging**
- **ip director host multiple**

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