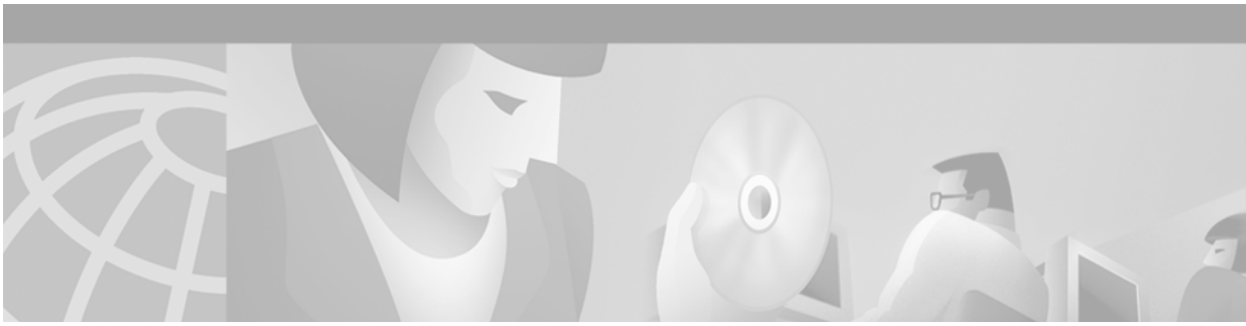

DistributedDirector Enhancements for Cisco IOS Release 12.2(4)T3

Feature History

Release	Modification
11.1(1)IA	Cisco DistributedDirector System Software was introduced.
11.1(25)IA	Support for DNS Mail Exchanged Records was introduced. Policy Redirection was introduced. Unlimited Number of IP Addresses Per Virtual Hostname was introduced. Per-Hostname Time-to-Live was introduced.
11.1(28)IA	Enhanced Fault Tolerance with Multiple Resource Records was introduced. Event Recording with Syslog was introduced. Enhanced Server Verification with Multiple Port Connect Tests was introduced.
12.1(5)T	Dynamic Feedback Protocol (DFP) was introduced. Enhanced Fault Tolerance with Multiple Resource Records was modified. Event Recording with Syslog was modified. Enhanced Server Verification with Multiple Port Connect Tests was modified.
12.2(4)T3	Several new commands were added.

This feature module describes four new commands and one modified command for DistributedDirector in Cisco IOS Release 12.2(4)T3. This document includes the following sections:

Feature Overview

Cisco DistributedDirector can use all of its decision-making metrics to determine the best server for a client request. From the configured metrics, DistributedDirector chooses the best distributed server and returns its IP address to the local Domain Name System (DNS) server for the client.

The new **ip director default priorities** command specifies the default priorities for each type of metric. The default priorities will take effect if no host-specific priorities are specified in the **ip director host priority** command or in the corresponding DNS text record. If a metric does not have a priority or a weight specified, the metric is ignored.

The new **ip director drp rttprobe** command sets the protocol used by Director Response Protocol (DRP) agents for round trip time (RTT) probing. The protocols to be set are the Transmission Control Protocol (TCP) and the Internet Control Message Protocol (ICMP). Both protocols can be activated, in which case DistributedDirector will instruct DRP agents to return the RTT collected from either the TCP or the ICMP, whichever becomes available first. Using the **no** form of the command causes DistributedDirector to stop using a specified protocol for RTT probing. At any time, one of the protocols must be activated, and both protocols can be activated if desired. The default protocol is TCP.

The new **ip dns server** command enables the DNS server on the router.

The new **show ip director default priority** command is used to verify the default priority for any metric.

The **ip director default-weights** command name has been modified slightly in this release. The command name is now **ip director default weights.**

Benefits

The **ip director default priorities** command sets defaults for DistributedDirector metrics.

The **ip director drp rttprobe** command allows users to select the protocol for RTT probing that works best for your system.

The **ip dns server** command allows users to activate and use the DNS server on the router.

The **show ip director default priority** command allows user to verify the default priority for any metric.

Supported Platforms

As of the Cisco IOS 12.2(104)T release, Distributed Director is an integrated IOS feature, based on the Enterprise Plus image bundle, on the 2600, 3600, and 7200 series platforms.

- Cisco DistributedDirector 2500
- Cisco DistributedDirector 2600
- Cisco DistributedDirector 3620
- Cisco DistributedDirector 3640
- Cisco DistributedDirector 3660
- Cisco DistributedDirector 7200

Platform Support Through 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 Feature Navigator. Feature Navigator dynamically updates the list of supported platforms as new platform support is added for the feature.

Feature Navigator is a web-based tool that enables you to quickly determine which Cisco IOS software images support a specific set of features and which features are supported in a specific Cisco IOS image.

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. 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.

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

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

Supported Standards, MIBs, and RFCs

Standards

No new standards are supported by these commands.

MIBs

No new MIBs are supported by these commands.

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

No new RFCs are supported by these commands.

Configuration Tasks

See the following sections for configuration tasks for this feature.

- Configuring Default Priorities for Metrics (optional)
- Setting the Protocol Used for RTT Probing (optional)
- Enabling the DNS Server (optional)

Configuring Default Priorities for Metrics

To set a default priority for a metric, use the **ip director default priorities** command.

	Command	Purpose
Step 1	`Router(config)# ip director default priorities drp-ext 1`	Sets default priorities for a specified metric. In this example, a default configuration of 1 is set for the **drp-ext** metric.
Step 2	`Router# copy running-config startup-config`	Copies the running configuration to the startup configuration.

To remove a default priority for a metric, use the **no ip director default priorities** command.

	Command	Purpose
Step 1	`Router(config)# no ip director default priorities`	Removes default priorities for a specified metric.
Step 2	`Router# copy running-config startup-config`	Copies the running configuration to the startup configuration.

Setting the Protocol Used for RTT Probing

To set the protocol used by DRP agents for RTT probing, use the **ip director drp rttprobe** command.

	Command	Purpose
Step 1	`Router(config)# ip director drp rttprobe ICMP`	Sets the protocol to be used by DRP agents for RTT probing. In this example, the protocol is ICMP.
Step 2	`Router# copy running-config startup-config`	Copies the running configuration to the startup configuration.

To return to the default protocol, use the **no ip director drp rttprobe** command.

	Command	Purpose
Step 1	`Router(config)# no ip director drp rttprobe ICMP`	Returns the user to the default protocol for this command. The default protocol is TCP.
Step 2	`Router# copy running-config startup-config`	Copies the running configuration to the startup configuration.

Enabling the DNS Server

To enable the DNS server on a router, use the **ip dns server** command.

	Command	Purpose
Step 1	`Router(config)# ip dns server`	Enables the DNS server on a router.
Step 2	`Router# copy running-config startup-config`	Copies the running configuration to the startup configuration.

To disable the DNS server on a router and return to the default configuration, use the **no ip dns server** command.

	Command	Purpose
Step 1	`Router(config)# no ip dns server`	Disables the DNS server on a router.
Step 2	`Router# copy running-config startup-config`	Copies the running configuration to the startup configuration.

Verifying Default Priorities for Metrics

To verify a default priority for a metric, enter the **show ip director default priority** command. The following example shows output from this command.

```
Router# show ip director default priority

Director default metric priorities:
random priority = 2
DRP route lookup external to AS priority = 1
administrative preference priority = 0
DRP route lookup internal to AS priority = 0
DRP distance to associated server priority = 0
portion priority = 0
Round-trip time from DRP to client priority = 0
DFP originated weight priority = 0
Route-map evaluation priority = 0
```

Configuration Examples

This section provides the following configuration examples:

- Specifying Default Priorities for Metrics Example
- Setting the Protocol for RTT Probing Example
- Enabling the DNS Server Example

Specifying Default Priorities for Metrics Example

In the following example, a default priority of 1 is configured for the **drp-ext** metric, and a default priority of 2 is configured for the **random** metric:

```
ip director default priorities drp-ext 1 random 2
```

Setting the Protocol for RTT Probing Example

In the following example, the command configures ICMP (in addition to the default of TCP) to be used by DRP agents for RTT probing:

```
ip director drp rttprobe icmp
```

Enabling the DNS Server Example

In the following example, the DNS server is enabled.

```
ip dns server
```

Command Reference

This section documents new and modified commands. All other commands used with this feature are documented in the Cisco IOS Release 12.2 command reference publications.

New Commands

- **ip director default priorities**
- **ip director drp rttprobe**
- **ip dns server**
- **show ip director default**

Modified Commands

- **ip director default weights**

ip director default priorities

To set a default priority for a specific metric on the DistributedDirector, use the **ip director default priorities** command in global configuration mode. To remove a default priority for a metric, use the **no** form of this command.

ip director default priorities {[**drp-int** *n*] [**drp-ext** *n*] [**drp-ser** *n*] [**random** *n*] [**admin** *n*] [**drp-rtt** *n*] [**portion** *n*] [**availability** *n*] [**route-map** *n*]}

no ip director default priorities {[**drp-int** *n*] [**drp-ext** *n*] [**drp-ser** *n*] [**random** *n*] [**admin** *n*] [**drp-rtt** *n*] [**portion** *n*] [**availability** *n*] [**route-map** *n*]}

Syntax Description

n	Numeric value for a metric.
drp-int	(Optional) Director Response Protocol (DRP) internal metric. Range is from 1 to 100.
drp-ext	(Optional) DRP external metric. Range is from 1 to 100.
drp-ser	(Optional) DRP server metric. Range is from 1 to 100.
random	(Optional) Random metric. Range is from 1 to 100.
admin	(Optional) Administrative metric. Range is from 1 to 100.
drp-rtt	(Optional) DRP round-trip time metric. Range is from 1 to 100.
portion	(Optional) Portion metric. Range is from 1 to 100.
availability	(Optional) Availability metric. Range is from 1 to 100.
route-map	(Optional) Route-map metric. Range is from 1 to 100.

Defaults

No default priorities are specified.

Command Modes

Global configuration

Command History

Release	Modification
12.2(4)T3	This command was introduced.

Usage Guidelines

The default priorities specified will take effect if no priorities are specified in the **ip director host priority** command or in the corresponding DNS text record for that host.

The number 1 denotes the highest priority. To set the default priority for several metrics, enter the metric keywords and values to be configured on the same line as the **ip director default priorities** command.

Examples

The following example shows the default priority for the **drp-ext** metric configured as 1 (which is the highest priority) and the default priority for the **random** metric configured as 2:

```
ip director default priorities drp-ext 1 random 2
```

Related Commands

Command	Description
ip director access-list	Defines an access list for DistributedDirector that specifies which subdomain names and host names should be sorted.
ip director cache	Enables the sorting cache on DistributedDirector.
ip director default priorities	Sets default priorities for a specific metric on DistributedDirector.
ip director default weights	Configures default weight metrics for DistributedDirector.
ip director host priority	Configures the order in which DistributedDirector considers metrics when selecting a server.
ip director host weights	Sets host-specific weights for the metrics that DistributedDirector uses to determine the best server within a specific host name.
ip director server admin-pref	Configures a per-service administrative preference value.
ip director server portion	Sets the portion value for a specific server.
ip director server preference	Specifies DistributedDirector preference of one server over others or takes a server out of service.
show ip director default priority	Verifies the default configurations of DistributedDirector metrics.
show ip director default weights	Shows DistributedDirector default weights.
show ip director servers	Displays DistributedDirector server preference information.

ip director default weights

To configure default weight metrics for DistributedDirector, use the **ip director default weights** command in global configuration mode. To set the defaults to zero, use the **no** form of this command.

ip director default-weights {[**drp-int** *n*] [**drp-ext** *n*] [**drp-ser** *n*] [**drp-rtt** *n*] [**random** *n*] [**admin** *n*] [**portion** *n*] [**availability** *n*] [**route-map** *n*]}

no ip director default-weights {[**drp-int** *n*] [**drp-ext** *n*] [**drp-ser** *n*] [**drp-rtt** *n*] [**random** *n*] [**admin** *n*] [**portion** *n*] [**availability** *n*] [**route-map** *n*]}

Syntax Description

n	Numeric value for a metric.
drp-int	(Optional) DRP internal metric. Range is from 1 to 100.
drp-ext	(Optional) DRP external metric. Range is from 1 to 100.
drp-ser	(Optional) DRP server metric. Range is from 1 to 100.
drp-rtt	(Optional) DRP round-trip time metric. Range is from 1 to 100.
random	(Optional) Random metric. Range is from 1 to 100.
admin	(Optional) Administrative metric. Range is from 1 to 100.
portion	(Optional) Portion metric. Range is from 1 to 100.
availability	(Optional) Availability metric. Range is from 1 to 100.
route-map	(Optional) Route-map metric. Range is from 1 to 100.

Defaults

No default weights are specified.

Command Modes

Global configuration

Command History

Release	Modification
11.1(18)IA	This command was introduced.
12.1(5)T	The availability and route-map metrics were added.
12.2(4)T3	The command name was changed slightly: **default weights** replaced **default-weights**.

Usage Guidelines

Not all the metrics need to be configured; however, at least one metric must be configured when this command is used.

Default weights are used for all host names sorted by DistributedDirector. To override default weights for a certain host, specify host-specific weights in the private Domain Name System (DNS) server configuration.

When the associated metric is referenced in a sorting decision, it will always be multiplied by the appropriate metric weight. By this means, you can specify that some metrics be weighted more than others. You may use experimentation to determine the weights that you want to use, and the higher the number, the greater the weight. The weights given do not have to add up to 100.

Examples

The following command configures default weights for the internal and external metrics:

```
ip director default weight drp-int 10 drp-ext 90
```

Related Commands

Command	Description
ip director access-list	Defines an access list for the DistributedDirector that specifies which subdomain names and host names should be sorted.
ip director cache	Enables the sorting cache on the DistributedDirector.
ip director default priorities	Sets default priorities for a specific metric on the DistributedDirector.
ip director drp rttprobe	Sets the protocol used by DRP agents for RTT probing in DistributedDirector.
ip director host priority	Configures the order in which the DistributedDirector considers metrics when selecting a server.
ip director host weights	Sets host-specific weights for the metrics that the DistributedDirector uses to determine the best server within a specific host name.
ip director server admin-pref	Configures a per-service administrative preference value.
ip director server portion	Sets the portion value for a specific server.
ip director server preference	Specifies DistributedDirector preference of one server over others or takes a server out of service.
show ip director default priority	Verifies the default configurations of DistributedDirector metrics.
show ip director default weights	Shows the DistributedDirector default weights.
show ip director servers	Displays the DistributedDirector server preference information.

ip director drp rttprobe

To set the protocol used by Director Response Protocol (DRP) agents for round-trip time (RTT) probing in DistributedDirector, use the **ip director drp rttprobe** command in global configuration mode. To disable the use of a protocol, use the **no** form of the command.

ip director drp rttprobe [**tcp** | **icmp**]

no ip director drp rttprobe [**tcp** | **icmp**]

Syntax Description

tcp	(Optional) Transmission Control Protocol.
icmp	(Optional) Internet Control Message Protocol.

Defaults

TCP

Command Modes

Global configuration

Command History

Release	Modification
12.2(4)T3	This command was introduced.

Usage Guidelines

Both protocols can be activated, in which case DistributedDirector will instruct DRP agents to return the RTT collected from either the TCP or Internet Control Message Protocol (ICMP) protocol, whichever becomes available first. At any time, at least one of the protocols must be active.

To use only one protocol, enable the protocol you want to use, and then disable the protocol that was already configured.

```
Router(config)# ip director drp rttprobe icmp
Router(config)# no ip director drp rttprobe tcp
```

Examples

The following example shows that ICMP is configured for use by DRP agents for RTT probing:

```
Router(config)# ip director drp rttprobe icmp
```

Related Commands

Command	Description
ip director access-list	Defines an access list for the DistributedDirector that specifies which subdomain names and host names should be sorted.
ip director cache	Enables the sorting cache on the DistributedDirector.
ip director default priorities	Sets default priorities for a specific metric on the DistributedDirector.
ip director default weights	Configures default weight metrics for the DistributedDirector.

Command	Description
ip director host priority	Configures the order in which the DistributedDirector considers metrics when selecting a server.
ip director host weights	Sets host-specific weights for the metrics that the DistributedDirector uses to determine the best server within a specific host name.
ip director server admin-pref	Configures a per-service administrative preference value.
ip director server portion	Sets the portion value for a specific server.
ip director server preference	Specifies DistributedDirector preference of one server over others or takes a server out of service.
show ip director default priority	Verifies the default configurations of DistributedDirector metrics.
show ip director default weights	Shows the DistributedDirector default weights.
show ip director servers	Displays the DistributedDirector server preference information.

ip dns server

To enable the Domain Name System (DNS) server on a router, use the **ip dns server** command in global configuration mode. To disable the DNS server, use the **no** form of the command.

ip dns server

no ip dns server

Syntax Description

This command has no arguments or keywords.

Defaults

The DNS server is disabled.

Command Modes

Global configuration

Command History

Release	Modification
12.2(4)T3	This command was introduced.

Usage Guidelines

Use the command to enable the DNS server as needed.

Examples

In the following example, the DNS server is enabled:

```
ip dns server
```

show ip director default

To verify default metric configuration information for DistributedDirector metrics, use the **show ip director default** command in privileged EXEC mode.

show ip director default [**priority** | **weight**]

Syntax Description

priority	(Optional) Default priorities for metrics
weight	(Optional) Default weights for metrics

Command Modes

Privileged EXEC

Command History

Release	Modification
12.2(4)T	This command was introduced.

Usage Guidelines

Use this command to verify default metric configurations.

Examples

The following is sample output from the **show ip director default priority** command:

```
Router# show ip director default priority

Director default metric priorities:
random priority = 2
DRP route lookup external to AS priority = 1
administrative preference priority = 0
DRP route lookup internal to AS priority = 0
DRP distance to associated server priority = 0
portion priority = 0
Round-trip time from DRP to client priority = 0
DFP originated weight priority = 0
Route-map evaluation priority = 0
```

Related Commands

Command	Description
ip director default priorities	Sets default priorities for DistributedDirector metrics.