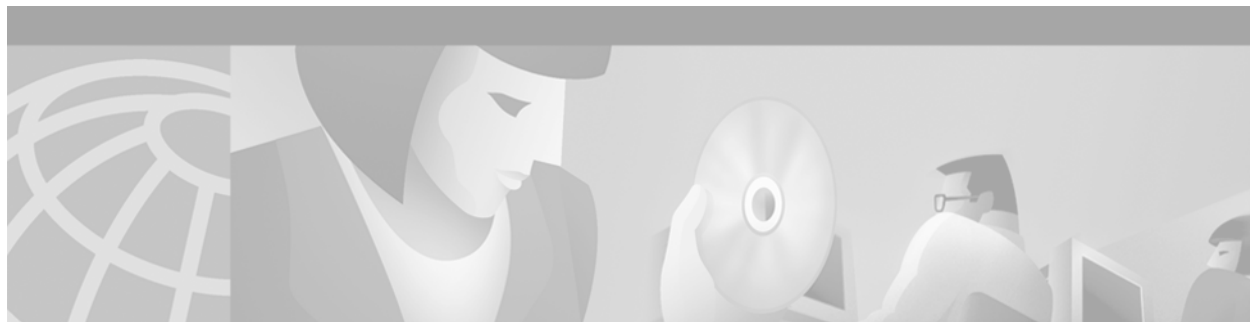




Configuring Multicast Distributed Switching

This chapter describes the required and optional tasks for configuring Multicast Distributed Switching (MDS).

For a complete description of the commands in this chapter, refer to the *Cisco IOS Switching Services Command Reference*. To locate documentation of other commands that appear in this chapter, use the command reference master index or search online.

To identify the hardware platform or software image information associated with a feature, use the Feature Navigator on Cisco.com to search for information about the feature or refer to the software release notes for a specific release. For more information, see the section [“Identifying Supported Platforms”](#) in the chapter “Using Cisco IOS Software.”

Prior to multicast distributed switching, IP multicast traffic was always switched at the Route Processor (RP) in the Route Switch Processor (RSP)-based platforms. Starting with Cisco IOS Release 11.2 GS, IP multicast traffic can be distributed switched on RSP-based platforms with VIPs. Furthermore, MDS is the only multicast switching method on the Cisco 12000 Gigabit Switch Router (GSR), starting with Cisco IOS Release 11.2(11)GS.

Switching multicast traffic at the RP had the following disadvantages:

- The load on the RP increased. This affected important route updates and calculations (for BGP, among others) and could stall the router if the multicast load was substantial.
- The net multicast performance was limited to what a single RP could switch.

MDS solves these problems by performing distributed switching of multicast packets received at the line cards (VIPs in the case of RSP, and line cards in the case of GSR). The line card is the interface card that houses the VIPs (in the case of RSP) and the GSR line card (in the case of GSR). MDS is accomplished using a forwarding data structure called a Multicast Forwarding Information Base (MFIB), which is a subset of the routing table. A copy of MFIB runs on each line card and is always kept up to date with the MFIB table of the RP.

In the case of RSP, packets received on non-VIP IPs are switched by the RP.

MDS can work in conjunction with Cisco Express Forwarding (CEF), unicast distributed fast switching (DFS), or flow switching.

MDS Configuration Task List

To configure MDS, perform the task described in the following sections. The first section contains a required task; the remaining task is optional:

- [Enabling MDS](#) (Required)
- [Monitoring and Maintaining MDS](#) (Optional)

Enabling MDS

To enable MDS, you must enable it globally and on at least one interface because MDS is an attribute of the interface. Use the following commands beginning in global configuration mode:

	Command	Purpose
Step 1	Router(config)# ip multicast-routing distributed	Enables MDS globally.
Step 2	Router(config)# interface <i>type number</i>	Configures an interface.
Step 3	Router(config-if)# ip route-cache distributed	Enables distributed switching on the RSP. (This step is required on the RSP platform only.)
Step 4	Router(config-if)# ip mroute-cache distributed	Enables MDS on the interface.
	Repeat Steps 2 through 4 for each interface that you want to perform MDS.	



Note

When you enable an interface to perform distributed switching of incoming multicast packets, you are configuring the physical interface, not the logical interface (subinterface). All subinterfaces are included in the physical interface.

Monitoring and Maintaining MDS

To maintain MDS on the line cards, use the following command in EXEC mode:

Command	Purpose
Router# clear ip mds forwarding	Clears the MFIB table of the line card and resynchronizes with the RP.

To maintain MDS on the RP, use the following commands in EXEC mode, as needed:

Command	Purpose
Router# clear ip mroute { * <i>group</i> [<i>source</i>] }	Clears multicast routes and counts.
Router# clear ip pim interface count	Clears all packet counts on the line cards.

To monitor MDS on the line cards, use the following commands in EXEC mode, as needed. Remember that to reach a line card's console, enter the **attach slot#** command, using the slot number where the line card resides.

Command	Purpose
Router# show ip mds forwarding [<i>group-address</i>] [<i>source-address</i>]	Displays the MFIB table, forwarding information, related flags, and counts.
Router# show ip mds summary	Displays a summary of the MFIB.

To monitor MDS on the RP, use the following commands in EXEC mode, as needed:

Command	Purpose
Router# show ip mds stats [<i>switching</i> <i>linecard</i>]	Displays switching statistics or line card statistics for MDS.
Router# show ip mds interface	Displays the status of MDS interfaces.
Router# show ip pim interface [<i>type number</i>] count	Displays switching counts for unicast distributed fast switching and other fast switching statistics.
Router# show ip mcache [<i>group</i> [<i>source</i>]]	Displays the contents of the IP fast-switching cache.
Router# show interface stats	Displays numbers of packets that were process switched, fast switched, and distributed switched.

MDS Configuration Example

The following example enables MDS. The **ip route-cache distributed** interface configuration command is needed on the RSP only, not on the GSR.

```
ip multicast-routing distributed
interface pos 1/0/0
ip route-cache distributed
ip mroute-cache distributed
```