

Configuring Multicast Distributed Switching

This chapter describes the required and optional tasks for configuring multicast distributed switching (MDS). For a complete description of MDS commands used in this chapter, refer to the “Multicast Distributed Switching” chapter in the *Cisco IOS Switching Services Command Reference*. For documentation of other commands that appear in this chapter, you can use the command reference master index or search online.

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 Switched Router (GSR), starting with Cisco IOS Release 11.2(11)GS.

Switching multicast traffic at the RP had 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 significant.
- 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 RP’s MFIB table.

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.

Configure MDS

This section describes the tasks to configure MDS. The first task is required.

- Enable MDS
- Monitor and Maintain MDS

Enable 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:

Step	Command	Purpose
1	ip multicast-routing distributed	Enable MDS globally.
2	interface <i>type number</i>	Configure an interface.
3	ip route-cache distributed	Enable distributed switching on the RSP. (This step is required on the RSP platform only.)
4	ip mroute-cache distributed	Enable MDS on the interface.
5		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.

Monitor and Maintain MDS

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

Command	Purpose
clear ip mds forwarding	Clear the line card's MFIB table and resynchronize with the RP.

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

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

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

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

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

Command	Purpose
show ip mds stats [<i>switching</i> <i>linecard</i>]	Display switching statistics or line card statistics for MDS.
show ip mds interface	Display the status of MDS interfaces.

Command	Purpose
show ip pim interface <i>[type number] count</i>	Display switching counts for unicast distributed fast switching and other fast switching statistics.
show ip mcache <i>[group [source]]</i>	Display the contents of the IP fast-switching cache.
show interface stats	Display numbers of packets that were process switched, fast switched, and distributed switched.

Configuration Example

The following example enables MDS. The command **ip route-cache distributed** 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
```

