Multicast VPN Commands

ip multicast-routing

To enable IP multicast routing, use the **ip multicast-routing** command in global configuration mode. To disable IP multicast routing, use the **no** form of this command.

ip multicast-routing [**vrf** *vrf-name*]
no ip multicast-routing [**vrf** *vrf-name*]

Syntax Description	**vrf** *vrf-name*	(Optional) Enables IP multicast routing for the Multicast VPN routing and forwarding (MVRF) instance specified for the *vrf-name* argument.

Command Default   IP multicast routing is disabled.

Command Modes   Global configuration (config).

Command History

Release	Modification
Cisco IOS XE Denali 16.3.2	This command was introduced.

Usage Guidelines   When IP multicast routing is disabled, the Cisco IOS software does not forward any multicast packets.

Note   For IP multicast, after enabling IP multicast routing, PIM must be configured on all interfaces. Disabling IP multicast routing does not remove PIM; PIM still must be explicitly removed from the interface configurations.

Examples   The following example shows how to enable IP multicast routing:

```
Switch(config)# ip multicast-routing
```

The following example shows how to enable IP multicast routing on a specific VRF:

```
Switch(config)#
ip multicast-routing vrf vrf1
```

The following example shows how to disable IP multicast routing:

```
Switch(config)#
no ip multicast-routing
```

The following example shows how to enable MDS in Cisco IOS XE Release 3.3S a specific VRF:

```
Switch(config)#
ip multicast-routing vrf vrf1
```

Related Commands

Command	Description
ip pim	Enables PIM on an interface.

ip multicast mrinfo-filter

To filter multicast router information (mrinfo) request packets, use the **ip multicast mrinfo-filter**command in global configuration mode. To remove the filter on mrinfo requests, use the **no** form of this command.

ip multicast [**vrf** *vrf-name*] **mrinfo-filter** *access-list*
no ip multicast [**vrf** *vrf-name*] **mrinfo-filter**

Syntax Description		
vrf	(Optional) Supports the multicast VPN routing and forwarding (VRF) instance.
vrf-name	(Optional) Name assigned to the VRF.
access-list	IP standard numbered or named access list that determines which networks or hosts can query the local multicast device with the **mrinfo** command.

Command Default No default behavior or values

Command Modes Global configuration

Command History

Release	Modification
Cisco IOS XE Denali 16.3.2	This command was introduced.

Usage Guidelines The **ip multicast mrinfo-filter**command filters the mrinfo request packets from all of the sources denied by the specified access list. That is, if the access list denies a source, that source's mrinfo requests are filtered. mrinfo requests from any sources permitted by the ACL are allowed to proceed.

Examples The following example shows how to filter mrinfo request packets from all hosts on network 192.168.1.1 while allowing requests from any other hosts:

```
ip multicast mrinfo-filter 51
access-list 51 deny 192.168.1.1
access list 51 permit any
```

Related Commands

Command	Description
mrinfo	Queries a multicast device about which neighboring multicast devices are peering with it.

mdt data

To specify a range of addresses to be used in the data multicast distribution tree (MDT) pool, use the **mdt data** command in VRF configuration or VRF address family configuration mode. To disable this function, use the **no** form of this command.

mdt data **threshold** *kb/s*
no **mdt data** **threshold** *kb/s*

Syntax Description

threshold *kb/s*	(Optional) Defines the bandwidth threshold value in kilobits per second (kb/s). The range is from 1 to 4294967.

Command Default

A data MDT pool is not configured.

Command Modes

VRF address family configuration (config-vrf-af)

VRF configuration (config-vrf)

Command History

Release	Modification
Cisco IOS XE Denali 16.3.2	This command was introduced.

Usage Guidelines

A data MDT can include a maximum of 256 multicast groups per MVPN. Multicast groups used to create the data MDT are dynamically chosen from a pool of configured IP addresses.

Use the **mdt data** command to specify a range of addresses to be used in the data MDT pool. The threshold is specified in kb/s. Using the optional **list** keyword and *access-list* argument, you can define the (S, G) MVPN entries to be used in a data MDT pool, which would further limit the creation of a data MDT pool to the particular (S, G) MVPN entries defined in the access list specified for the *access-list* argument.

You can access the **mdt data** command by using the **ip vrf** global configuration command. You can also access the **mdt data** command by using the **vrf definition** global configuration command followed by the **address-family ipv4** VRF configuration command.

Examples

The following example shows how to configure the range of group addresses for the MDT data pool. A threshold of 500 kb/s has been set, which means that if a multicast stream exceeds 1 kb/s, then a data MDT is created.

```
ip vrf vrf1
 rd 1000:1
 route-target export 10:27
 route-target import 10:27
 mdt default 236.1.1.1
 mdt data 228.0.0.0 0.0.0.127 threshold 500 list 101
!
.
.
.
!
ip pim ssm default
```

```
ip pim vrf vrf1 accept-rp auto-rp
!
```

Related Commands

Command	Description
mdt default	Configures a default MDT group for a VPN VRF.

mdt default

To configure a default multicast distribution tree (MDT) group for a Virtual Private Network (VPN) routing and forwarding (VRF) instance, use the **mdt default** command in VRF configuration or VRF address family configuration mode. To disable this function, use the **no** form of this command.

mdt default*group-address*
no mdt default*group-address*

Syntax Description

group-address	IP address of the default MDT group. This address serves as an identifier for the community in that provider edge (PE) devices configured with the same group address become members of the group, allowing them to receive packets sent by each other.

Command Default

The command is disabled.

Command Modes

VRF address family configuration (config-vrf-af) VRF configuration (config-vrf)

Command History

Release	Modification
Cisco IOS XE Denali 16.3.2	This command was introduced.

Usage Guidelines

The default MDT group must be the same group configured on all PE devices that belong to the same VPN.

If Source Specific Multicast (SSM) is used as the protocol for the default MDT, the source IP address will be the address used to source the Border Gateway Protocol (BGP) sessions.

A tunnel interface is created as a result of this command. By default, the destination address of the tunnel header is the *group-address* argument.

You can access the **mdt default** command by using the **ip vrf** global configuration command. You can also access the **mdt default** command by using the **vrf definition** global configuration command followed by the **address-family ipv4** VRF configuration command.

Examples

In the following example, Protocol Independent Multicast (PIM) SSM is configured in the backbone. Therefore, the default and data MDT groups are configured within the SSM range of IP addresses. Inside the VPN, PIM sparse mode (PIM-SM) is configured and only Auto-RP announcements are accepted.

```
ip vrf vrf1
 rd 1000:1
 mdt default 236.1.1.1
 mdt data 228.0.0.0 0.0.0.127 threshold 50
 mdt data threshold 50
 route-target export 1000:1
 route-target import 1000:1
!
!
```

Related Commands

Command	Description
mdt data	Configures the multicast group address range for data MDT groups.

mdt log-reuse

To enable the recording of data multicast distribution tree (MDT) reuse, use the **mdt log-reuse**command in VRF configuration or in VRF address family configuration mode. To disable this function, use the **no** form of this command.

mdt log-reuse
no mdt log-reuse

Syntax Description	This command has no arguments or keywords.
Command Default	The command is disabled.
Command Modes	VRF address family configuration (config-vrf-af) VRF configuration (config-vrf)

Command History

Release	Modification
Cisco IOS XE Denali 16.3.2	This command was introduced.

Usage Guidelines

The **mdt log-reuse** command generates a syslog message whenever a data MDT is reused.

You can access the **mdt log-reuse**command by using the **ip vrf** global configuration command. You can also access the **mdt log-reuse** command by using the **vrf definition** global configuration command followed by the **address-family ipv4** VRF configuration command.

Examples

The following example shows how to enable MDT log reuse:

```
mdt log-reuse
```

Related Commands

Command	Description
mdt data	Configures the multicast group address range for data MDT groups.
mdt default	Configures a default MDT group for a VPN VRF.

show ip pim mdt bgp

To show details about the Border Gateway Protocol (BGP) advertisement of the route distinguisher (RD) for the multicast distribution tree (MDT) default group, use the show ip pim mdt bgp command in user EXEC or privileged EXEC mode.

show ip pim [**vrf** *vrf-name*] **mdt bgp**

Syntax Description

vrf *vrf-name*	(Optional) Displays information about the BGP advertisement of the RD for the MDT default group associated with Multicast Virtual Private Network (MVPN) routing and forwarding (MVRF) instance specified for the *vrf-name* argument.

Command Modes

User EXEC Privileged EXEC

Command History

Release	Modification
Cisco IOS XE Denali 16.3.2	This command was introduced.

Usage Guidelines

Use this command to show detailed BGP advertisement of the RD for the MDT default group.

Examples

The following is sample output from the **show ip pim mdt bgp**command:

```
Device# show ip pim mdt bgp
MDT-default group 232.2.1.4
 rid:10.1.1.1 next_hop:10.1.1.1
```

The table below describes the significant fields shown in the display.

Table 1: show ip pim mdt bgp Field Descriptions

Field	Description
MDT-default group	The MDT default groups that have been advertised to this router.
rid:10.1.1.1	The BGP router ID of the advertising router.
next_hop:10.1.1.1	The BGP next hop address that was contained in the advertisement.

show ip pim mdt history

To display information about the history of data multicast distribution tree (MDT) groups that have been reused, use the **show ip pim mdt history** command in privileged EXEC mode.

show ip pim vrf *vrf-name* **mdt history interval** *minutes*

Syntax Description

vrf *vrf-name*	Displays the history of data MDT groups that have been reused for the Multicast VPN (MVPN) routing and forwarding (MVRF) instance specified for the *vrf-name* argument.
interval *minutes*	Specifies the interval (in minutes) for which to display information about the history of data MDT groups that have been reused. The range is from 1 to 71512 minutes (7 weeks).

Command Modes

Privileged EXEC

Command History

Release	Modification
Cisco IOS XE Denali 16.3.2	This command was introduced.

Usage Guidelines

The output of the **show ip pim mdt history** command displays the history of reused MDT data groups for the interval specified with the **interval** keyword and *minutes* argument. The interval is from the past to the present, that is, from the time specified for the *minutes* argument to the time at which the command is issued.

Examples

The following is sample output from the **show ip pim mdt history** command:

```
Device# show ip pim vrf vrf1 mdt history interval 20
   MDT-data send history for VRF - vrf1 for the past 20 minutes
MDT-data group       Number of reuse
     10.9.9.8            3
     10.9.9.9            2
```

The table below describes the significant fields shown in the display.

Table 2: show ip pim mdt history Field Descriptions

Field	Description
MDT-data group	The MDT data group for which information is being shown.
Number of reuse	The number of data MDTs that have been reused in this group.

show ip pim mdt receive

To display the data multicast distribution tree (MDT) group mappings received from other provider edge (PE) routers, use the **show ip pim mdt receive**command in privileged EXEC mode.

show ip pim vrf *vrf-name* **mdt receive** [**detail**]

<table>
<tr><td rowspan="4">**Syntax Description**</td><td>**vrf**   *vrf-name*</td><td>Displays the data MDT group mappings for the Multicast VPN (MVPN) routing and forwarding (MVRF) instance specified for the *vrf-name* argument.</td></tr>
<tr><td>**detail**</td><td>(Optional) Provides a detailed description of the data MDT advertisements received.</td></tr>
</table>

Command Modes   Privileged EXEC

<table>
<tr><td rowspan="2">**Command History**</td><td>**Release**</td><td>**Modification**</td></tr>
<tr><td>Cisco IOS XE Denali 16.3.2</td><td>This command was introduced.</td></tr>
</table>

Usage Guidelines   When a router wants to switch over from the default MDT to a data MDT, it advertises the VRF source, the group pair, and the global multicast address over which the traffic will be sent. If the remote router wants to receive this data, then it will join this global address multicast group.

Examples   The following is sample output from the **show ip pim mdt receive**command using the **detail** keyword for further information:

```
Device# show ip pim vrf vpn8 mdt receive detail
Joined MDT-data groups for VRF:vpn8
group:172.16.8.0 source:10.0.0.100 ref_count:13
(10.101.8.10, 225.1.8.1), 1d13h/00:03:28/00:02:26, OIF count:1, flags:TY
(10.102.8.10, 225.1.8.1), 1d13h/00:03:28/00:02:27, OIF count:1, flags:TY
```

The table below describes the significant fields shown in the display.

Table 3: show ip pim mdt receive Field Descriptions

Field	Description
group:172.16.8.0	Group that caused the data MDT to be built.
source:10.0.0.100	VRF source that caused the data MDT to be built.
ref_count:13	Number of (S, G) pairs that are reusing this data MDT.
OIF count:1	Number of interfaces out of which this multicast data is being forwarded.

Field	Description
flags:	Information about the entry. • A--candidate Multicast Source Discovery Protocol (MSDP) advertisement • B--bidirectional group • D--dense • C--connected • F--register flag • I--received source-specific host report • J--join shortest path source tree (SPT) • L--local • M--MSDP created entry • P--pruned • R--RP bit set • S--sparse • s--Source Specific Multicast (SSM) group • T--SPT bit set • X--proxy join timer running • U--URL Rendezvous Directory (URD) • Y--joined MDT data group • y--sending to MDT data group • Z--multicast tunnel

show ip pim mdt send

To display the data multicast distribution tree (MDT) groups in use, use the **show ip pim mdt send** command in privileged EXEC mode.

show ip pim vrf *vrf-name* **mdt send**

Syntax Description

vrf *vrf-name*	Displays the data MDT groups in use by the Multicast VPN (MVPN) routing and forwarding (MVRF) instance specified for the *vrf-name* argument.

Command Modes

Privileged EXEC

Command History

Release	Modification
Cisco IOS XE Denali 16.3.2	This command was introduced.

Usage Guidelines

Use this command to show the data MDT groups in use by a specified MVRF.

Examples

The following is sample output from the **show ip pim mdt send** command:

```
Device# show ip pim vrf vpn8 mdt send
MDT-data send list for VRF:vpn8
  (source, group)                 MDT-data group      ref_count
  (10.100.8.10, 225.1.8.1)        232.2.8.0           1
  (10.100.8.10, 225.1.8.2)        232.2.8.1           1
  (10.100.8.10, 225.1.8.3)        232.2.8.2           1
  (10.100.8.10, 225.1.8.4)        232.2.8.3           1
  (10.100.8.10, 225.1.8.5)        232.2.8.4           1
  (10.100.8.10, 225.1.8.6)        232.2.8.5           1
  (10.100.8.10, 225.1.8.7)        232.2.8.6           1
  (10.100.8.10, 225.1.8.8)        232.2.8.7           1
  (10.100.8.10, 225.1.8.9)        232.2.8.8           1
  (10.100.8.10, 225.1.8.10)       232.2.8.9           1
```

The table below describes the significant fields shown in the display.

Table 4: show ip pim mdt send Field Descriptions

Field	Description
source, group	Source and group addresses that this router has switched over to data MDTs.
MDT-data group	Multicast address over which these data MDTs are being sent.
ref_count	Number of (S, G) pairs that are reusing this data MDT.