

# Multicast Tool and Utility Commands

This chapter describes the commands used to troubleshoot multicast routing sessions on Cisco IOS XR Software.

For detailed information about multicast routing concepts, configuration tasks, and examples, refer to the *Implementing Multicast Routing on* configuration module in .


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# mrinfo

To query neighboring multicast routers peering with the local router, use the **mrinfo** command in EXEC mode.

**mrinfo** [**ipv4**] *host-address* [*source-address*]

## Syntax Description

| | |
|---|---|
| **ipv4** | (Optional) Specifies IPv4 address prefixes. |
| **host-address** | Can be either the Domain Name System (DNS) name or IP address of a multicast router entered in *A.B.C.D* format.<br>**Note** If omitted, the router queries itself. |
| *source-address* | (Optional) Source address used on multicast routing information (mrinfo) requests. If omitted, the source is based on the outbound interface for the destination. |

## Command Default

IPv4 addressing is the default.

## Command Modes

EXEC

## Command History

| Release | Modification |
|---|---|
| Release 3.7.2 | This command was introduced. |

## Usage Guidelines

The **mrinfo** command determines which neighboring multicast routers are peering with a multicast router.

You can query a multicast router with this command. The output format is identical to the multicast routed version of Distance Vector Multicast Routing Protocol (DVMRP). (The mrouted software is the UNIX software that implements DVMRP.)

## Task ID

| Task ID | Operations |
|---|---|
| multicast | execute |

## Examples

The following is sample output from the **mrinfo** command. The first line shows the multicast configuration with version number and flags Parent Multicast Agent (PMA). The flags mean that the configuration is prune capable, mtrace capable, and SNMP capable. For each neighbor of the queried multicast router, the IP address of the queried router is displayed, followed by the IP address of the neighbor. The metric (cost of connect) and the threshold (multicast time to live) are displayed. Other information is available, such as whether this router is

- Running the PIM protocol
- An IGMP querier
- A leaf router

```
RP/0/RSP0/CPU0:router# mrinfo 192.168.50.1
```

```
192.168.50.1 [version  0.37.0] [flags: PMA]:
  172.16.1.1 -> 172.16.1.1 [1/0/pim/querier/leaf]
  172.16.2.2 -> 172.16.2.2 [1/0/pim/querier/leaf]
  192.168.50.1 -> 192.168.50.1 [1/0/pim/querier]
  192.168.50.1 -> 192.168.50.101 [1/0/pim/querier]
  192.168.40.101 -> 192.168.40.1 [1/0/pim]
  192.168.40.101 -> 192.168.40.101 [1/0/pim]
```

# mtrace

To trace the path from a source to a destination branch for a multicast distribution tree, use the **mtrace** command in EXEC mode.

**mtrace** [**ipv4**] **[vrf]** *source destination* [*group_addr*] *[resp_addr]*[*ttl*]

## Syntax Description

| | |
|---|---|
| **ipv4** | (Optional) Specifies IPv4 address prefixes. |
| **vrf** | (Optional) Specifies the vrf table for the route lookup. |
| *source* | Domain Name System (DNS) name or the IP address of the multicast-capable source. This is a unicast address of the beginning of the path to be traced. |
| *destination* | DNS name or address of the unicast destination. This is a unicast address of the end of the path to be traced. |
| *group_addr* | (Optional) DNS name or multicast address of the group to be traced. Default address is 224.2.0.1 (the group used for MBONE Audio). When address 0.0.0.0 is used, the software invokes a *weak mtrace*. A weak mtrace is one that follows the Reverse Path Forwarding (RPF) path to the source, regardless of whether any router along the path has multicast routing table state. |
| *resp_addr* | (Optional) DNS name or multicast address of the querier address to receive response. If the querier is not reachable by the RP or the source, this value should be provided. |
| *ttl* | (Optional) Time-to-live (TTL) threshold for a multicast trace request.<br>Range is 1 to 255 router hops. |

## Command Default

By default, this feature is disabled.

IPv4 addressing is the default.

## Command Modes

EXEC

## Command History

| Release | Modification |
|---|---|
| Release 3.7.2 | This command was introduced. |

## Usage Guidelines

The trace request generated by the **mtrace** command is multicast to the multicast group to find the last-hop router to the specified destination. The trace follows the multicast path from destination to source by passing the mtrace request packet using unicast to each hop. Responses are unicast to the querying router by the first-hop router to the source. This command allows you to isolate multicast routing failures.

If no arguments are entered, the router interactively prompts you for them.

This command is identical in function to the UNIX version of **mtrace**.

## Task ID

| Task ID | Operations |
|---|---|
| multicast | execute |

## Examples

The following is sample output from the **mtrace** command:

```
RP/0/RSP0/CPU0:router# mtrace 172.16.1.0 172.16.1.10 239.254.254.254

Type escape sequence to abort.
Mtrace from 172.16.1.0 to 172.16.1.10 via group 239.254.254.254
From source (?) to destination (?)
Querying full reverse path...

Switching to hop-by-hop:
0  172.16.1.10
-1  172.17.20.101 PIM Reached RP/Core [172.16.1.0/24]
-2  172.18.10.1 PIM  [172.16.1.0/32]
-3  172.16.1.0 PIM  [172.16.1.0/32]

RP/0/RSP0/CPU0:router# mtrace vrf vrf1 172.16.1.0 172.16.1.10 239.254.254.254 45.244.244.244
 49
```

# sap cache-timeout

To limit how long a Session Announcement Protocol (SAP) cache entry stays active in the cache, use the **sap cache-timeout** command in global configuration mode. To return to the default behavior, use the **no** form of this command.

**sap cache-timeout** *minutes*

## Syntax Description

| | |
|---|---|
| *minutes* | Time that a SAP cache entry is active in the cache. Range is 1 to 1440. |

## Command Default

*minutes* : 1440 (24 hours)

## Command Modes

Global Configuration

## Command History

| Release | Modification |
|---|---|
| Release 3.7.2 | This command was introduced. |

## Usage Guidelines

The **sap cache-timeout** command defines how long session announcements are cached by the router. Active session announcements are periodically re-sent by the originating site, refreshing the cached state in the router. The minimum interval between announcements for a single group is 5 minutes. Setting the cache timeout to a value less than 30 minutes is not recommended. Set the cache timeout to 0 to keep entries in the cache indefinitely.

## Task ID

| Task ID | Operations |
|---|---|
| multicast | read, write |

## Examples

The following example shows the SAP cache entry timeout being configured at 10 minutes:

```
RP/0/RSP0/CPU0:router(config)# sap cache-timeout 10
```

# sap listen

To configure the Session Announcement Protocol (SAP) designated router (SDR) listener on a group address, use the **sap listen** command in global configuration mode. To return to the default behavior, use the **no** form of this command.

**sap listen** [*ip-addressname*]

## Syntax Description

| | |
|---|---|
| *ip-address* | (Optional) Group IP address for an address range. |
| *name* | (Optional) Name of a prefix for an address range. |

## Command Default

When no group address is configured, the SDR listener is configured on the global SAP announcement group (224.2.127.254).

## Command Modes

Global configuration

## Command History

| Release | Modification |
|---|---|
| Release 3.7.2 | This command was introduced. |

## Usage Guidelines

The **sap listen** command configures an SDR listener that listens to SAP announcements on the configured group address. The group IP address can be any group in the range from 224.2.128.0 to 224.2.255.255.

## Task ID

| Task ID | Operations |
|---|---|
| multicast | read, write |

## Examples

The following example configures an SDR listener for group on IP address 224.2.127.254:

```
RP/0/RSP0/CPU0:router(config)# sap listen 224.2.127.254
```

## Related Commands

| Command | Description |
|---|---|
| show sap, on page 8 | Displays the SAP sessions learned on the configured multicast groups. |

# show sap

To display the Session Announcement Protocol (SAP) sessions learned on the configured multicast groups, use the **show sap** command in

EXEC mode

.

**show sap** [**ipv4**] [*group-addresssession-name*] [**detail**]

## Syntax Description

| | |
|---|---|
| **ipv4** | (Optional) Specifies IPv4 address prefixes. |
| *group-address* | (Optional) Group IP address or name of the session that is learned. |
| *session-name* | (Optional) Session name. |
| **detail** | (Optional) Provides more SAP information. |

## Command Default

IPv4 addressing is the default.

## Command Modes

EXEC

## Command History

| Release | Modification |
|---|---|
| Release 3.7.2 | This command was introduced. |

## Usage Guidelines

The **show sap** command displays the sessions learned on the configured multicast groups. The **detail** keyword displays verbose session information.

Use the **sap listen** command to configure the SDR listener on a group IP address.

## Task ID

| Task ID | Operations |
|---|---|
| multicast | read |

## Examples

The following is sample output from the **show sap** command. Information is summarized and shows one entry.

```
RP/0/RSP0/CPU0:router# show sap

Sap Session Table Summary
Cisco Systems, Inc
Src: 192.168.30.101, Dst: 224.2.127.254, Last Heard: 00:00:23
Total Entries : 1
```

This table describes the significant fields shown in the display.

*Table 1: show sap Field Descriptions*

| Field | Description |
|---|---|
| Src | IP address of the host from which this session announcement was received. |
| Dst | Destination IP multicast group address where the announcement was sent. |
| Last Heard | Time (in hours, minutes, and seconds) when SAP announcements were last heard from the source. |
| Total Entries | Total number of entries displayed. |

The following is sample output from the **show sap** command with the **detail** keyword specified for the SAP session, Cisco Systems, Inc.

```
RP/0/RSP0/CPU0:router# show sap detail

Sap Session Table
Session Name: Cisco Systems, Inc
Description: IPTV Streaming Video
Group: 225.225.225.1 TTL: 2
Announcement source: 192.30.30.101, Destination: 224.2.127.254
Created by: - 0050c200aabb 9 IN IP4 10.10.176.50
Session Permanent Attribute: packetsize:4416
Attribute: packetformat:RAW
Attribute: mux:m1s
Attribute: keywds:
Attribute: author:Cisco Systems, Inc
Attribute: copyright:Cisco Systems, Inc
Media : video, Transport Protocol : udp, Port : 444
Total Entries : 1
```

This table describes the significant fields shown in the display.

*Table 2: show sap detail Field Descriptions*

| Field | Description |
|---|---|
| Session Name | Descriptive name of the SAP session. |
| Description | An expanded description of the session. |
| Group | IP multicast group addresses used for this session. |
| Announcement source | IP address of the host from which this session announcement was received. |
| Destination | Destination IP multicast group address that the announcement was sent to. |
| Created by | Information for identifying and tracking the session announcement. |
| Attribute | Indicates attributes specific to the session. |

| Field | Description |
|---|---|
| Media | Indicates the media type (audio, video, or data), transport port that the media stream is sent to, transport protocol used for these media (common values are User Datagram Protocol [UDP] and Real-Time Transport Protocol [RTP]/AVP), and list of media formats that each media instance can use. The first media format is the default format. Format identifiers are specific to the transport protocol used. |

## Related Commands

| Command | Description |
|---|---|
| sap listen, on page 7 | Configures the SDR listener on a group IP address. |