



## SNMP Support for MTR

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The SNMP Support for MTR feature uses context-based the Simple Network Management Protocol (SNMP) to extend support for existing MIBs from representing the management information for just the base topology to representing the same information for multiple topologies. This module describes how to configure SNMP support for Multitopology Routing (MTR).

- [Finding Feature Information, page 1](#)
- [Prerequisites for SNMP Support for MTR, page 1](#)
- [Information About SNMP Support for MTR, page 2](#)
- [How to Configure SNMP Support for MTR, page 2](#)
- [Configuration Examples for SNMP Support for MTR, page 6](#)
- [Additional References, page 7](#)
- [Feature Information for SNMP Support for MTR, page 8](#)

### Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see [Bug Search Tool](#) and the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table at the end of this module.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to [www.cisco.com/go/cfn](http://www.cisco.com/go/cfn). An account on Cisco.com is not required.

### Prerequisites for SNMP Support for MTR

Enable Simple Network Management Protocol (SNMP).

# Information About SNMP Support for MTR

## Network Management Support for MTR

Context-based Simple Network Management Protocol (SNMP) support is integrated into Cisco software. SNMP support for Multitopology Routing (MTR) uses context-based SNMP to extend support for existing MIBs from representing the management information for just the base topology to representing the same information for multiple topologies.

You can configure the SNMP agent software component on the device to pass a context string to existing MIB access functions. Network management applications can provide these context strings in SNMP transactions to direct those transactions to a specific VPN routing and forwarding (VRF) instance, a specific topology, or a routing protocol instance. The SNMP infrastructure on the receiving device verifies that a context string is defined for the device, and that the accompanying internal identifier is defined for that context string, before passing the context string and the internal identifier to the MIB access function.

Standard network management utilities, such as ping and traceroute, are enhanced to support MTR. You can configure a standard or extended ping using the topology name in place of a hostname or IP address. Traceroute is similarly enhanced.

## How to Configure SNMP Support for MTR

### Associating an SNMP Context with a VRF for MTR

#### SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ip vrf** *vrf-name*
4. **snmp context** *context-name*
5. **end**
6. **show snmp context mapping**

#### DETAILED STEPS

	Command or Action	Purpose
Step 1	<b>enable</b>  <b>Example:</b> Device> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>

	Command or Action	Purpose
Step 2	<b>configure terminal</b>  <b>Example:</b> Device# configure terminal	Enters global configuration mode.
Step 3	<b>ip vrf vrf-name</b>  <b>Example:</b> Device(config)# ip vrf vrfA	Defines a virtual routing and forwarding (VRF) instance and enters VRF configuration mode.
Step 4	<b>snmp context context-name</b>  <b>Example:</b> Device(config-vrf)# snmp context context-vrfA	Creates a Simple Network Management Protocol (SNMP) context for Multitopology Routing (MTR) for a specific VRF and enters VRF address family configuration mode.
Step 5	<b>end</b>  <b>Example:</b> Device(config-af-topology)# end	Exits VRF address family configuration mode and returns to privileged EXEC mode.
Step 6	<b>show snmp context mapping</b>  <b>Example:</b> Device# show snmp context mapping	(Optional) Displays information about SNMP contexts for MTR.

## Associating an SNMP Context with a Data Topology for MTR

### SUMMARY STEPS

1. enable
2. configure terminal
3. global-address-family ipv4 [multicast | unicast]
4. topology {base | topology-name}
5. snmp context context-name
6. end
7. show snmp context mapping

## DETAILED STEPS

	Command or Action	Purpose
<b>Step 1</b>	<b>enable</b>  <b>Example:</b> Device> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>
<b>Step 2</b>	<b>configure terminal</b>  <b>Example:</b> Device# configure terminal	Enters global configuration mode.
<b>Step 3</b>	<b>global-address-family ipv4 [multicast   unicast]</b>  <b>Example:</b> Device(config)# global-address-family ipv4	Enters global address family configuration mode to configure the global topology. <ul style="list-style-type: none"> <li>• The address family for the class-specific topology is specified in this step. The subaddress family can be specified. Unicast is the default if no subaddress family is entered.</li> </ul>
<b>Step 4</b>	<b>topology {base   topology-name}</b>  <b>Example:</b> Device(config-af)# topology VOICE	Configures the global topology instance and enters address family topology configuration mode.
<b>Step 5</b>	<b>snmp context context-name</b>  <b>Example:</b> Device(config-af-topology)# snmp context comp-topol	Creates a Simple Network Management Protocol (SNMP) context for Multipotology Routing (MTR) for a specific topology.
<b>Step 6</b>	<b>end</b>  <b>Example:</b> Device(config-af-topology)# end	Exits address family topology configuration mode and returns to privileged EXEC mode.
<b>Step 7</b>	<b>show snmp context mapping</b>  <b>Example:</b> Device# show snmp context mapping	(Optional) Displays information about SNMP contexts for MTR.

## Associating an SNMP Context with a Routing Protocol for MTR

### SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **router ospf** *process-id* [**vrf** *vrf-name*]
4. **snmp context** *context-name*
5. **address-family ipv4** [**multicast** | **unicast**]
6. **topology** {**base** | *topology-name* **tid** *number*}
7. **snmp context** *context-name*
8. **end**
9. **show snmp context mapping**

### DETAILED STEPS

	Command or Action	Purpose
<b>Step 1</b>	<b>enable</b>  <b>Example:</b> Device> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>
<b>Step 2</b>	<b>configure terminal</b>  <b>Example:</b> Device# configure terminal	Enters global configuration mode.
<b>Step 3</b>	<b>router ospf</b> <i>process-id</i> [ <b>vrf</b> <i>vrf-name</i> ]  <b>Example:</b> Device(config)# router ospf 1	Enables an Open Shortest Path First (OSPF) routing process and enters router configuration mode. <ul style="list-style-type: none"> <li>• You can configure support for multiple routing protocols.</li> </ul>
<b>Step 4</b>	<b>snmp context</b> <i>context-name</i>  <b>Example:</b> Device(config-router)# snmp context comp-prot	Creates a Simple Network Management Protocol (SNMP) context for Multitopology Routing (MTR) for a specific topology under a routing protocol.
<b>Step 5</b>	<b>address-family ipv4</b> [ <b>multicast</b>   <b>unicast</b> ]  <b>Example:</b> Device(config-router)# address-family ipv4	Enters router address family configuration mode to configure an OSPF address family session.

	Command or Action	Purpose
<b>Step 6</b>	<b>topology</b> {base   <i>topology-name</i> tid <i>number</i> }  <b>Example:</b> <pre>Device(config-router-af)# topology VOICE tid 10</pre>	Configures the global topology instance and enters router address family topology configuration mode.
<b>Step 7</b>	<b>snmp context</b> <i>context-name</i>  <b>Example:</b> <pre>Device(config-router-af-topology)# snmp context comp-protocol</pre>	Creates an SNMP context for MTR for a specific topology under a routing protocol.
<b>Step 8</b>	<b>end</b>  <b>Example:</b> <pre>Device(config-router-af-topology)# end</pre>	Exits router address family topology configuration mode and returns to privileged EXEC mode.
<b>Step 9</b>	<b>show snmp context mapping</b>  <b>Example:</b> <pre>Device# show snmp context mapping</pre>	(Optional) Displays information about SNMP contexts for MTR.

## Configuration Examples for SNMP Support for MTR

### Examples: SNMP Support for MTR

In the following example, the context string context-vrfA is configured to be associated with vrfA and will be passed on to the MIB access function during Simple Network Management Protocol (SNMP) transactions:

```
snmp-server community public
ip vrf vrfA
 snmp context context-vrfA
end
```

In the following example, the context string context-voice is configured to be associated with the data topology named voice and will be passed on to the MIB access function during SNMP transactions:

```
global-address-family ipv4
 topology voice
 snmp context context-voice
end
```

In the following example, the context strings context-ospf and context-voice are configured to be associated with the Open Shortest Path First (OSPF) process and topology named voice and will be passed on to the MIB access function during SNMP transactions:

```
router ospf 3
 snmp context context-ospf
 address-family ipv4
 topology voice tid 10
 snmp context ospf-voice
 end
```

The following example shows how the context strings are mapped to the specified virtual routing and forwarding (VRF), address family, topology, or protocol instance:

```
Device# show snmp context mapping

Context: ospf-voice
  VRF Name:
  Address Family Name: ipv4
  Topology Name: voice
  Protocol Instance: OSPF-3 Router
Context: context-ospf
  VRF Name:
  Address Family Name:
  Topology Name:
  Protocol Instance: OSPF-3 Router
Context: context-vrfa
  VRF Name: vrfa
  Address Family Name:
  Topology Name:
  Protocol Instance:
Context: context-voice
  VRF Name:
  Address Family Name: ipv4
  Topology Name: voice
  Protocol Instance:
```

## Additional References

### Related Documents

Related Topic	Document Title
Cisco IOS commands	<a href="#">Cisco IOS Master Command List, All Releases</a>
Multitopology Routing (MTR) commands	<a href="#">Cisco IOS Multitopology Routing Command Reference</a>

**Technical Assistance**

Description	Link
The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.	<a href="http://www.cisco.com/cisco/web/support/index.html">http://www.cisco.com/cisco/web/support/index.html</a>

## Feature Information for SNMP Support for MTR

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

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**Table 1: Feature Information for SNMP Support for MTR**

Feature Name	Releases	Feature Information
SNMP Support for MTR	12.2(33)SB 12.2(33)SRB 15.0(1)S	Context-based SNMP functionality is integrated into Cisco software and can be used to support Multitopology Routing (MTR). SNMP support for MTR uses context-based Simple Network Management Protocol (SNMP) to extend support for existing MIBs from representing the management information for just the base topology to representing the same information for multiple topologies.  The following commands were introduced or modified: <b>show snmp context mapping</b> , <b>snmp context</b> .