



## MTR in VRF

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The MTR in VRF feature extends to IPv4 VRF contexts the Cisco IOS software's capability that allows users to configure one or more non-congruent multicast topologies in global IPv4 routing context. These contexts can be used to forward unicast and multicast traffic over different links in the network, or in the case of non-base topologies to provide a Live-Live multicast service using multiple non-congruent multicast topologies mapped to different (S,G) groups.

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## Information About MTR in VRF

### MTR in VRF Overview

The MTR in VRF feature extends to IPv4 VRF contexts, Cisco IOS software's capability that allows users to configure one or more non-congruent multicast topologies in global IPv4 routing context. These contexts can be used to forward unicast and multicast traffic over different links in the network, or in the case of non-base topologies to provide a Live-Live multicast service using multiple non-congruent multicast topologies mapped to different (S,G) groups.

The Cisco IOS Software allows a set of attributes, primarily used by BGP/MPLS L3VPNs, to be configured on a per-address family basis within a VRF. The MTR in VRF feature allows these attributes to be independently configured for the multicast sub-address families within a VRF address family.

## How to Configure VRF in MTR

### Configuring MTR in VRF

#### SUMMARY STEPS

1. `enable`

2. **configure terminal**
3. **vrf definition** *vrf-name*
4. **rd** *route-distinguisher*
5. **ipv4 multicast multitopology**
6. **address-family ipv4**
7. **exit-address-family**
8. **address-family ipv4 multicast**
9. **topology** *topology-instance-name*
10. **all-interfaces**
11. **exit**
12. **exit-address-family**
13. **exit**
14. **interface** *type number*
15. **interface** *type number*
16. **vrf forwarding** *vrf-name*
17. **ip address** *ip-address mask*
18. **ip pim sparse-dense-mode***ip*
19. **end**

## 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>vrf definition</b> <i>vrf-name</i> <b>Example:</b> Device(config)# vrf definition vd1	Configures a VRF routing table and enters VRF configuration mode.
<b>Step 4</b>	<b>rd</b> <i>route-distinguisher</i> <b>Example:</b> Device(config-vrf)# rd 10:1	Creates routing and forwarding tables for a VRF.
<b>Step 5</b>	<b>ipv4 multicast multitopology</b> <b>Example:</b> Device(config-vrf)# ipv4 multicast multitopology	Enables IPv4 multicast support for multi-topology routing (MTR) in a VRF instance.
<b>Step 6</b>	<b>address-family ipv4</b> <b>Example:</b> Device(config-vrf)# address-family ipv4	Specifies the IPv4 address family type and enters address family configuration mode.

	Command or Action	Purpose
Step 7	<b>exit-address-family</b> <b>Example:</b> Device(config-vrf-af)# exit-address-family	Exits address family configuration mode and removes the IPv4 address family.
Step 8	<b>address-family ipv4 multicast</b> <b>Example:</b> Device(config-vrf)# address-family ipv4 multicast	Specifies the IPv4 address family multicast type and enters VRF address family configuration mode.
Step 9	<b>topology topology-instance-name</b> <b>Example:</b> Device(config-vrf-af)# topology red	Specifies a topology instance and a name to it and enters VRF address family topology configuration mode.
Step 10	<b>all-interfaces</b> <b>Example:</b> Device(config-vrf-af-topology)# all-interfaces	Configure the topology instance to use all interfaces on the device.
Step 11	<b>exit</b> <b>Example:</b> Device(config-vrf-af-topology)# exit	Exits VRF address-family topology configuration mode and enters VRF address-family configuration mode.
Step 12	<b>exit-address-family</b> <b>Example:</b> Device(config-vrf-af)# exit-address-family	Exits address family configuration mode and removes the IPv4 address family.
Step 13	<b>exit</b> <b>Example:</b> Device(config-vrf)# exit	Exits VRF configuration mode and enters global configuration mode.
Step 14	<b>interface type number</b> <b>Example:</b> Device(config)# interface ethernet 0/1	Selects the Ethernet interface and enters the interface configuration mode.
Step 15	<b>interface type number</b> <b>Example:</b> Device(config)# interface ethernet 0/1	Selects the Ethernet interface and enters the interface configuration mode.
Step 16	<b>vrf forwarding vrf-name</b> <b>Example:</b> Device(config-if)# vrf forwarding vrf1	Associates a VRF instance with the interface.
Step 17	<b>ip address ip-address mask</b> <b>Example:</b>	Sets a primary or secondary IP address for an interface.

	Command or Action	Purpose
	Device(config-if)# ip address 10.1.10.1 255.255.255.0	
<b>Step 18</b>	<b>ip pim sparse-dense-mode</b>  <b>Example:</b> Device(config-if)# ip pim sparse-dense-mode	Enables Protocol Independent Multicast (PIM) on an interface.
<b>Step 19</b>	<b>end</b>  <b>Example:</b> Device(config-if)# end	Exits the interface configuration mode and enters privileged EXEC mode.

## Configuring Examples for MTR in VRF

### Example for MTR in VRF

```
Device> enable
Device# configuration terminal
Device(config)# vrf definition vdl
Device(config-vrf)# rd 10:1
Device(config-vrf)# ipv4 multicast multitopology
Device(config-vrf)# address-family ipv4
Device(config-vrf)# exit-address-family
Device(config-vrf)# address-family ipv4 multicast
Device(config-vrf-af)# topology red
Device(config-vrf-af-topology)# all-interfaces
Device(config-vrf-af-topology)# exit
Device(config-vrf-af)# exit-address-family
Device(config-vrf)# exit
Device(config)# vrf forwarding vrf1
Device(config)# ip address 10.1.10.1 255.255.255.0
Device(config)# ip pim sparse-dense-mode
Device(config)# end
```

## Additional References for MTR in VRF

### Related Documents

Related Topic	Document Title
Multitopology Routing (MTR) commands	<a href="#">Cisco IOS Multitopology Routing Command Reference</a>
IP multicast commands	<a href="#">Cisco IOS Multicast Command Reference</a>

Related Topic	Document Title
IP multicast concepts and tasks	<i>IP Multicast Configuration Guide Library</i>

### Technical Assistance

Description	Link
<p>The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies.</p> <p>To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds.</p> <p>Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.</p>	<a href="http://www.cisco.com/support">http://www.cisco.com/support</a>

## Feature Information for MTR in VRF

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.

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.

