MPLS VPN Show Running VRF

The MPLS VPN Show Running VRF feature provides a Cisco IOS CLI option to display a subset of the running configuration on a device that is linked to a Virtual Private Network (VPN) routing and forwarding (VRF) instance. You can display the configuration of a specific VRF or of all VRFs configured on a device.

On heavily loaded devices, the display of the configuration file might require several pages or screens. As the configuration increases in size and complexity, the possibility of misconfiguration also increases. You might find it difficult to trace a problem on a device where you have several VRFs configured. A command that displays all the elements of the configuration linked to a VRF allows for easier troubleshooting on a per-VRF basis and facilitates comparisons among configurations of different VRFs on the same device.

There are no configuration tasks for the MPLS VPN Show Running VRF feature.

- Finding Feature Information, page 1
- Prerequisites for MPLS VPN Show Running VRF, page 2
- Restrictions for MPLS VPN Show Running VRF, page 2
- Information About MPLS VPN Show Running VRF, page 2
- Additional References, page 4
- Feature Information for MPLS VPN Show Running VRF, page 4
- Glossary, page 5

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. An account on Cisco.com is not required.

Prerequisites for MPLS VPN Show Running VRF

- A Cisco software image that supports virtual routing and forwarding (VRF) instances installed on the device
- At least one VRF configured on the device
- Cisco Express Forwarding for Multiprotocol Label Switching (MPLS) Virtual Private Network (VPN) routing and forwarding

Restrictions for MPLS VPN Show Running VRF

Any element of the running configuration of the device that is not linked directly to a virtual routing and forwarding (VRF) instance is not displayed. For example, a route map associated with a Border Gateway Protocol (BGP) neighbor in a VRF address-family configuration is not displayed. The VRF address-family configuration under BGP is displayed, but the route-map configuration is not. An exception to this general rule is the display of a controller configuration.

Information About MPLS VPN Show Running VRF

Configuration Elements Displayed for MPLS VPN Show Running VRF

You can display the running configuration associated with a specific virtual routing and forwarding (VRF) instance or all VRFs on the device by entering the **show running-config vrf** command. To display the running configuration of a specific VRF, enter the name of the VRF as an argument to the **show running-config vrf** command. For example, for a VRF named vpn3, you enter:

```
Device# show running-config vrf vpn3
```

The **show running-config vrf** command displays the following elements of the running configuration on a device:

- The VRF configuration (This includes any configuration that is applied in the VRF submode.)
- The configuration of each interface in the VRF

Entering a **show run vrf** *vpn-name* command is the same as executing a **show running-config interface** *type number* for each interface that you display by use of the **show ip vrf** *vpn-name* command. The interfaces display in the same sorted order that you would expect from the **show ip interface** command.

For a channelized interface, the configuration of the controller is displayed (as shown by the **show run controller** *controller-name* command).

For a subinterface, the configuration of the main interface is displayed.

Display of VRF Routing Protocol Configuration

Open Shortest Path First (OSPF), Routing Information Protocol (RIP), Border Gateway Protocol (BGP), Enhanced Interior Gateway Routing Protocol (EIGRP), and static routing are routing protocols that support the virtual routing and forwarding (VRF) configuration.

OSPF has one process per VRF. The **show running-config vrf** command display includes the complete configuration of any OSPF process associated with the VRF. For example, the following shows the sample display for OSPF process 101, which is associated with the VRF named vpn3:

```
router ospf 101 vrf vpn3
 log-adjacency-changes
 area 1 sham-link 10.43.43.43 10.23.23.23 cost 10
 network 172.17.0.0 0.255.255.255 area 1
```

RIP, BGP, and EIGRP support VRF address-family configuration. If a VRF address family for the VRF exists for any of these routing protocols, a configuration in the following format is displayed:

```
router
protocol
 {AS
 | PID
}
!
address-family ipv4 vrf
 vrf-name
.
.
.
```

Where the *protocol* argument is one of the following: **rip**, **bgp** or **eigrp**; the *AS* argument is an autonomous system number; the *PID* argument is a process identifier; and the *vrf-name* argument is the name of the associated VRF.

The following shows a sample display for a BGP with autonomous system number 100 associated with a VRF named vpn3:

```
!
router bgp 100
!
address-family ipv4 vrf vpn3
 redistribute connected
 redistribute ospf 101 match external 1 external 2
 no auto-summary
 no synchronization
 exit-address-family
 !
```

The **show running-config vrf** command also includes the configuration of any static routes configured in the VRF. For example:

```
ip route vrf vpn1 10.1.1.0 255.255.255.0 10.30.1.1 global
ip route vrf vpn1 10.1.2.0 255.255.255.0 10.125.1.2
```

Display of Configuration Not Directly Linked to a VRF

Any element of a configuration that is not linked directly to a virtual routing and forwarding (VRF) instance is not displayed. In some instances, the display of the configuration of an element that is not directly linked to a VRF is required.

For example, the **show running-config vrf** command displays the configuration of an E1 controller whose serial subinterfaces are in a VRF. The command displays the controller configuration and the subinterface configuration.

Additional References

Related Documents

Related Topic	Document Title
Cisco IOS commands	Cisco Master Command List, All Releases
MPLS and MPLS applications commands	Cisco IOS Multiprotocol Label Switching Command Reference

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.	http://www.cisco.com/cisco/web/support/index.html

Feature Information for MPLS VPN Show Running 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. An account on Cisco.com is not required.

Table 1: Feature Information for MPLS VPN Show Running VRF

Feature Name	Releases	Feature Information
MPLS VPN Show Running VRF	12.2(28)SB 12.0(32)SY 12.2(33)SRB 12.2(33)SXH 12.4(20)T Cisco IOS XE Release 2.5	The MPLS VPN Show Running VRF feature provides a CLI option to display a subset of the running configuration on a device that is linked to a VRF. You can display the configuration of a specific VRF or of all VRFs configured on a device. A command that displays all the elements of the configuration linked to a VRF allows for easier troubleshooting on a per-VRF basis and facilitates comparisons among configurations of different VRFs on the same device. In 12.2(28)SB, this feature was introduced. In 12.0(32)SY, support was added for a Cisco IOS 12.0SY release. In 12.2(33)SRB, support was added for a Cisco IOS 12.2SR release. In 122(33)SXH, support was added for a Cisco IOS 12.2SX release. In 12.4(20)T, support was added for a Cisco IOS 12.4T release. In Cisco IOS XE Release 2.5S, support was added for the Cisco ASR 1000 Series Routers.
		The following commands were introduced or modified: **show policy-map interface brief**, **show running-config vrf**.

Glossary

BGP—Border Gateway Protocol. An interdomain routing protocol that replaces External Gateway Protocol (EGP). BGP systems exchange reachability information with other BGP systems. BGP is defined by RFC 1163.

EGP—External Gateway Protocol. An internet protocol for exchanging routing information between autonomous systems. EGP is documented in RFC 904. Not to be confused with the general term exterior gateway protocol. EGP is an obsolete protocol that was replaced by Border Gateway Protocol (BGP).

EIGRP—Enhanced Interior Gateway Routing Protocol. Advanced version of Interior Gateway Routing Protocol (IGRP) developed by Cisco. Provides superior convergence properties and operating efficiency, and combines the advantages of link state protocols with those of distance vector protocols.

IGP—Interior Gateway Protocol. An internet protocol used to exchange routing information within an autonomous system. Examples of common Internet IGPs include Interior Gateway Routing Protocol (IGRP), Open Shortest Path First (OSPF), and Routing Information Protocol (RIP).

IGRP—Interior Gateway Routing Protocol. An Interior Gateway Protocol (IGP) developed by Cisco to address the issues associated with routing in large, heterogeneous networks.

MPLS—Multiprotocol Label Switching. A switching method that forwards IP traffic through the use of a label. This label instructs the devices and the switches in the network where to forward each packet based on preestablished IP routing information.

OSPF—Open Shortest Path First. A link-state, hierarchical, Interior Gateway Protocol (IGP) routing algorithm and routing protocol proposed as a successor to Routing Information Protocol (RIP) in the Internet community. OSPF features include least-cost routing, multipath routing, and load balancing. OSPF was derived from an early version of the Intermediate System-to-Intermediate System (IS-IS) protocol.

RIP—Routing Information Protocol. Internal Gateway Protocol (IGP) supplied with UNIX Berkeley Software Distribution (BSD) systems. RIP is the most common IGP in the Internet. It uses hop count as a routing metric.

VPN—Virtual Private Network. The result of a device configuration that enables IP traffic to use tunneling to travel securely over a public TCP/IP network.