Junos® OS

Multiple VLAN Registration Protocol Feature Guide

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Junos® OS Multiple VLAN Registration Protocol Feature Guide
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About the Documentation

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Documentation and Release Notes

To obtain the most current version of all Juniper Networks® technical documentation, see the product documentation page on the Juniper Networks website at https://www.juniper.net/documentation/.

If the information in the latest release notes differs from the information in the documentation, follow the product Release Notes.

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Using the Examples in This Manual

If you want to use the examples in this manual, you can use the **load merge** or the **load merge relative** command. These commands cause the software to merge the incoming configuration into the current candidate configuration. The example does not become active until you commit the candidate configuration.

If the example configuration contains the top level of the hierarchy (or multiple hierarchies), the example is a *full example*. In this case, use the **load merge** command.

If the example configuration does not start at the top level of the hierarchy, the example is a *snippet*. In this case, use the **load merge relative** command. These procedures are described in the following sections.

Merging a Full Example

To merge a full example, follow these steps:

1. From the HTML or PDF version of the manual, copy a configuration example into a text file, save the file with a name, and copy the file to a directory on your routing platform.

   For example, copy the following configuration to a file and name the file **ex-script.conf**. Copy the **ex-script.conf** file to the **/var/tmp** directory on your routing platform.

   ```
   system {
     scripts {
       commit {
         file ex-script.xsl;
       }
     }
   }
   interfaces {
     fxp0 {
       disable;
       unit 0 {
         family inet {
           address 10.0.0.1/24;
         }
       }
     }
   }
   ```

2. Merge the contents of the file into your routing platform configuration by issuing the **load merge** configuration mode command:

   ```
   [edit]
   user@host# load merge /var/tmp/ex-script.conf
   load complete
   ```

Merging a Snippet

To merge a snippet, follow these steps:

1. From the HTML or PDF version of the manual, copy a configuration snippet into a text file, save the file with a name, and copy the file to a directory on your routing platform.

   For example, copy the following snippet to a file and name the file **ex-script-snippet.conf**. Copy the **ex-script-snippet.conf** file to the **/var/tmp** directory on your routing platform.

   ```
   commit {
     file ex-script-snippet.xsl; }
   ```


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2. Move to the hierarchy level that is relevant for this snippet by issuing the following configuration mode command:

```
[edit]
user@host# edit system scripts
[edit system scripts]
```

3. Merge the contents of the file into your routing platform configuration by issuing the **load merge relative** configuration mode command:

```
[edit system scripts]
user@host# load merge relative /var/tmp/ex-script-snippet.conf
load complete
```

For more information about the **load** command, see CLI Explorer.

Documentation Conventions

Table 1 on page xi defines notice icons used in this guide.

Table 1: Notice Icons

Icon	Meaning	Description
	Informational note	Indicates important features or instructions.
	Caution	Indicates a situation that might result in loss of data or hardware damage.
	Warning	Alerts you to the risk of personal injury or death.
	Laser warning	Alerts you to the risk of personal injury from a laser.
	Tip	Indicates helpful information.
	Best practice	Alerts you to a recommended use or implementation.

Table 2 on page xii defines the text and syntax conventions used in this guide.

Table 2: Text and Syntax Conventions

Convention	Description	Examples
Bold text like this	Represents text that you type.	To enter configuration mode, type the **configure** command: user@host> **configure**
`Fixed-width text like this`	Represents output that appears on the terminal screen.	`user@host>` **show chassis alarms** `No alarms currently active`
Italic text like this	• Introduces or emphasizes important new terms. • Identifies guide names. • Identifies RFC and Internet draft titles.	• A policy *term* is a named structure that defines match conditions and actions. • *Junos OS CLI User Guide* • RFC 1997, *BGP Communities Attribute*
Italic text like this	Represents variables (options for which you substitute a value) in commands or configuration statements.	Configure the machine's domain name: [edit] root@# **set system domain-name** *domain-name*
Text like this	Represents names of configuration statements, commands, files, and directories; configuration hierarchy levels; or labels on routing platform components.	• To configure a stub area, include the **stub** statement at the **[edit protocols ospf area area-id]** hierarchy level. • The console port is labeled **CONSOLE**.
< > (angle brackets)	Encloses optional keywords or variables.	**stub <default-metric** *metric***>;**
| (pipe symbol)	Indicates a choice between the mutually exclusive keywords or variables on either side of the symbol. The set of choices is often enclosed in parentheses for clarity.	**broadcast | multicast** (***string1* | *string2* | *string3***)
# (pound sign)	Indicates a comment specified on the same line as the configuration statement to which it applies.	**rsvp { # Required for dynamic MPLS only**
[ ] (square brackets)	Encloses a variable for which you can substitute one or more values.	**community name members [** ***community-ids*** **]**

Indention and braces ({ })	Identifies a level in the configuration hierarchy.	[edit]
		routing-options {
		static {
		route default {
		nexthop *address*;
		retain;
		}
		}
		}

; (semicolon)	Identifies a leaf statement at a configuration hierarchy level.	

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Table 2: Text and Syntax Conventions (continued)

Convention	Description	Examples
GUI Conventions		
Bold text like this	Represents graphical user interface (GUI) items you click or select.	• In the Logical Interfaces box, select **All Interfaces**. • To cancel the configuration, click **Cancel**.
> (bold right angle bracket)	Separates levels in a hierarchy of menu selections.	In the configuration editor hierarchy, select **Protocols>Ospf**.

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We encourage you to provide feedback so that we can improve our documentation. You can use either of the following methods:

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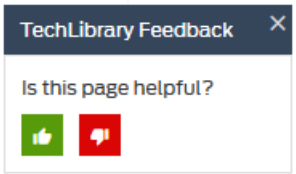

  - Click the thumbs-up icon if the information on the page was helpful to you.
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- JTAC policies—For a complete understanding of our JTAC procedures and policies, review the *JTAC User Guide* located at https://www.juniper.net/us/en/local/pdf/resource-guides/7100059-en.pdf.

- Product warranties—For product warranty information, visit https://www.juniper.net/support/warranty/.

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- Search for known bugs: https://prsearch.juniper.net/
- Find product documentation: https://www.juniper.net/documentation/
- Find solutions and answer questions using our Knowledge Base: https://kb.juniper.net/
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- Open a case online in the CSC Case Management tool: https://www.juniper.net/cm/

To verify service entitlement by product serial number, use our Serial Number Entitlement (SNE) Tool: https://entitlementsearch.juniper.net/entitlementsearch/

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- Call 1-888-314-JTAC (1-888-314-5822 toll-free in the USA, Canada, and Mexico).

For international or direct-dial options in countries without toll-free numbers, see https://www.juniper.net/support/requesting-support.html.

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CHAPTER 1

Configuring Multiple VLAN Registration Protocol

- Understanding Multiple VLAN Registration Protocol (MVRP) for Dynamic VLAN Registration on page 16
- Configuring Multiple VLAN Registration Protocol (MVRP) to Manage Dynamic VLAN Registration on page 19
- Controlling the Management State of a VLAN in MVRP Configurations on page 21
- Example: Configuring Automatic VLAN Administration Using MVRP on MX Series Routers on page 24
- Verifying That MVRP Is Working Correctly on page 38

Understanding Multiple VLAN Registration Protocol (MVRP) for Dynamic VLAN Registration

Multiple VLAN Registration Protocol (MVRP) is a Layer 2 messaging protocol that manages the addition, deletion, and renaming of active virtual LANs, thereby reducing network administrators' time spent on these tasks. Use MVRP on Juniper Networks MX Series routers, EX Series switches and SRX devices to dynamically register and unregister active VLANs on trunk interfaces. Using MVRP means that you do not have to manually register VLANs on all connections—that is, you do not need to explicitly bind a VLAN to each trunk interface. With MVRP, you configure a VLAN on one interface and the VLAN configuration is distributed through all active interfaces in the domain.

The primary purpose of MVRP is to manage dynamic VLAN registration in Layer 2 networks. In managing dynamic VLAN registration, MVRP also prunes VLAN information.

MVRP is an Layer 2 application protocol of the Multiple Registration Protocol (MRP) and is defined in the IEEE 802.1ak standard. MRP and MVRP were designed by IEEE to perform the same functions as Generic Attribute Registration Protocol (GARP) and GARP VLAN Registration Protocol (GVRP) while overcoming some GARP and GVRP limitations, in particular, limitations involving bandwidth usage and convergence time in large networks with large numbers of VLANs.

MVRP was created by IEEE as a replacement application for GVRP. MVRP and GVRP cannot be run concurrently to share VLAN information in a Layer 2 network.

This topic describes:

- How MVRP Works on page 16
- Using MVRP on page 17
- MVRP Registration Modes on page 17
- MRP Timers Control MVRP Updates on page 18
- MVRP Uses MRP Messages to Transmit Device and VLAN States on page 18
- MVRP Limitations on page 18

How MVRP Works

When any MVRP-member VLAN is changed, that VLAN sends a protocol data unit (PDU) to all other MVRP-member active VLANs. The PDU informs the other VLANs which devices and interfaces currently belong to the sending VLAN. This way, all MVRP-member VLANs are always updated with the current VLAN state of all other MVRP-member VLANs. Timers dictate when PDUs can be sent and when devices receiving MVRP PDUs can update their MVRP VLAN information.

The VLAN registration information sent by MVRP protocol data units (PDUs) includes the current VLANs membership—that is, which routers are members of which VLANs—and which router interfaces are in which VLAN. MVRP shares all information in the PDU with all routers participating in MVRP in the Layer 2 network.

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MVRP stays synchronized using these PDUs. The routers in the network participating in MVRP receive these PDUs during state changes and update their MVRP states accordingly. MVRP timers dictate when PDUs can be sent and when routers receiving MVRP PDUs can update their MVRP information.

In addition to sending PDU updates, MVRP dynamically creates VLANs on member interfaces when a new VLAN is added to any one interface. This way, VLANs created on one member device are propagated to other member devices as part of the MVRP message exchange process.

VLAN information is distributed as part of the MVRP message exchange process and can be used to dynamically create VLANs, which are VLANs created on one switch and propagated to other routers as part of the MVRP message exchange process. Dynamic VLAN creation using MVRP is enabled by default, but can be disabled.

As part of ensuring that VLAN membership information is current, MVRP removes routers and interfaces from the VLAN information when they become unavailable. Pruning VLAN information has these benefits:

- Limits the network VLAN configuration to active participants only, reducing network overhead.
- Targets the scope of broadcast, unknown unicast, and multicast (BUM) traffic to interested devices only.

Using MVRP

MVRP is disabled by default on the devices and, when enabled, affects only trunk interfaces. Once you enable MVRP, all VLAN interfaces on the device belong to MVRP (the default **normal** registration mode) and those interfaces accept PDU messages and send their own PDU messages. To prevent one or more interfaces from participating in MVRP, you can specifically configure an interface to **forbidden** registration mode instead of the default **normal** mode.

VLAN updating, dynamic VLAN configuration through MVRP, and VLAN pruning are all active on trunk interfaces when MVRP is enabled.

MVRP Registration Modes

The MVRP registration mode defines whether an interface does or does not participate in MVRP.

The following MVRP registration modes are configurable:

- forbidden—The interface does not register or declare VLANS (except statically configured VLANs).
- normal—The interface accepts MVRP messages and participates in MVRP. This is the default registration mode setting.
- restricted—The interface ignores all MVRP JOIN messages received for VLANs that are not statically configured on the interface.

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MRP Timers Control MVRP Updates

MVRP registration and updates are controlled by timers that are part of the MRP protocol. These timers are set on a per-interface basis and define when MVRP PDUs can be sent and when MVRP information can be updated on a switch.

The following timers are used to control the operation of MVRP:

- Join timer—Controls the interval for the next MVRP PDU transmit opportunity.
- Leave timer—Controls the period of time that an interface on the switch waits in the Leave state before changing to the unregistered state.
- LeaveAll timer—Controls the frequency with which the interface generates LeaveAll messages.

BEST PRACTICE: **Maintain default timer settings unless there is a compelling reason to change the settings. Modifying timers to inappropriate values might cause an imbalance in the operation of MVRP.**

MVRP Uses MRP Messages to Transmit Device and VLAN States

MVRP uses MRP messages to register and declare MVRP states for a switch and to inform the Layer 2 network that a switch is leaving MVRP. These messages are communicated as part of the PDU to communicate the state of a particular switch interface on the Layer 2 network to the other switches in the network.

The following messages are communicated for MVRP:

- Empty—VLAN information is not being declared and is not registered.
- In—VLAN information is not being declared but is registered.
- JoinEmpty—VLAN information is being declared but not registered.
- JoinIn—VLAN information is being declared and is registered.
- Leave—VLAN information that was previously registered is being withdrawn.
- LeaveAll—All registrations will be de-registered. Participants that want to participate in MVRP will need to re-register.
- New—VLAN information is new and possibly not previously registered.

MVRP Limitations

The following limitations apply when configuring MVRP:

- MVRP works with Rapid Spanning Tree Protocol (RSTP) and Multiple Spanning Tree Protocol (MSTP), but not with VLAN Spanning Tree Protocol (VSTP).
- MVRP is allowed only on single tagged trunk ports.

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- MVRP is not allowed if a physical interface has more than one logical interface.
- MVRP is only allowed if a logical has one trunk interface (unit 0).

Configuring Multiple VLAN Registration Protocol (MVRP) to Manage Dynamic VLAN Registration

Multiple VLAN Registration Protocol (MVRP) is used to manage dynamic VLAN registration in a Layer 2 network. You can use MVRP on MX Series routers or on EX Series switches.

MVRP is disabled by default on MX Series routers and EX Series switches.

To enable MVRP or set MVRP options, follow these instructions:

- Enabling MVRP on page 19
- Disabling MVRP on page 19
- Changing the Registration Mode to Disable Dynamic VLANs on page 19
- Configuring Timer Values on page 20
- Configuring the Multicast MAC Address for MVRP on page 21
- Configuring an MVRP Interface as a Point-to-Point Interface on page 21
- Configuring MVRP Tracing Options on page 21

Enabling MVRP

MVRP can only be enabled on trunk interfaces.

To enable MVRP on a specific trunk interface (here, interface **ge-3/0/5**):

```
[edit protocols mvrp]
user@host# set interface ge-3/0/5
```

Disabling MVRP

MVRP is disabled by default. You only need to perform this procedure if you have previously enabled MVRP.

To disable MVRP on all trunk interfaces, use one of the following:

```
[edit]
user@host# deactivate protocols mvrp
user@host# delete protocols mvrp
```

Changing the Registration Mode to Disable Dynamic VLANs

When the registration mode for an interface is set to **normal** (the default), dynamic VLANs are created on interfaces participating in MVRP. The dynamic VLANs created on one router or switch are then propagated by means of MVRP to other routers or switches in a topology.

However, dynamic VLAN creation through MVRP can be disabled for all trunk interfaces or for individual trunk interfaces.

For information about disabling dynamic VLAN creation on an interface so that the interface does not register and does not participate in MVRP, see "Controlling the Management State of a VLAN in MVRP Configurations" on page 21.

Configuring Timer Values

The timers in MVRP define the amount of time an interface waits to join or leave MVRP or to send or process the MVRP information for the router or switch after receiving an MVRP PDU:

- The join timer controls the amount of time the router or switch waits to accept a registration request.
- The leave timer controls the period of time that the router or switch waits in the Leave state before changing to the unregistered state.
- The leaveall timer controls the frequency with which the LeaveAll messages are communicated.

The default MVRP timer values are 200 ms for the join timer, 1000 ms for the leave timer, and 10000 ms for the leaveall timer.

BEST PRACTICE: **Maintain default timer settings unless there is a compelling reason to change the settings. Modifying timers to inappropriate values might cause an imbalance in the operation of MVRP.**

To set the join timer for a specific interface:

```
[edit protocols mvrp]
user@host# set interface ge-3/0/5 join-timer 300
```

To set the leave timer for a specific interface:

```
[edit protocols mvrp]
user@host# set interface ge-3/0/5 leave-timer 1200
```

To set the leaveall timer for a specific interface:

```
[edit protocols mvrp]
user@host# set interface ge-3/0/5 leaveall-timer 12000
```

See Also

- join-timer (MVRP) on page 58
- leave-timer (MVRP) on page 62
- leaveall-timer (MVRP) on page 60

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Configuring the Multicast MAC Address for MVRP

MVRP uses the customer MVRP multicast MAC address when MVRP is enabled. However, you can configure MVRP to instead use the provider MVRP multicast MAC address.

To configure MVRP to use the provider MVRP multicast MAC address:

```
[edit protocols mvrp]
user@host# set bpdu-destination-mac-address provider-bridge-group;
```

See Also

- bpdu-destination-mac-address on page 42

Configuring an MVRP Interface as a Point-to-Point Interface

Specify that a configured interface is connected point-to-point. If specified, a point-to-point subset of the MRP state machine provides a simpler and more efficient method to accelerate convergence on the network.

To specify that an MVRP interface is point-to-point (here, interface **ge-3/0/5**):

```
[edit protocols mvrp]
user@host# set interface ge-3/0/5 point-to-point;
```

See Also

- point-to-point (MVRP) on page 68

Configuring MVRP Tracing Options

Set MVRP protocol-level tracing options.

To specify MVRP protocol tracing (here, the file is **/var/log/mvrp-log**, size is **2m**, number of files is **28**, the option **world-readable** indicates the log can be read by user, and MVRP is flagging **events**):

```
[edit protocols mvrp]
user@host# edit traceoptions file /var/log/mvrp-log size 2m files 28 world-readable flag
  events
```

See Also

- traceoptions (MVRP) on page 75

Related Documentation

- Example: Configuring Automatic VLAN Administration Using MVRP on MX Series Routers on page 24

Controlling the Management State of a VLAN in MVRP Configurations

MX Series routers use Multiple VLAN Registration Protocol (MVRP) to manage dynamic virtual LAN (VLAN) registration in Layer 2 networks. Enabling MVRP on trunk interfaces

in Layer 2 networks reduces network overhead by limiting the scope of broadcast, unknown unicast, and multicast (BUM) traffic to interested devices only.

Dynamic VLAN registration through MVRP is enabled by default when you enable MVRP on a trunk interface. The trunk interface automatically uses the **normal** registration mode, accepts MVRP messages, and participates in MVRP. The management state in this case is also known as **normal**. However, it can be useful to configure VLAN IDs to bypass the dynamic VLAN registration process for security reasons or when MVRP is not supported on a peer switch. You can change the management state of a VLAN independently to either exclude it entirely from the MVRP registration process and remain in an unregistered state (**forbidden** state), or to force a VLAN to always stay in a registered state and to be declared on all other forwarding ports (**fixed** state).

Three parameters are used to control the management state of a VLAN in an MVRP configuration:

- The VLAN is a member in the interface VLAN ID list (configured at the **[edit interfaces *interface-name* family bridge vlan-id-list]** hierarchy level).
- The VLAN is a member in the bridge domain VLAN ID list (configured at the **[edit bridge-domain *bridge-domain-name* vlan-id-list]** hierarchy level).
- The MVRP registration mode is configured for MVRP (configured at the **[edit protocols mvrp interface *interface-name* registration (normal | restricted | forbidden)]** hierarchy level).

When these three parameters are combined, a VLAN operates with the following MVRP management states:

- If a VLAN ID is present in both the interface and bridge domain VLAN ID list, the VLAN is in a **fixed** management state, irrespective of the MVRP registration mode.
- If a VLAN ID is present in the interface VLAN ID list but not in the bridge domain VLAN ID list and the MVRP registration mode is **forbidden**, the VLAN ID is in a **forbidden** management state. If the MVRP registration mode is not **forbidden**, the VLAN ID is in a **normal** registration state.
- If a VLAN ID is not present in the interface VLAN ID list and the MVRP registration mode is **forbidden** or **restricted**, the VLAN ID is in a **forbidden** management state. Otherwise, it is in a **normal** management state.

Table 3 on page 23 defines in more detail the MVRP management state for a VLAN when the interface and bridge domain VLAN ID lists and the MVRP registration mode are configured.

Table 3 on page 23 contains the service configured for BEB2, as well as the correlating S-VLAN, I-SID, and B-VLAN.

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Table 3: MVRP Management States

VLAN ID Present in Interface VLAN ID List?	VLAN ID Present in Bridge Domain VLAN ID List?	Interface Uses MVRP Normal Registration Mode	Interface Uses MVRP Restricted Registration Mode	Interface Uses Forbidden Registration Mode
yes	yes	**fixed** state	**fixed** state	**fixed** state
yes	no	**normal** state	**normal** state	**forbidden** state
yes	yes/no	**normal** state	**forbidden** state	**forbidden** state

This topic describes how to configure the management state for VLANs in an MVRP configuration:

- Configure All VLANs to Operate in Normal State on page 23
- Configure VLANs to Operate with Mixed States (Fixed and Normal) on page 23
- Configure VLANs to Operate with Mixed States (Fixed, Normal, and Forbidden) on page 24

Configure All VLANs to Operate in Normal State

To configure an interface to operate in the normal state, configure the registration state as **normal**:

```
[edit protocols]
user@host# set mvrp interface interface-name registration normal
```

For example, to configure all VLANs on trunk interface **ge-1/0/0** to operate in **normal** state:

```
[edit]
user@host# set interface ge-1/0/0 family bridge trunk
user@host# set protocols mvrp interface ge-1/0/0 registration normal
```

Configure VLANs to Operate with Mixed States (Fixed and Normal)

To configure an interface to operate in a fixed state, add the VLANs that should operate in a fixed state to the interface VLAN ID list:

```
[edit]
user@host# set interface interface-name family bridge vlan-id-list vlan-ids
user@host# set bridge-domains bridge-domain-name vlan-id-list vlan-ids
```

For example, to configure the first 1024 VLANs on trunk interface **ge-1/0/0.0** to operate in **fixed** state, and the other VLANs to operate in **normal** state:

```
[edit]
user@host# set interface ge-1/0/0.0 family bridge trunk
user@host# set interface ge-1/0/0.0 family bridge vlan-id-list 1-1024
user@host# set bridge-domains bd vlan-id-list 1-1024
user@host# set protocols mvrp interface ge-1/0/0 registration normal
```

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Configure VLANs to Operate with Mixed States (Fixed, Normal, and Forbidden)

To configure an interface to operate in the forbidden state, configure the registration state as **restricted**:

```
[edit protocols]
user@host# set protocols mvrp interface interface-name registration restricted
```

For example, to configure the first 1024 VLANs on trunk interface **ge-1/0/0.0** to operate in **fixed** state, VLAN IDs 1024 to 2048 to operate in **normal** state, and the remaining VLANs to operate in **forbidden** state:

```
[edit]
user@host# set interface ge-1/0/0.0 family bridge trunk
user@host# set interface ge-1/0/0.0 family bridge vlan-id-list 1-2048
user@host# set bridge-domains bd vlan-id-list 1-1024
user@host# set protocols mvrp interface ge-1/0/0 registration restricted
```

Related Documentation

- Example: Configuring Automatic VLAN Administration Using MVRP on MX Series Routers on page 24
- Configuring Multiple VLAN Registration Protocol (MVRP) to Manage Dynamic VLAN Registration on page 19
- Verifying That MVRP Is Working Correctly on page 38
- Understanding Multiple VLAN Registration Protocol (MVRP) for Dynamic VLAN Registration on page 16

Example: Configuring Automatic VLAN Administration Using MVRP on MX Series Routers

Multiple VLAN Registration Protocol (MVRP) is used in Layer 2 networks to dynamically share virtual LAN (VLAN) information and to automatically configure necessary VLAN information. Automatically configuring VLANs on ports based on the current network configuration ensures that a router does not send traffic to an interface on the network with an inactive VLAN. In this way, MVRP reduces network overhead by limiting the scope of broadcast, unknown unicast, and multicast (BUM) traffic to interested devices only. MVRP also provides for rapid healing of network failures without interrupting services to unaffected VLANs and improves convergence times.

MVRP is a Layer 2 network protocol based on the IEEE standard 802.1ak amendment to 802.1Q-2005, *Standard for Local and Metropolitan Area Networks Virtual Bridged Local Area Networks - Amendment 07: Multiple Registration Protocol*.

This example describes how to use MVRP to automate administration of VLAN membership changes within your network and to dynamically create VLANs:

- Requirements on page 25
- Overview and Topology on page 25

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- Configuration on page 27
- Verification on page 33

Requirements

This example uses the following hardware and software components:

- Two MX Series routers acting as edge switches
- One MX Series router acting as an aggregation switch
- Junos OS Release 10.1 or later for MX Series routers

Overview and Topology

VLANs are statically configured on access interfaces on MX Series routers acting as edge switches. The VLAN membership information is propagated to the MX Series router acting as an aggregation switch at the core by enabling MVRP on two trunk interfaces:one connecting edge switch 1 (ES1) to aggregation switch 1 (AS1), and the other connecting ES2 to AS1. Enabling MVRP on the trunk interface of each MX Series router in your network ensures that the active VLAN information for the routers in the network is propagated to each router through the trunk interfaces (the default registration mode for MVRP).

MVRP ensures that the VLAN membership information on the trunk interface is updated as the edge switch's access interfaces become active or inactive.

You do not need to explicitly bind a VLAN to the trunk interface. When MVRP is enabled, the trunk interface advertises all the VLANs that are active (bound to access interfaces) on that switch. An MVRP-enabled trunk interface does not advertise VLANs that have been configured on the switch but are not currently bound to an access interface. For example, ES1 in the topology does not forward traffic to inactive VLAN 300 on ES2.

Rapid Spanning Tree Protocol (RSTP) is also configured on the trunk interfaces to promote a loop-free topology.

This example shows a network with two customer sites, **site–1** and **site–2**, using VLANs **100**, **200**, and **300**.

ES1 supports all three VLANS, and all three VLANS are active and bound to interfaces that are connected to three customers at **site–1**:

- **ge-11/2/6**—Access port connecting customer3–site1, VLAN ID 100.
- **ge-11/2/7**—Access port connecting customer2–site1, VLAN ID 200.
- **ge-11/2/8**—Access port connecting customer1–site1, VLAN ID 300.
- **ge-11/3/0**—Trunk port connecting ES1 to AS1.

ES2 has been configured to support two VLANS, and both VLANS are active and bound to interfaces that are connected to two customers at **site–2**:

- **ge-0/1/1**—Access port connecting customer1–site2, VLAN ID 100.
- **ge-0/2/0**—Access port connecting customer2–site2, VLAN ID 200.

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- **ge-0/0/5**—Trunk port connecting ES2 to AS1.

AS1 learns the VLANs dynamically using MVRP through the connection to the edge switches. AS1 has two trunk interfaces:

- **ge-3/3/0**—Connects the router to edge switch ES1 on interface **ge-11/3/0**.
- **ge-3/0/5**—Connects the router to edge switch ES2 on interface **ge-0/0/5**.

The default MVRP interface registration mode is **normal** and is used in this example. An interface in normal registration mode participates in MVRP when MVRP is enabled on the router. For information about changing the MVRP registration mode, see "Controlling the Management State of a VLAN in MVRP Configurations" on page 21.

Figure 1 shows MVRP configured on three MX Series routers: two routers operating as edge switches and one router operating as an aggregation switch.

Figure 1: MVRP Configured on Three MX Series Routers for Automatic VLAN Administration

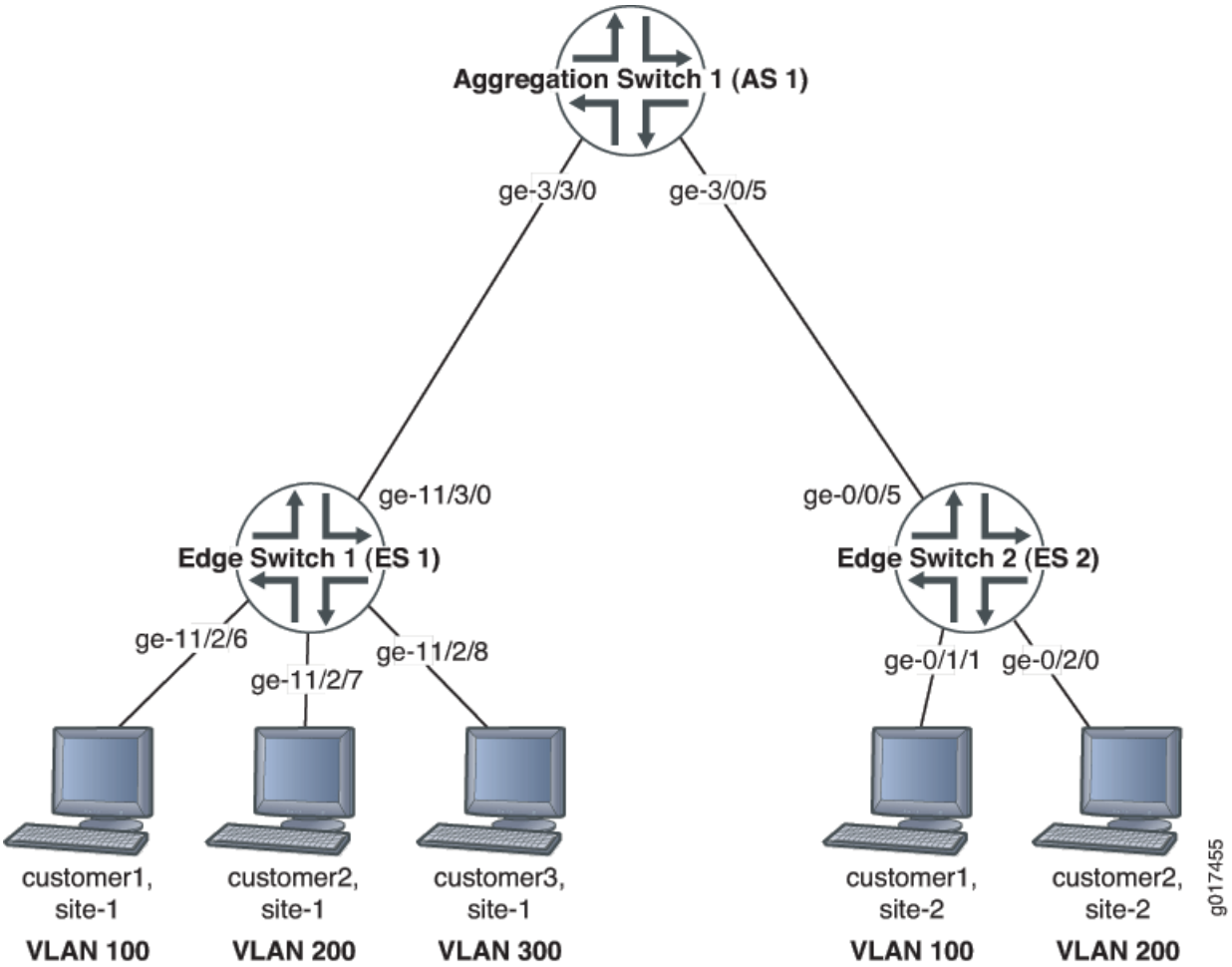

Table 4 on page 27 explains the components of the example topology.

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Table 4: Components of the Network Topology

Property	Settings
MX Series routers	• ES1 • ES2 • AS1
VLAN tag IDs associated with bridge domain **bd**	**100**, **200**, and **300**
ES1 interfaces	ES1 interfaces: • **ge-11/2/6**—Access port connecting customer3–site1, VLAN ID 100. • **ge-11/2/7**—Access port connecting customer2–site1, VLAN ID 200. • **ge-11/2/8**—Access port connecting customer1–site1, VLAN ID 300. • **ge-11/3/0**—Trunk port connecting ES1 to AS1.
ES2 interfaces	ES2 interfaces: • **ge-0/1/1**—Access port connecting customer3–site2, VLAN ID 100. • **ge-0/2/0**—Access port connecting customer3–site2, VLAN ID 200. • **ge-0/0/5**—Trunk port connecting ES2 to AS1.
AS1 interfaces	AS1 interfaces: • **ge-3/3/0**—Trunk port connected to ES1. • **ge-3/0/5**—Trunk port connected to ES2.

Configuration

To enable MVRP and RSTP on the trunk interface, as well as configure ES1 access interfaces and the bridge domain, perform these tasks:

- Configuring MVRP on ES1 on page 27
- Configuring MVRP on ES2 on page 30
- Configuring MVRP on AS1 on page 32

Configuring MVRP on ES1

CLI Quick Configuration

To quickly configure ES1 for MVRP, copy the following commands and paste them into the switch terminal window of ES1:

```
[edit]
set interfaces ge-11/2/6 description "connected to customer3-site-1"
set interfaces ge-11/2/6 unit 0 family bridge interface-mode access
set interfaces ge-11/2/6 unit 0 family bridge vlan-id 300
set interfaces ge-11/2/7 description "connected to customer2-site-1"
set interfaces ge-11/2/7 unit 0 family bridge interface-mode access
set interfaces ge-11/2/7 unit 0 family bridge vlan-id 200
```

```
set interfaces ge-11/2/8 description "connected to customer1-site-1"
set interfaces ge-11/2/8 unit 0 family bridge interface-mode access
set interfaces ge-11/2/8 unit 0 family bridge vlan-id 100
set interfaces ge-11/3/0 description "connected to AS1 interface ge-3/3/0"
set interfaces ge-11/3/0 unit 0 family bridge interface-mode trunk
set bridge-domains bd vlan-id-list [100 200 300]
set protocols mvrp interface ge-11/3/0
set protocols rstp interface ge-11/3/0
```

NOTE: As we recommend as a best practice, default MVRP timers are used in this example. The default values associated with each MVRP timer are 200 ms for the join timer, 1000 ms for the leave timer, and 10000 ms for the leaveall timer. Modifying timers to inappropriate values might cause an imbalance in the operation of MVRP.

Step-by-Step Procedure

To configure MVRP on ES1:

1. Configure the access interfaces for customers at customer-site 1 and the trunk interface connecting ES1 to AS1:

```
[edit interfaces]
user@es1# set ge-11/2/6 description "connected to customer3-site-1"
user@es1# set ge-11/2/6 unit 0 family bridge interface-mode access
user@es1# set ge-11/2/6 unit 0 family bridge vlan-id 300
user@es1# set ge-11/2/7 description "connected to customer2-site-1"
user@es1# set ge-11/2/7 unit 0 family bridge interface-mode access
user@es1# set ge-11/2/7 unit 0 family bridge vlan-id 200
user@es1# set ge-11/2/8 description "connected to customer1-site-1"
user@es1# set ge-11/2/8 unit 0 family bridge interface-mode access
user@es1# set ge-11/2/8 unit 0 family bridge vlan-id 100
user@es1# set ge-11/3/0 description "connected to AS1 interface ge-3/3/0"
user@es1# set ge-11/3/0 unit 0 family bridge interface-mode trunk
```

2. Configure the bridge domain **bd** and the VLAN IDs associated with the bridge domain:

```
[edit bridge-domains]
user@es1# set bd vlan-id-list [100 200 300]
```

3. Enable MVRP on the trunk interface:

```
[edit protocols]
user@es1# set mvrpinterface ge-11/3/0
```

4. Enable RSTP on the trunk interface:

```
[edit protocols]
user@es1# set rstp interface ge-11/3/0
```

Results

Check the results of the configuration:

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```
user@es1> show configuration
interfaces {
   ge-11/2/6 {
      description "connected to customer3-site-1";
      unit 0 {
         family bridge {
            interface-mode access;
            vlan-id 300;
         }
      }
   }
   ge-11/2/7 {
      description "connected to customer2-site-1";
      unit 0 {
         family bridge {
            interface-mode access;
            vlan-id 200;
         }
      }
   }
   ge-11/2/8 {
      description "connected to customer1-site-1";
      unit 0 {
         family bridge {
            interface-mode access;
            vlan-id 100;
         }
      }
   }
   ge-11/3/0 {
      description "connected to AS1 interface ge-3/3/0";
      unit 0 {
         family bridge {
            interface-mode trunk;
         }
      }
   }
}
bridge-domains {
   bd {
      vlan-id-list [ 100 200 300 ];
   }
}
protocols {
   mvrp {
      interface ge-11/3/0;
   }
   rstp {
      interface ge-11/3/0;
   }
}
```

Configuring MVRP on ES2

CLI Quick Configuration

To quickly configure ES2 for MVRP, copy the following commands and paste them into the switch terminal window of ES2:

```
[edit]
set interfaces ge-0/0/5 description "connected to AS1 interface ge-3/0/5"
set interfaces ge-0/0/5 unit 0 family bridge interface-mode trunk
set interfaces ge-0/1/1 description "connected to customer1-site-2"
set interfaces ge-0/1/1 unit 0 family bridge interface-mode access
set interfaces ge-0/1/1 unit 0 family bridge vlan-id 100
set interfaces ge-0/2/0 description "connected to customer2-site-2"
set interfaces ge-0/2/0 unit 0 family bridge interface-mode access
set interfaces ge-0/2/0 unit 0 family bridge vlan-id 200
set bridge-domains bd vlan-id-list [100 200]
set protocols mvrp interface ge-0/0/5
set protocols rstp interface ge-0/0/5
```

NOTE: As we recommend as a best practice, default MVRP timers are used in this example. The default values associated with each MVRP timer are 200 ms for the join timer, 1000 ms for the leave timer, and 10000 ms for the leaveall timer. Modifying timers to inappropriate values might cause an imbalance in the operation of MVRP.

Step-by-Step Procedure

To enable MVRP and RSTP on the trunk interface, as well as configure ES2 access interfaces and the bridge domain:

1. Configure the access interfaces for customers at customer site **site-2** and the trunk interface connecting ES2 to AS1:

   ```
   [edit interfaces]
   user@es2# set ge-0/0/5 description "connected to AS1 interface ge-3/0/5"
   user@es2# set ge-0/0/5 unit 0 family bridge interface-mode trunk
   user@es2# set ge-0/1/1 description "connected to customer1-site-2"
   user@es2# set ge-0/1/1 unit 0 family bridge interface-mode access
   user@es2# set ge-0/1/1 unit 0 family bridge vlan-id 100
   user@es2# set ge-0/2/0 description "connected to customer2-site-2"
   user@es2# set ge-0/2/0 unit 0 family bridge interface-mode access
   user@es2# set ge-0/2/0 unit 0 family bridge vlan-id 200
   ```

2. Configure the bridge domain **bd** and the VLAN IDs associated with the bridge domain:

   ```
   [edit bridge-domains]
   user@es2# set bd vlan-id-list [100 200]
   ```

3. Enable MVRP on the trunk interface:

   ```
   [edit protocols]
   user@es2# set mvrpinterface ge-0/0/5
   ```

4. Enable RSTP on the trunk interface:

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```
[edit protocols]
user@es2# set rstp interface ge-0/0/5
```

Results Check the results of the configuration:

```
user@es2> show configuration
interfaces {
   ge-0/0/5 {
      description "connected to AS1 interface ge-3/0/5";
      unit 0 {
         family bridge {
            interface-mode trunk;
         }
      }
   }
   ge-0/1/1 {
      description "connected to customer1-site-2";
      unit 0 {
         family bridge {
            interface-mode access;
            vlan-id 100;
         }
      }
   }
   ge-0/2/0 {
      description "connected to customer2-site-2";
      unit 0 {
         family bridge {
            interface-mode access;
            vlan-id 200;
         }
      }
   }
}
bridge-domains {
   bd {
      vlan-id-list [ 100 200 ];
   }
}
protocols {
   mvrp {
      interface ge-0/0/5;
   }
   rstp {
      interface ge-0/0/5;
   }
}
```

Configuring MVRP on AS1

CLI Quick Configuration

To quickly configure AS1 for MVRP, copy the following commands and paste them into the switch terminal window of AS1:

```
[edit]
set interfaces ge-3/0/5 description "connected to ES2 interface ge-0/0/5”
set interfaces ge-3/0/5 unit 0 family bridge interface-mode trunk
set interfaces ge-3/3/0 description "connected to ES1 interface ge-11/3/0"
set interfaces ge-3/3/0 unit 0 family bridge interface-mode trunk
set protocols mvrp interface ge-3/0/5
set protocols mvrp interface ge-3/3/0
set protocols rstp bridge-priority 0
set protocols rstp interface ge-3/0/5
set protocols rstp interface ge-3/3/0
```

NOTE: As we recommend as a best practice, default MVRP timers are used in this example. The default values associated with each MVRP timer are 200 ms for the join timer, 1000 ms for the leave timer, and 10000 ms for the leaveall timer. Modifying timers to inappropriate values might cause an imbalance in the operation of MVRP.

Step-by-Step Procedure

To enable MVRP and RSTP on the trunk interfaces on AS1:

1. Configure the trunk interfaces connecting AS1 to ES1 and ES2:

```
[edit interfaces]
user@as1#  set ge-3/0/5 description "connected to ES2 interface ge-0/0/5”
user@as1#  set ge-3/0/5 unit 0 family bridge interface-mode trunk
user@as1#  set ge-ge-3/3/0 description "connected to ES1 interface ge-11/3/0"
user@as1#  set ge-3/3/0 unit 0 family bridge interface-mode trunk
```

2. Enable MVRP on the trunk interfaces:

```
[edit protocols]
user@as1#  set mvrp interface ge-3/0/5
user@as1#  set mvrp interface ge-3/3/0
```

3. Enable RSTP on the trunk interfaces:

```
[edit protocols]
user@as1#  set rstp bridge-priority 0
user@as1#  set rstp interface ge-3/0/5
user@as1#  set rstp interface ge-3/3/0
```

Results

Check the results of the configuration:

```
user@as1> show configuration
interfaces {
```


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```
    ge-3/0/5 {
        description "connected to ES2 interface ge-0/0/5";
        unit 0 {
            family bridge {
                interface-mode trunk;
            }
        }
    }
    ge-3/3/0 {
        description "connected to ES1 interface ge-11/3/0";
        unit 0 {
            family bridge {
                interface-mode trunk;
            }
        }
    }
}
protocols {
    mvrp {
        interface ge-3/0/5;
        interface ge-3/3/0;
    }
    rstp {
        bridge-priority 0;
        interface ge-3/0/5;
        interface ge-3/3/0;
    }
}
```

Verification

To confirm that the configuration is updating VLAN membership, perform these tasks:

- Verifying That MVRP Is Enabled on ES1 on page 33
- Verifying the MVRP Registration on ES1 on page 34
- Verifying Dynamic VLAN Members on ES1 on page 34
- Verifying That MVRP Is Enabled on ES2 on page 35
- Verifying the MVRP Registration on ES2 on page 35
- Verifying Dynamic VLAN Members on ES2 on page 36
- Verifying That MVRP Is Enabled on AS1 on page 36
- Verifying the MVRP Registration on AS1 on page 37
- Verifying That MVRP Is Updating VLAN Membership on AS1 on page 37

Verifying That MVRP Is Enabled on ES1

Purpose Verify that MVRP is enabled on ES1.

Action Show the MVRP applicant state:

```
user@es1> show mvrp applicant-state
MVRP applicant state for routing instance 'default-switch'
 (VO) Very anxious observer, (VP) Very anxious passive, (VA) Very anxious new,
 (AN) Anxious new, (AA) Anxious active, (QA) Quiet active, (LA) Leaving active,
 (AO) Anxious observer, (QO) Quiet observer, (LO) Leaving observer,
 (AP) Anxious passive, (QP) Quiet passive

VLAN Id     Interface          State
    100     ge-11/3/0          Declaring (QA)
    200     ge-11/3/0          Declaring (QA)
    300     ge-11/3/0          Declaring (QA)
```

Meaning The output displayed shows that trunk interface **ge-11/3/0** on ES1 is declaring (sending out) interest in VLAN IDs **100**, **200**, and **300**.

Verifying the MVRP Registration on ES1

Purpose Verify the VLANs that are registering on ES1.

Action List VLANs in the registered state:

```
user@es1> show mvrp registration-state
MVRP registration state for routing instance 'default-switch'

VLAN Id   Interface   Registrar   Forced      Managed    STP
                      State       State       State      State
    100   ge-11/3/0   Registered  Registered  Normal     Forwarding
    200   ge-11/3/0   Registered  Registered  Normal     Forwarding
    300   ge-11/3/0   Empty       Empty       Normal     Forwarding
```

Meaning The output displayed shows the registrar state for VLANs **100** and **200** is **Registered**, indicating that these VLANs are receiving traffic from customer site site-2. VLAN **300** is in an **Empty** state and is not receiving traffic from site-2.

Verifying Dynamic VLAN Members on ES1

Purpose Verify that flooding is not occurring on unregistered VLANs.

Action List dynamic VLAN membership:

```
user@es1> show mvrp dynamic-vlan-memberships
MVRP dynamic vlans for routing instance 'default-switch'
 (s) static vlan, (f) fixed registration

VLAN Id            Interfaces
```

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```
    100 (s)        ge-11/3/0
    200 (s)        ge-11/3/0
    300 (s)
```

Meaning The output displayed shows that VLAN **300** is not associated with the trunk interface **ge-11/3/0** connected to AS1. No unnecessary traffic is flooding the interface for VLAN **300** towards ES2 site-2.

Verifying That MVRP Is Enabled on ES2

Purpose Verify that MVRP is enabled on ES2.

Action Show the MVRP applicant state:

```
user@es2> show mvrp applicant-state
MVRP applicant state for routing instance 'default-switch'
 (VO) Very anxious observer, (VP) Very anxious passive, (VA) Very anxious new,
 (AN) Anxious new, (AA) Anxious active, (QA) Quiet active, (LA) Leaving active,
 (AO) Anxious observer, (QO) Quiet observer, (LO) Leaving observer,
 (AP) Anxious passive, (QP) Quiet passive

VLAN Id     Interface          State
    100     ge-0/0/5           Declaring (QA)
    200     ge-0/0/5           Declaring (QA)
    300     ge-0/0/5           Idle      (VO)
```

Meaning The output displayed shows that trunk interface **ge-0/0/5** on ES2 is declaring (sending out) interest in VLAN IDs **100** and **200** but is not declaring interest for VLAN **300**. The state displayed for VLAN **300** is **Idle**.

Verifying the MVRP Registration on ES2

Purpose Verify the VLANs that are registering on ES2.

Action List VLANs in the registered state:

```
user@es2> show mvrp registration-state
MVRP registration state for routing instance 'default-switch'

VLAN Id   Interface   Registrar   Forced      Managed    STP
                      State       State       State      State
    100   ge-0/0/5    Registered  Registered  Normal     Forwarding
    200   ge-0/0/5    Registered  Registered  Normal     Forwarding
    300   ge-0/0/5    Registered  Registered  Normal     Forwarding
```

Meaning The output displayed shows that the registrar state for VLANs **100**, **200**, and **300** is **Registered** indicating that these VLANs are receiving traffic from customer site site-1.

Verifying Dynamic VLAN Members on ES2

Purpose Verify dynamic VLAN membership.

Action List dynamic VLAN membership:

```
user@es2> show mvrp dynamic-vlan-memberships
```

```
MVRP dynamic vlans for routing instance 'default-switch'
 (s) static vlan, (f) fixed registration

VLAN Id            Interfaces
    100 (s)        ge-0/0/5
    200 (s)        ge-0/0/5
    300            ge-0/0/5
```

Meaning The output displayed shows that VLAN **300** is not a static VLAN. A static VLAN is indicated by the **s** beside the VLAN ID. VLAN **300** added to ES2 shows the VLAN membership is being updated.

Verifying That MVRP Is Enabled on AS1

Purpose Verify that MVRP is enabled on AS1.

Action Show the MVRP applicant state:

```
user@es2> show mvrp applicant-state
```

```
MVRP applicant state for routing instance 'default-switch'
 (VO) Very anxious observer, (VP) Very anxious passive, (VA) Very anxious new,
 (AN) Anxious new, (AA) Anxious active, (QA) Quiet active, (LA) Leaving active,
 (AO) Anxious observer, (QO) Quiet observer, (LO) Leaving observer,
 (AP) Anxious passive, (QP) Quiet passive

VLAN Id     Interface          State
    100     ge-3/3/0           Declaring (QA)
            ge-3/0/5           Declaring (QA)
    200     ge-3/3/0           Declaring (QA)
            ge-3/0/5           Declaring (QA)
    300     ge-3/3/0           Idle      (VO)
            ge-3/0/5           Declaring (QA)
```

Meaning The output displayed shows that trunk interfaces **ge-3/3/0** (connected to ES1) and **ge-3/0/5** (connected to ES2) are declaring (sending out) interest in the VLAN IDs **100** and **200**. Interface **ge-3/0/5** is declaring interest for VLAN **300** (toward ES2) but not declaring interest for VLAN **300** on interface **ge-3/3/0** (toward ES1).

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Verifying the MVRP Registration on AS1

Purpose Verify the VLANs that are registering on AS1.

Action List VLANs in the registered state:

```
user@as1> show mvrp registration-state
MVRP registration state for routing instance 'default-switch'

VLAN Id   Interface   Registrar   Forced      Managed    STP
                      State       State       State      State
    100   ge-3/3/0    Registered  Registered  Normal     Forwarding
          ge-3/0/5    Registered  Registered  Normal     Forwarding
    200   ge-3/3/0    Registered  Registered  Normal     Forwarding
          ge-3/0/5    Registered  Registered  Normal     Forwarding
    300   ge-3/3/0    Registered  Registered  Normal     Forwarding
          ge-3/0/5    Empty       Empty       Normal     Forwarding
```

Meaning The output displayed shows that the registrar state for VLANs **100** and **200** is **Registered** on both sides of AS1 (ES1 and ES2), indicating that traffic is being transmitted and received through these VLANs between customer site site-1 and site-2. The registrar state for VLAN **300** is **Registered** on interface **ge-3/3/0** (connected to ES1), but not on interface **ge-3/0/5** (connected to ES2).

Verifying That MVRP Is Updating VLAN Membership on AS1

Purpose Verify that MVRP is updating VLAN membership on AS1 by displaying the dynamic VLAN membership on AS1.

Action List the VLANs on AS1 that were created dynamically using MVRP:

```
user@as1> show mvrp dynamic-vlan-memberships
MVRP dynamic vlans for routing instance 'default-switch'
 (s) static vlan, (f) fixed registration

VLAN Id            Interfaces
    100            ge-3/3/0
                   ge-3/0/5
    200            ge-3/3/0
                   ge-3/0/5
    300            ge-3/3/0
```

Meaning VLANs are only configured statically on the edge switches. The output displayed shows that all VLANs were learned dynamically. No **(s)** is added beside the VLAN IDs, indicating that they were created dynamically and not added statically.

Related Documentation

- Configuring Multiple VLAN Registration Protocol (MVRP) to Manage Dynamic VLAN Registration on page 19
- Controlling the Management State of a VLAN in MVRP Configurations on page 21
- Verifying That MVRP Is Working Correctly on page 38
- Understanding Multiple VLAN Registration Protocol (MVRP) for Dynamic VLAN Registration on page 16

Verifying That MVRP Is Working Correctly

Purpose After configuring your MX Series router or EX Series switch to participate in Multiple VLAN Registration Protocol (MVRP), verify that the configuration is properly set and that MVRP messages are being sent and received on your switch.

Action

1. Confirm that the router is declaring VLANs.

   Show that MVRP is enabled:

   ```
   user@host> show mvrp
   MVRP configuration for routing instance 'default-switch'
   MVRP dynamic VLAN creation : Enabled
   MVRP BPDU MAC address      : Customer bridge group (01-80-C2-00-00-21)
   MVRP timers (ms)
     Interface       Join   Leave  LeaveAll
     ge-11/3/0        200     800     10000
   ```

   Show the MVRP applicant state:

   ```
   user@host> show mvrp applicant-state
   MVRP applicant state for routing instance 'default-switch'
    (VO) Very anxious observer, (VP) Very anxious passive, (VA) Very anxious new,

    (AN) Anxious new, (AA) Anxious active, (QA) Quiet active, (LA) Leaving active,

    (AO) Anxious observer, (QO) Quiet observer, (LO) Leaving observer,
    (AP) Anxious passive, (QP) Quiet passive

   VLAN Id     Interface          State
       100     ge-11/3/0          Declaring (QA)
       200     ge-11/3/0          Declaring (QA)
       300     ge-11/3/0          Declaring (QA)
   ```

2. Confirm that VLANs are registered on interfaces.

   List VLANs in the registered state:

   ```
   user@host> show mvrp registration-state
   MVRP registration state for routing instance 'default-switch'

   VLAN Id   Interface   Registrar   Forced      Managed    STP
                         State       State       State      State
   ```

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```
    100   ge-11/3/0   Registered  Registered  Normal     Forwarding
    200   ge-11/3/0   Registered  Registered  Normal     Forwarding
    300   ge-11/3/0   Empty       Empty       Normal     Forwarding
```

3. Display a list of VLANs created dynamically.

   List dynamic VLAN membership:

```
user@host> show mvrp dynamic-vlan-memberships
```

```
MVRP dynamic vlans for routing instance 'default-switch'
 (s) static vlan, (f) fixed registration

VLAN Id            Interfaces
    100            ge-3/3/0
                   ge-3/0/5
    200            ge-3/3/0
                   ge-3/0/5
```

Meaning The output of **show mvrp applicant-state** shows that trunk interface **ge-11/3/0** is declaring (sending out) interest in the VLAN IDs **100**, **200**, and **300**, and MVRP is operating properly.

The output of **show mvrp registrant-state** shows the registrar state for VLANs **100** and **200** as **Registered**, indicating that these VLANs are receiving traffic from a customer site. VLAN **300** is in an **Empty** state and is not receiving traffic from a customer site.

The output of the **show mvrp dynamic-vlan-membership** shows that VLANs **100** and **200** are created dynamically (here, on an MX Series router operating as an aggregation switch between MX Series routers operating as edge switches). VLANs created statically are marked with an **(s)** (which is not indicated in this output).

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CHAPTER 2

Configuration Statements

- bpdu-destination-mac-address on page 42
- bridge-domains on page 43
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- join-timer (MVRP) on page 58
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- vlan-id-list on page 85

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bpdu-destination-mac-address

Syntax

```
bpdu-destination-mac-address provider-bridge-group;
```

MX Series and EX Series

```
[edit logical-systems logical-system-name protocols mvrp],
[edit logical-systems logical-system-name routing-instances routing-instance-name protocols
  mvrp] (for virtual switch instance type),
[edit protocols mvrp],
[edit routing-instances routing-instance-name protocols mvrp] (for virtual switch instance
  type)
```

SRX Series

```
[edit protocols mvrp],
[edit routing-instances routing-instance-name protocols mvrp] (for virtual switch instance
  type)
```

Release Information

Statement introduced in Junos OS Release 10.1 for MX Series routers.
Statement introduced in Junos OS Release 15.1X49-D70 for SRX Series devices.

Description

For Multiple VLAN Registration Protocol (MVRP) configurations, specifies the multicast address for MVRP. If configured, the provider MVRP multicast MAC address is used; otherwise, the Junos OS uses the customer MVRP multicast MAC address.

Default

By default, the provider MVRP multicast MAC address is used (if configured). Otherwise, the customer MVRP MAC address is used.

Required Privilege Level

routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

Related Documentation

- Example: Configuring Automatic VLAN Administration Using MVRP on MX Series Routers on page 24
- Configuring Multiple VLAN Registration Protocol (MVRP) to Manage Dynamic VLAN Registration on page 19
- *Configuring Multiple VLAN Registration Protocol (MVRP) to Manage Dynamic VLAN Registration on Security Devices*
- Verifying That MVRP Is Working Correctly on page 38
- Understanding Multiple VLAN Registration Protocol (MVRP) for Dynamic VLAN Registration on page 16

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bridge-domains

Syntax

```
bridge-domains {
  bridge-domain-name {
    bridge-options {
      ...bridge-options-configuration...
    }
    domain-type bridge;
    interface interface-name;
    no-irb-layer-2-copy;
    no-local-switching;
    routing-interface routing-interface-name;
    vlan-id (all | none | number);
    vlan-id-list [ vlan-id-numbers ];
    vlan-tags outer number inner number;
    bridge-options {
      interface interface-name {
        mac-pinning
        static-mac mac-address;
      }
      interface-mac-limit limit;
      mac-statistics;
      mac-table-size limit;
      no-mac-learning;
    }
  }
}
```

Hierarchy Level

[edit],
[edit logical-systems *logical-system-name* routing-instances *routing-instance-name*],
[edit routing-instances *routing-instance-name*]

Release Information

Statement introduced in Junos OS Release 8.4.
Support for logical systems added in Junos OS Release 9.6.
Support for the **no-irb-layer-2-copy** statement added in Junos OS Release 10.2.

Description

(MX Series routers only) Configure a domain that includes a set of logical ports that share the same flooding or broadcast characteristics in order to perform Layer 2 bridging.

Options

bridge-domain-name—Name of the bridge domain.

NOTE: You cannot use the slash (/) character as part of the bridge domain name. If you do, the configuration will not commit.

The remaining statements are explained separately. See CLI Explorer.

Required Privilege Level

routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

Related Documentation

- *Configuring a Bridge Domain*
- *Configuring a Layer 2 Virtual Switch*

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bridge-priority

Syntax

```
bridge-priority priority;
```

Hierarchy Level

```
[edit logical-systems  logical-system-name protocols (mstp | rstp)],
[edit logical-systems  logical-system-name protocols mstp msti msti-id],
[edit logical-systems  logical-system-name protocols vstp vlan vlan-id],
[edit logical-systems logical-system-name routing-instances routing-instance-name protocols
   (mstp | rstp)],
[edit logical-systems  logical-system-name routing-instances routing-instance-name
   protocols mstp msti msti-id],
[edit logical-systems logical-system-name routing-instances routing-instance-name protocols
   vstp vlan vlan-id],
```

```
[edit routing-instances routing-instance-name protocols (mstp | rstp)],
[edit routing-instances routing-instance-name protocols mstp msti msti-id],
[edit routing-instances routing-instance-name protocols vstp vlan vlan-id]
```

```
[edit protocols mstp],
[edit protocols mstp msti msti-id],
[edit protocols rstp],
[edit protocols stp],
[edit protocols vstp vlan vlan-id]
```

Release Information

Statement introduced in Junos OS Release 8.4.
Statement introduced in Junos OS Release 9.0 for EX Series switches.
Statement updated in Junos OS Release 9.4 for EX Series switches to add VSTP support.
Support for logical systems added in Junos OS Release 9.6.
Statement introduced in Junos OS Release 13.2X50-D10 for EX Series switches.

Description

Configures the bridge priority, which determines which bridge is elected as the root bridge. If two bridges have the same path cost to the root bridge, the bridge priority determines which bridge becomes the designated bridge for a LAN segment.

Default

32,768

Options

priority—The bridge priority can be set only in increments of 4096.

Range: 0 through 61,440

Default: 32,768

Required Privilege Level

routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

Related Documentation

- *Understanding MSTP*
- *Understanding VSTP*

- *Understanding Bridge Priority for Election of Root Bridge and Designated Bridge*
- *Example: Configuring Network Regions for VLANs with MSTP on Switches*
- *Example: Configuring Network Regions for VLANs with MSTP on non-ELS EX Series Switches*
- *show spanning-tree bridge*
- *show spanning-tree interface*

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family

Syntax

```
family family {
  accounting {
    destination-class-usage;
    source-class-usage {
      (input | output | input output);
    }
  }
  access-concentrator name;
  address address {
    ... the address subhierarchy appears after the main [edit interfaces interface-name unit
      logical-unit-number family family-name] hierarchy ...
  }
  bundle interface-name;
  core-facing;
  demux-destination {
    destination-prefix;
  }
  demux-source {
    source-prefix;
  }
  direct-connect;
  duplicate-protection;
  dynamic-profile profile-name;
  filter {
    group filter-group-number;
    input filter-name;
    input-list [ filter-names ];
    output filter-name;
    output-list [ filter-names ];
  }
  interface-mode (access | trunk);
  ipsec-sa sa-name;
  keep-address-and-control;
  mac-validate (loose | strict);
  max-sessions number;
  max-sessions-vsa-ignore;
  mtu bytes;
  multicast-only;
  nd6-stale-time seconds;
  negotiate-address;
  no-neighbor-learn;
  no-redirects;
  policer {
    arp policer-template-name;
    input policer-template-name;
    output policer-template-name;
  }
  primary;
  protocols [inet iso mpls];
  proxy inet-address address;
  receive-options-packets;
```

```
receive-ttl-exceeded;
remote (inet-address address | mac-address address);
rpf-check {
   fail-filter filter-name
   mode loose;
}
sampling {
   input;
   output;
}
service {
   input {
      post-service-filter filter-name;
      service-set service-set-name <service-filter filter-name>;
   }
   output {
      service-set service-set-name <service-filter filter-name>;
   }
}
service-name-table table-name;
short-cycle-protection <lockout-time-min minimum-seconds lockout-time-max
   maximum-seconds> <filter [aci]>;
(translate-discard-eligible | no-translate-discard-eligible);
(translate-fecn-and-becn | no-translate-fecn-and-becn);
translate-plp-control-word-de;
unnumbered-address interface-name destination address destination-profile profile-name;
vlan-id number;
vlan-id-list [number number-number];
address address {
   arp ip-address (mac | multicast-mac) mac-address <publish>;
   broadcast address;
   destination address;
   destination-profile name;
   eui-64;
   master-only;
   multipoint-destination address dlci dlci-identifier;
   multipoint-destination address {
      epd-threshold cells;
      inverse-arp;
      oam-liveness {
         up-count cells;
         down-count cells;
      }
      oam-period (disable | seconds);
      shaping {
         (cbr rate | rtvbr burst length peak rate sustained rate | vbr burst length peak rate
            sustained rate);
         queue-length number;
      }
      vci vpi-identifier.vci-identifier;
   }
   preferred;
   primary;
   vrrp-groupgroup-id {
      (accept-data | no-accept-data);
```


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```
        advertise-interval seconds;
        authentication-key key;
        authentication-type authentication;
        fast-interval milliseconds;
        (preempt | no-preempt) {
          hold-time seconds;
        }
        priority number;
        track {
          interface interface-name {
            bandwidth-threshold bits-per-second priority-cost priority;
            priority-cost priority;
          }
          priority-hold-time seconds;
          route prefix routing-instance instance-name priority-cost priority;
          }
        }
        virtual-address [ addresses ];
        }
      virtual-link-local-address ipv6-address;
    }
}
```

Hierarchy Level

[edit interfaces *interface-name* unit *logical-unit-number*],
[edit logical-systems *logical-system-name* interfaces *interface-name* unit *logical-unit-number*]

Release Information

Statement introduced before Junos OS Release 7.4.
Option **max-sessions-vsa-ignore** introduced in Junos OS Release 11.4.

Description

Configure protocol family information for the logical interface.

NOTE: Not all subordinate statements are available to every protocol family.

Options *family*—Protocol family:

- **any**—Protocol-independent family used for Layer 2 packet filtering

  NOTE: **This option is not supported on T4000 Type 5 FPCs.**

- **bridge**—(M Series and T Series routers only) Configure only when the physical interface is configured with **ethernet-bridge** type encapsulation or when the logical interface is configured with **vlan-bridge** type encapsulation. You can optionally configure this protocol family for the logical interface on which you configure VPLS.
- **ethernet-switching**—(M Series and T Series routers only) Configure only when the physical interface is configured with **ethernet-bridge** type encapsulation or when the logical interface is configured with **vlan-bridge** type encapsulation
- **ccc**—Circuit cross-connect protocol suite. You can configure this protocol family for the logical interface of CCC physical interfaces. When you use this encapsulation type, you can configure the **ccc** family only.
- **inet**—Internet Protocol version 4 suite. You must configure this protocol family for the logical interface to support IP protocol traffic, including Open Shortest Path First (OSPF), Border Gateway Protocol (BGP), Internet Control Message Protocol (ICMP), and Internet Protocol Control Protocol (IPCP).
- **inet6**—Internet Protocol version 6 suite. You must configure this protocol family for the logical interface to support IPv6 protocol traffic, including Routing Information Protocol for IPv6 (RIPng), Intermediate System-to-Intermediate System (IS-IS), BGP, and Virtual Router Redundancy Protocol for IPv6 (VRRP).
- **iso**—International Organization for Standardization Open Systems Interconnection (ISO OSI) protocol suite. You must configure this protocol family for the logical interface to support IS-IS traffic.
- **mlfr-end-to-end**—Multilink Frame Relay FRF.15. You must configure this protocol or multilink Point-to-Point Protocol (MLPPP) for the logical interface to support multilink bundling.
- **mlfr-uni-nni**—Multilink Frame Relay FRF.16. You must configure this protocol or **mlfr-end-to-end** for the logical interface to support link services and voice services bundling.
- **multilink-ppp**—Multilink Point-to-Point Protocol. You must configure this protocol (or **mlfr-end-to-end**) for the logical interface to support multilink bundling.
- **mpls**—Multiprotocol Label Switching (MPLS). You must configure this protocol family for the logical interface to participate in an MPLS path.
- **pppoe**—Point-to-Point Protocol over Ethernet
- **tcc**—Translational cross-connect protocol suite. You can configure this protocol family for the logical interface of TCC physical interfaces.

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- **tnp**—Trivial Network Protocol. This protocol is used to communicate between the Routing Engine and the router's packet forwarding components. The Junos OS automatically configures this protocol family on the router's internal interfaces only, as discussed in *Understanding Internal Ethernet Interfaces*.
- **vpls**—(M Series and T Series routers only) Virtual private LAN service. You can optionally configure this protocol family for the logical interface on which you configure VPLS. VPLS provides an Ethernet-based point-to-multipoint Layer 2 VPN to connect customer edge (CE) routers across an MPLS backbone. When you configure a VPLS encapsulation type, the **family vpls** statement is assumed by default.

  MX Series routers support dynamic profiles for VPLS pseudowires, VLAN identifier translation, and automatic bridge domain configuration.

  For more information about VPLS, see the *Junos OS VPNs Library for Routing Devices*.

The remaining statements are explained separately. See CLI Explorer.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring the Protocol Family*

interface (MVRP)

Syntax

```
interface (all | interface-name) {
   disable;
   join-timer milliseconds;
   leave-timer milliseconds;
   leaveall-timer milliseconds;
   registration (forbidden | normal);
}
```

Syntax

```
interface (all | interface-name) {
   join-timer milliseconds;
   leave-timer milliseconds;
   leaveall-timer milliseconds;
   point-to-point;
   registration (forbidden | normal | restricted);
}
```

Hierarchy Level

[edit protocols mvrp]

[edit routing-instances *routing-instance-name* protocols mvrp] (for virtual switch instance type)

[edit logical-systems *logical-system-name* protocols mvrp],
[edit logical-systems *logical-system-name* routing-instances *routing-instance-name* protocols mvrp] (for virtual switch instance type),

Release Information

Statement introduced in Junos OS Release 10.0 for EX Series switches.
Statement introduced in Junos OS Release 10.1 for MX Series routers.
Statement introduced in Junos OS Release 13.1 for the QFX Series.
Statement introduced in Junos OS Release 15.1X49-D70 for SRX Series devices.

Description

Specify interfaces on which to configure Multiple VLAN Registration Protocol (MVRP).

NOTE: On QFX Series switches, you must configure specific interfaces—you cannot specify interface all. You can enable MVRP on an interface range.

Default

By default, MVRP is disabled.

Options

all—All interfaces on the switch.

interface-name—Names of interface to be configured for MVRP.

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The remaining statements are explained separately. See CLI Explorer.

Required Privilege Level

routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

Related Documentation

- *Example: Configuring Automatic VLAN Administration Using MVRP on EX Series Switches*
- *Configuring Multiple VLAN Registration Protocol (MVRP) on Switches*
- Understanding Multiple VLAN Registration Protocol (MVRP) for Dynamic VLAN Registration on page 16
- Understanding Multiple VLAN Registration Protocol (MVRP) for Dynamic VLAN Registration on page 16
- Example: Configuring Automatic VLAN Administration Using MVRP on MX Series Routers on page 24
- Configuring Multiple VLAN Registration Protocol (MVRP) to Manage Dynamic VLAN Registration on page 19
- Verifying That MVRP Is Working Correctly on page 38

interface (Spanning Tree)

Syntax

```
interface interface-name {
  bpdu-timeout-action {
    alarm;
    block;
  }
  cost cost;
  edge;
  mode (p2p | shared);
  no-root-port;
  priority interface-priority;
}
```

Syntax

```
interface interface-name {
  arp-on-stp;
  bpdu-timeout-action
    block;
    log;
  cost cost;
  disable;
  edge;
  mode mode;
  no-root-port;
  priority priority;
}
```

Hierarchy Level

```
[edit logical-systems logical-system-name protocols (mstp | rstp | vstp)],
[edit logical-systems logical-system-name protocols vstp vlan vlan-id],
[edit logical-systems logical-system-name routing-instances routing-instance-name protocols
  (mstp | rstp | vstp)],
[edit logical-systems logical-system-name routing-instances routing-instance-name protocols
  vstp vlan vlan-id],
```

```
[edit protocols (mstp | rstp | vstp)],
[edit protocols vstp vlan vlan-id],
```

```
[edit protocols (mstp | rstp | vstp)],
[edit protocols vstp vlan vlan-id],
[edit protocols vstp vlan-group group group-name vlan (vlan-id | vlan-range
  |open-set-of-values)
```

```
[edit routing-instances routing-instance-name protocols (mstp | rstp | vstp)],
[edit routing-instances routing-instance-name protocols vstp vlan vlan-id]
```

Release Information

Statement introduced in Junos OS Release 8.4.
Statement introduced in Junos OS Release 9.0 for EX Series switches.
Statement updated in Junos OS Release 9.4 for EX Series switches to add VSTP support.

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Support for logical systems added in Junos OS Release 9.6.
Statement introduced in Junos OS Release 11.1 for the QFX Series.
Statement introduced in Junos OS Release 13.2X50-D10 for EX Series switches.
Statement updated in Junos OS Release 15.1 for EX Series switches to support configuration of spanning tree parameters globally on all interfaces.

NOTE: **You cannot disable spanning tree parameters globally on all interfaces.**

Description Configures the interface to participate in the RSTP, MSTP, or VSTP instance.

The **edge**, **mode**, and **no-root-port** options are not available at the [**edit protocols mstp msti *msti-id***] hierarchy level.

Options ***interface-name***—Name of a Gigabit Ethernet or 10-Gigabit Ethernet interface.

The remaining statements are explained separately. See CLI Explorer.

Required Privilege Level routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

Related Documentation

- *Understanding Spanning-Tree Instance Interfaces*
- *Understanding RSTP*
- *Understanding MSTP*
- *Understanding VSTP*
- *Configuring RSTP on EX Series Switches (CLI Procedure)*
- *Configuring MSTP on Switches*
- *Example: Configuring Network Regions for VLANs with MSTP on non-ELS EX Series Switches*
- *Example: Faster Convergence and Improved Network Stability with RSTP on EX Series Switches*
- *show spanning-tree bridge*
- *show spanning-tree interface*

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interface-mode

Syntax

```
interface-mode (access | trunk <inter-switch-link>);
```

Hierarchy Level

[edit interfaces *interface-name* unit *logical-unit-number* family bridge],
[edit interfaces *interface-name* unit *logical-unit-number* family ethernet-switching],
[edit logical-systems *logical-system-name* interfaces *interface-name* unit *logical-unit-number* family bridge]

Release Information

Statement introduced in Junos OS Release 9.2.
Statement introduced in Junos OS Release 13.2X50-D10 for EX Series switches.
Statement introduced in Junos OS Release 13.2 for the QFX Series.
Statement introduced in Junos OS Release 15.1.
inter-switch-link option introduced in Junos OS Release 14.2 for MX240, MX480, and MX960 routers in enhanced LAN mode.

Description

NOTE: This statement supports the Enhanced Layer 2 Software (ELS) configuration style. If your switch runs software that does not support ELS, see *port-mode*. For ELS details, see *Using the Enhanced Layer 2 Software CLI*.

QFX3500 and QFX3600 standalone switches—Determine whether the logical interface accepts or discards packets based on VLAN tags. Specify the **trunk** option to accept packets with a VLAN ID that matches the list of VLAN IDs specified in the **vlan-id** or **vlan-id-list** statement, then forward the packet within the bridge domain or VLAN configured with the matching VLAN ID. Specify the **access** option to accept packets with no VLAN ID, then forward the packet within the bridge domain or VLAN configured with the VLAN ID that matches the VLAN ID specified in the **vlan-id** statement.

NOTE: On MX Series routers, if you want IGMP snooping to be functional for a bridge domain, then you should not configure **interface-mode** and **irb** for that bridge. Such a configuration commit succeeds, but IGMP snooping is not functional, and a message informing the same is displayed. For more information, see *Configuring a Trunk Interface on a Bridge Network*.

Options

access—Configure a logical interface to accept untagged packets. Specify the VLAN to which this interface belongs using the **vlan-id** statement.

trunk—Configure a single logical interface to accept packets tagged with any VLAN ID specified with the **vlan-id** or **vlan-id-list** statement.

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trunk inter-switch-link—For a private VLAN, configure the InterSwitch Link protocol (ISL) on a trunk port of the primary VLAN in order to connect the switches composing the PVLAN to each other. You do not need to configure an ISL when a PVLAN is configured on a single switch. This configuration specifies whether the particular interface assumes the role of interswitch link for the PVLAN domains of which it is a member. This option is supported only on MX240, MX480, and MX960 routers in enhanced LAN mode.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring Access Mode on a Logical Interface*
- *Configuring a Logical Interface for Trunk Mode*
- *Example: Connecting Access Switches with ELS Support to a Distribution Switch with ELS Support*
- *Tunnel Services Overview*
- *Tunnel Interface Configuration on MX Series Routers Overview*

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join-timer (MVRP)

Syntax

```
join-timer milliseconds;
```

Hierarchy Level

```
[edit logical-systems logical-system-name protocols mvrp],
[edit logical-systems logical-system-name routing-instances routing-instance-name protocols
  mvrp interface (all | interface-name)] (for virtual switch instance type),
[edit logical-systems logical-system-name routing-instances routing-instance-name protocols
  mvrp] (for virtual switch instance type),
[edit logical-systems logical-system-name protocols mvrp interface (all | interface-name)],
```

```
[edit protocols mvrp interface (all | interface-name)]
```

```
[edit routing-instances routing-instance-name protocols mvrp] (for virtual switch instance
  type),
[edit routing-instances routing-instance-name protocols mvrp interface (all | interface-name)]
  (for virtual switch instance type)
```

Release Information

Statement introduced in Junos OS Release 10.0 for EX Series switches.
Statement introduced in Junos OS Release 10.1 for MX Series routers.
Statement introduced in Junos OS Release 13.1 for the QFX Series.
Statement introduced in Junos OS Release 15.1X49-D70 for SRX Series devices.

Description

Configure the maximum number of milliseconds interfaces must wait before sending Multiple VLAN Registration Protocol (MVRP) protocol data units (PDUs).

Maintain default timer settings unless there is a compelling reason to change the settings. Modifying timers to inappropriate values might cause an imbalance in the operation of MVRP.

Default

200 milliseconds

Options

milliseconds—Interval that the interface must wait before sending MVRP PDUs (range from 100 milliseconds through 500 milliseconds). Maintain default timer settings unless there is a compelling reason to change the settings. Modifying timers to inappropriate values might cause an imbalance in the operation of MVRP.

Required Privilege Level

routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

Related Documentation

- leave-timer on page 62
- leaveall-timer on page 60
- point-to-point (MVRP) on page 68
- registration on page 70

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- Example: Configuring Automatic VLAN Administration Using MVRP on MX Series Routers on page 24
- *Example: Configuring Automatic VLAN Administration Using MVRP on EX Series Switches*
- Configuring Multiple VLAN Registration Protocol (MVRP) to Manage Dynamic VLAN Registration on page 19
- *Configuring Multiple VLAN Registration Protocol (MVRP) on Switches*
- Understanding Multiple VLAN Registration Protocol (MVRP) for Dynamic VLAN Registration on page 16
- Understanding Multiple VLAN Registration Protocol (MVRP) for Dynamic VLAN Registration on page 16
- Verifying That MVRP Is Working Correctly on page 38

leaveall-timer (MVRP)

Syntax

```
leaveall-timer interval;
```

EX Series and QFX Series

- For platforms with ELS:

```
[edit protocols mvrp],
[edit protocols mvrp interface interface-name]
```

- For platforms without ELS:

```
[edit protocols mvrp interface (all | interface-name)]
```

SRX 1500, SRX 300, SRX 550M, SRX 345, SRX 340, SRX 320

```
[edit routing-instances routing-instance-name protocols mvrp] (for virtual switch instance
  type),
[edit routing-instances routing-instance-name protocols mvrp interface (all | interface-name)]
  (for virtual switch instance type)
```

EX Series, M Series, SRX Series, T Series, MX Series

```
[edit logical-systems logical-system-name protocols mvrp],
[edit logical-systems logical-system-name routing-instances routing-instance-name protocols
  mvrp interface (all | interface-name)] (for virtual switch instance type),
[edit logical-systems logical-system-name routing-instances routing-instance-name protocols
  mvrp] (for virtual switch instance type),
[edit logical-systems logical-system-name protocols mvrp interface (all | interface-name)],
[edit protocols mvrp interface (all | interface-name)],
[edit routing-instances routing-instance-name protocols mvrp] (for virtual switch instance
  type),
[edit routing-instances routing-instance-name protocols mvrp interface (all | interface-name)]
  (for virtual switch instance type)
```

Release Information

Statement introduced in Junos OS Release 10.0 for EX Series switches.
Statement introduced in Junos OS Release 10.1 for MX Series routers.
Hierarchy level **[edit protocols mvrp]** introduced in Junos OS Release 13.2X50-D10 (ELS). (See *Using the Enhanced Layer 2 Software CLI* for information about ELS.)
Statement introduced in Junos OS Release 13.1 for the QFX Series.
Statement introduced in Junos OS Release 15.1X49-D70 for SRX Series devices.

Description

For Multiple VLAN Registration Protocol (MVRP), configure the interval at which the LeaveAll state operates on the interface.

Maintain default timer settings unless there is a compelling reason to change the settings. Modifying timers to inappropriate values might cause an imbalance in the operation of MVRP. However, if you choose to change the default values, keep in mind that on an EX Series switch that uses Junos OS with support for ELS, if the timer value set on an interface level is different from the value set on a switch level, then the value on the interface level takes precedence.

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Options EX Series and QFX Series:

interval—Number of seconds or milliseconds between the sending of Leave All messages.

Default: 10 seconds, or 10,000 milliseconds

SRX 1500, SRX 300, SRX 550M, SRX 345, SRX 340, SRX 320:

seconds—Interval between the sending of Leave All messages (range from 10 seconds through 60 seconds. Maintain default timer settings unless there is a compelling reason to change the settings. Modifying timers to inappropriate values might cause an imbalance in the operation of MVRP.

Default: 60 seconds

EX Series, M Series, SRX Series, T Series, MX Series:

milliseconds—Interval between the sending of Leave All messages. Maintain default timer settings unless there is a compelling reason to change the settings. Modifying timers to inappropriate values might cause an imbalance in the operation of MVRP.

Default: 10000 milliseconds

Required Privilege Level routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

Related Documentation

- Understanding Multiple VLAN Registration Protocol (MVRP) for Dynamic VLAN Registration on page 16
- Understanding Multiple VLAN Registration Protocol (MVRP) for Dynamic VLAN Registration on page 16
- Configuring Multiple VLAN Registration Protocol (MVRP) to Manage Dynamic VLAN Registration on page 19
- *Example: Configuring Automatic VLAN Administration Using MVRP on EX Series Switches*
- Example: Configuring Automatic VLAN Administration Using MVRP on MX Series Routers on page 24
- *Example: Configuring Automatic VLAN Administration Using MVRP on EX Series Switches with ELS Support*
- *Configuring Multiple VLAN Registration Protocol (MVRP) on Switches*
- *Configuring Multiple VLAN Registration Protocol (MVRP) on Switches*
- Verifying That MVRP Is Working Correctly on page 38
- **join-timer (MVRP) on page 58**
- **leave-timer (MVRP) on page 62**
- **point-to-point (MVRP) on page 68**
- **registration on page 70**

leave-timer (MVRP)

Syntax

```
leave-timer milliseconds;
```

EX Series, QFX Series, QFabric

```
[edit protocols mvrp interface (all | interface-name)]
```

M Series, SRX Series, MX Series, T Series

```
[edit logical-systems logical-system-name protocols mvrp],
[edit logical-systems logical-system-name routing-instances routing-instance-name protocols
  mvrp interface (all | interface-name)] (for virtual switch instance type),
[edit logical-systems logical-system-name routing-instances routing-instance-name protocols
  mvrp] (for virtual switch instance type),
[edit logical-systems logical-system-name protocols mvrp interface (all | interface-name)],
```

```
[edit protocols mvrp interface (all | interface-name)],
```

```
[edit routing-instances routing-instance-name protocols mvrp] (for virtual switch instance
  type),
[edit routing-instances routing-instance-name protocols mvrp interface (all | interface-name)]
  (for virtual switch instance type)
```

Release Information

Statement introduced in Junos OS Release 10.0 for EX Series switches.
Statement introduced in Junos OS Release 10.1 for MX Series routers.
Statement introduced in Junos OS Release 13.1 for the QFX Series.
Statement introduced in Junos OS Release 15.1X49-D70 for SRX Series devices.

Description

For Multiple VLAN Registration Protocol (MVRP), configure the number of milliseconds the switch retains a VLAN in the Leave state before the VLAN is unregistered. If the interface receives a join message before this timer expires, the VLAN remains registered.

Maintain default timer settings unless there is a compelling reason to change the settings. Modifying timers to inappropriate values might cause an imbalance in the operation of MVRP.

Default

1000 milliseconds

Options

milliseconds—Interval that the switch retains a VLAN in the Leave state before the VLAN is unregistered. At a minimum, set the **leave-timer** interval at twice the join-timer interval (range from 300 milliseconds through 1000 milliseconds). Maintain default timer settings unless there is a compelling reason to change the settings. Modifying timers to inappropriate values might cause an imbalance in the operation of MVRP.

Required Privilege Level

routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

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Related Documentation

- Example: Configuring Automatic VLAN Administration Using MVRP on MX Series Routers on page 24
- *Example: Configuring Automatic VLAN Administration Using MVRP on EX Series Switches*
- *Configuring Multiple VLAN Registration Protocol (MVRP) on Switches*
- Configuring Multiple VLAN Registration Protocol (MVRP) to Manage Dynamic VLAN Registration on page 19
- Verifying That MVRP Is Working Correctly on page 38
- Understanding Multiple VLAN Registration Protocol (MVRP) for Dynamic VLAN Registration on page 16
- Understanding Multiple VLAN Registration Protocol (MVRP) for Dynamic VLAN Registration on page 16
- **join-timer (MVRP) on page 58**
- **leaveall-timer on page 60**
- **point-to-point (MVRP) on page 68**
- **registration on page 70**

mvrp

List of Syntax

Syntax (EX Series with ELS Support) on page 64
Syntax (EX Series) on page 64
Syntax (MX Series, EX Series, SRX 1500, SRX 300, SRX 550M, SRX 345, SRX 340, SRX 320) on page 64

Syntax (EX Series with ELS Support)

```
mvrp {
  interface interface-name {
    join-timer milliseconds;
    leave-timer milliseconds;
    leaveall-timer seconds;
    registration (forbidden | normal);
  }
  join-timer milliseconds;
  leave-timer milliseconds;
  leaveall-timer seconds;
  no-attribute-length-in-pdu
  no-dynamic-vlan;
  traceoptions  {
    file filename <files number > <size size> < world-readable | no-world-readable>;
    flag <flag> <disable>;
  }
}
```

Syntax (EX Series)

```
mvrp {
  add-attribute-length-in-pdu;
  disable (MVRP);
  interface (MVRP) (all | interface-name) {
    disable (MVRP);
    join-timer (MVRP) milliseconds;
    leave-timer (MVRP) milliseconds;
    leaveall-timer milliseconds;
    registration (forbidden | normal);
  }
  no-dynamic-vlan;
  traceoptions  {
    file filename <files number > <size size> <no-stamp | world-readable |
      no-world-readable>;
    flag flag;
  }
}
```

Syntax (MX Series, EX Series, SRX 1500, SRX 300, SRX 550M, SRX 345, SRX 340, SRX 320)

```
mvrp {
  bpdu-destination-mac-address provider-bridge-group;
  join-timer (MVRP) milliseconds;
  leave-timer milliseconds;
  leaveall-timer milliseconds;
  interface (all | interface-name) {
    join-timer (MVRP) milliseconds;
```


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```
    leave-timer milliseconds;
    leaveall-timer milliseconds;
    point-to-point;
    registration (forbidden | normal | restricted);
  }
  no-attribute-length-in-pdu
  no-dynamic-vlan;
  traceoptions {
    file filename <files number > <size size> <no-stamp | world-readable |
      no-world-readable>;
    flag flag;
  }
}
```

EX Series with ELS Support

```
[edit protocols]
```

EX Series and MX Series

```
[edit logical-systems logical-system-name protocols],
[edit logical-systems logical-system-name routing-instances routing-instance-name protocols]
  (for virtual switch instance type),
```

```
[edit protocols],
```

```
[edit routing-instances routing-instance-name protocols] (for virtual switch instance type),
```

SRX 1500, SRX 300, SRX 550M, SRX 345, SRX 340, SRX 320

```
[edit protocols],
[edit routing-instances routing-instance-name protocols] (for virtual switch instance type),
```

Release Information

Statement introduced in Junos OS Release 10.0 for EX Series switches.
Statement introduced in Junos OS Release 10.1 for MX Series routers.
Statement introduced in Junos OS Release 13.2X50-D10 for EX Series switches with ELS support.
Statement introduced in Junos OS Release 15.1X49-D70 for SRX Series devices.

Description For Layer 2 networks, configure Multiple VLAN Registration Protocol (MVRP) to dynamically share VLAN information and dynamically configure needed VLANs. Maintaining VLAN configurations based on active VLANs reduces the amount of traffic traveling in the network, saving network resources. MVRP is configured on trunk interfaces.

Configure Multiple VLAN Registration Protocol (MVRP) on a trunk interface to ensure that the VLAN membership information on the trunk interface is updated as the switch's access interfaces become active or inactive in the configured VLANs.

NOTE: **At Junos OS Release 11.3, MVRP was updated to conform to the IEEE standard 802.1ak. This update might result in compatibility issues in mixed release networks. For details, see *Configuring Multiple VLAN Registration Protocol (MVRP) on Switches* .**

The remaining statements are explained separately. See CLI Explorer.

Default MVRP is disabled by default.

Required Privilege Level routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

Related Documentation

- Example: Configuring Automatic VLAN Administration Using MVRP on MX Series Routers on page 24
- *Example: Configuring Automatic VLAN Administration Using MVRP on EX Series Switches*
- *Example: Configuring Automatic VLAN Administration Using MVRP on EX Series Switches with ELS Support*
- Configuring Multiple VLAN Registration Protocol (MVRP) to Manage Dynamic VLAN Registration on page 19
- Understanding Multiple VLAN Registration Protocol (MVRP) for Dynamic VLAN Registration on page 16
- *Configuring Multiple VLAN Registration Protocol (MVRP) on Switches*
- Verifying That MVRP Is Working Correctly on page 38
- Understanding Multiple VLAN Registration Protocol (MVRP) for Dynamic VLAN Registration on page 16

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no-dynamic-vlan

Syntax

```
no-dynamic-vlan;
```

Hierarchy Level

[edit logical-systems *logical-system-name* protocols mvrp],
[edit logical-systems *logical-system-name* routing-instances *routing-instance-name* protocols mvrp] (for virtual switch instance type),
[edit protocols mvrp],
[edit routing-instances *routing-instance-name* protocols mvrp] (for virtual switch instance type)

Release Information

Statement introduced in Junos OS Release 10.1 for MX Series routers.

Description

Disable the dynamic creation of VLANs using Multiple VLAN Registration Protocol (MVRP) for interfaces participating in MVRP.

Dynamic VLAN configuration can be enabled on an interface independent of MVRP. The MVRP dynamic VLAN configuration setting does not override the interface configuration dynamic VLAN configuration setting. If dynamic VLAN creation is disabled on the interface in the interface configuration, no dynamic VLANs are created on the interface, including dynamic VLANs created using MVRP.

This option can only be applied globally; it cannot be applied per interface.

Default

If MVRP is enabled, the dynamic creation of VLANs as a result of MVRP protocol exchange messages is enabled.

Required Privilege Level

routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

Related Documentation

- Example: Configuring Automatic VLAN Administration Using MVRP on MX Series Routers on page 24
- Configuring Multiple VLAN Registration Protocol (MVRP) to Manage Dynamic VLAN Registration on page 19
- Controlling the Management State of a VLAN in MVRP Configurations on page 21
- Understanding Multiple VLAN Registration Protocol (MVRP) for Dynamic VLAN Registration on page 16

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point-to-point (MVRP)

Syntax

```
point-to-point;
```

Hierarchy Level

```
[edit logical-systems logical-system-name protocols mvrp interface (all | interface-name)],
[edit logical-systems logical-system-name routing-instances routing-instance-name protocols
  mvrp interface (all | interface-name)] (for virtual switch instance type),
```

```
[edit protocols mvrp interface (all | interface-name)],
```

```
[edit routing-instances routing-instance-name protocols mvrp interface (all | interface-name)]
  (for virtual switch instance type)
```

Release Information

Statement introduced in Junos OS Release 10.1 for MX Series routers.
Statement introduced in Junos OS Release 12.3R2 for EX Series switches.
Statement introduced in Junos OS Release 15.1X49-D70 for SRX Series devices.

Description

(Optional) For Multiple VLAN Registration Protocol (MVRP) configurations, configure an interface to be recognized as a point-to-point connection. If specified, a point-to-point subset of the MRP state machine is used to provide a simpler and more efficient method to accelerate convergence on the network. Point-to-point must be enabled after enabling MVRP for the interface to be recognized as a point-to-point connection.

Default

MVRP is disabled by default.

point-to-point is disabled by default.

Required Privilege Level

routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

Related Documentation

- Example: Configuring Automatic VLAN Administration Using MVRP on MX Series Routers on page 24
- Configuring Multiple VLAN Registration Protocol (MVRP) to Manage Dynamic VLAN Registration on page 19
- Verifying That MVRP Is Working Correctly on page 38
- Understanding Multiple VLAN Registration Protocol (MVRP) for Dynamic VLAN Registration on page 16
- Understanding Multiple VLAN Registration Protocol (MVRP) for Dynamic VLAN Registration on page 16
- *Understanding Multiple VLAN Registration Protocol (MVRP)*
- join-timer on page 58
- leaveall-timer on page 60

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- leave-timer on page 62
- registration on page 70

registration

Syntax

```
registration (forbidden | normal | restricted);
```

Hierarchy Level

```
[edit protocols mvrp interface (all | interface-name)],
```

```
[edit routing-instances routing-instance-name protocols mvrp interface (all | interface-name)]
  (for virtual switch instance type),
```

```
[edit logical-systems logical-system-name protocols mvrp interface (all | interface-name)],
[edit logical-systems logical-system-name routing-instances routing-instance-name protocols
  mvrp interface (all | interface-name)] (for virtual switch instance type)
```

Release Information

Statement introduced in Junos OS Release 10.0 for EX Series switches.
Statement introduced in Junos OS Release 10.1 for MX Series routers.
Statement introduced in Junos OS Release 15.1X49-D70 for SRX Series devices.

Description

Specifies the Multiple VLAN Registration Protocol (MVRP) registration mode for the interface if MVRP is enabled.

Default

normal—The interface or interfaces accept MVRP messages and participate in MVRP.

Options

forbidden—The interface or interfaces do not register and do not participate in MVRP.

normal—The interface or interfaces accept MVRP messages and participate in MVRP.

restricted—The interface or interfaces ignore all MVRP JOIN messages received for VLANs that are not statically configured for MVRP on the interface.

Required Privilege Level

routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

Related Documentation

- *Configuring Multiple VLAN Registration Protocol (MVRP) on Switches*
- Example: Configuring Automatic VLAN Administration Using MVRP on MX Series Routers on page 24
- Understanding Multiple VLAN Registration Protocol (MVRP) for Dynamic VLAN Registration on page 16
- Configuring Multiple VLAN Registration Protocol (MVRP) to Manage Dynamic VLAN Registration on page 19
- Verifying That MVRP Is Working Correctly on page 38
- **join-timer (MVRP) on page 58**
- **leaveall-timer (MVRP) on page 60**

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- leave-timer (MVRP) on page 62
- point-to-point on page 68

rstp

List of Syntax

MX Series on page 72
EX Series on page 72
ELS Versions: EX Series, QFX Series, NFX Series on page 73

MX Series

```
rstp {
  bpdu-block-on-edge;
  bpdu-destination-mac-address provider-bridge-group;
  bridge-priority priority;
  extended-system-id;
  force-version stp;
  forward-delay seconds;
  hello-time seconds;
  max-age seconds;
  interface interface-name {
    bpdu-timeout-action {
      alarm;
      block;
    }
    cost cost;
    edge;
    mode (p2p | shared);
    no-root-port;
    priority interface-priority;
  }
  priority-hold-time seconds;
  traceoptions {
    file filename <files number> <size size> <world-readable | no-world-readable>;
    flag flag <flag-modifier> <disable>;
  }
}
```

EX Series

```
rstp {
  bpdu-block-on-edge;
  bridge-priority priority; priority;
  disable;
  forward-delay seconds;
  hello-time seconds;
  interface (all | interface-name) {
    arp-on-stp;
    bpdu-timeout-action {
      block;
      log;
    }
    cost cost;
    edge;
    mode mode;
    no-root-port;
    priority priority;
  }
  max-age seconds;
```


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```
  traceoptions {
    file filename <files number > <size size> <no-stamp | no-world-readable |
      world-readable>;
    flag flag;
  }
}
```

ELS Versions: EX Series, QFX Series, NFX Series

```
rstp {
  bpdu-block-on-edge;
  bpdu-destination-mac-address provider-bridge-group;
  bridge-priority priority;
  disable;
  extended-system-id;
  force-version stp;
  forward-delay seconds;
  hello-time seconds;
  max-age seconds;
  priority-hold-time seconds;
  traceoptions {
    file filename <files number> <size size> <world-readable | no-world-readable>;
    flag flag <flag-modifier> <disable>;
  }
}
```

Hierarchy Level

```
[edit logical-systems logical-system-name protocols],
[edit logical-systems logical-system-name routing-instances routing-instance-name
  protocols],
```

```
[edit protocols],
```

```
[edit routing-instances routing-instance-name protocols]
```

Release Information

Statement introduced in Junos OS Release 8.4.
Statement introduced in Junos OS Release 9.0 for EX Series switches.
bpdu-block-on-edge statement added in Junos OS Release 9.4.
bpdu-timeout-action statement added in Junos OS Release 9.4.
Support for logic systems added in Junos OS Release 9.6.
Statement introduced in Junos OS Release 13.2X50-D10 for EX Series switches.
Statement updated in Junos OS Release 15.1 for EX Series and QFX Series switches to support configuration of spanning tree parameters globally on all interfaces.

NOTE: You cannot disable spanning tree parameters globally on all interfaces.

Description Configure Rapid Spanning Tree Protocol (RSTP). RSTP is defined in the IEEE 802.1D-2004 specification and is used to prevent loops in Layer 2 networks, which results in shorter convergence times than those provided by basic Spanning Tree Protocol (STP).

VSTP and RSTP can be configured concurrently. You can selectively configure up to 253 VLANs using VSTP; the remaining VLANs will be configured using RSTP. VSTP and RSTP are the only spanning-tree protocols that can be configured concurrently on the switch.

BEST PRACTICE: **Configure RSTP when you configure VSTP. RSTP overhead is minimal and this configuration ensures that a spanning-tree protocol is running on all VLANs on your switch, even when your switch is supporting more than 253 VLANs.**

The remaining statements are explained separately. See CLI Explorer.

Default RSTP is enabled on all Ethernet switching interfaces.

Required Privilege Level routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

Related Documentation

- *Configuring Rapid Spanning Tree Protocol*
- *Understanding RSTP*
- *Configuring RSTP on EX Series Switches (CLI Procedure)*
- *Example: Faster Convergence and Improved Network Stability with RSTP on EX Series Switches*
- *show spanning-tree bridge*
- *show spanning-tree interface*

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traceoptions (MVRP)

Syntax

```
traceoptions {
   file name <size size> <files number>  <(world-readable | no-world-readable)>;
   flag flag <flag-modifier> <disable>;
}
```

Hierarchy Level

```
[edit logical-systems logical-system-name protocols mvrp],
[edit logical-systems logical-system-name routing-instances routing-instance-name protocols
   mvrp] (for virtual switch instance type),
[edit protocols mvrp],
[edit routing-instances routing-instance-name protocols mvrp] (for virtual switch instance
   type)
```

Release Information

Statement introduced in Junos OS Release 10.1 for MX Series routers.

Description

For Multiple VLAN Registration Protocol (MVRP), configure tracing options.

Default

Traceoptions is disabled.

Options

disable —(Optional) Disable the tracing operation. One use of this option is to disable a single operation when you have defined a broad group of tracing operations, such as **all**.

file ***filename***—Name of the file to receive the output of the tracing operation. Enclose the name within quotation marks. To include the **file** statement, you must specify a filename. Name of the file to receive the output of the tracing operation. Enclose the name in quotation marks. We recommend that you place MVRP tracing output in the file **/var/log/mvrp-log**.

files ***number***—(Optional) Maximum number of trace files, in the range from 2 through 1000. The default is 1 trace file. When a trace file named **trace-file** reaches its maximum size, it is renamed **trace-file.0**, then **trace-file.1**, and so on, until the maximum number of trace files is reached. Then the oldest trace file is overwritten.

If you specify a maximum number of files, you also must specify a maximum file size with the **size** option.

flag ***flag***—Specify which tracing operation to perform. To specify more than one tracing operation, include multiple **flag** statements. You can include the following flags:

- **all**—Enable all trace options flags.
- **error**—Trace all failure conditions.
- **events**—Trace process state change and cleanup events.
- **pdu**—Trace RAPS PDU reception and transmission.

- **socket**—Trace socket activity.
- **state-machine**—Trace information about the state machine.
- **timers**—Trace protocol timers.

no-world-readable—(Optional) Prevent any user from reading the log file.

size ***size***—(Optional) Maximum size of each trace file, in kilobytes (KB) or megabytes (MB). When a trace file named ***trace-file*** reaches this size, it is renamed ***trace-file*.0.** When the ***trace-file*** again reaches its maximum size, ***trace-file*.0** is renamed ***trace-file*.1** and ***trace-file*** is renamed ***trace-file*.0** . This renaming scheme continues until the maximum number of trace files is reached. Then the oldest trace file is overwritten. The file size range is from 10240 through 4294967295. The default file size is 1 MB.

world-readable—(Optional) Allow any user to read the log file.

Required Privilege Level

routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

Related Documentation

- Example: Configuring Automatic VLAN Administration Using MVRP on MX Series Routers on page 24
- Configuring Multiple VLAN Registration Protocol (MVRP) to Manage Dynamic VLAN Registration on page 19
- Verifying That MVRP Is Working Correctly on page 38
- Understanding Multiple VLAN Registration Protocol (MVRP) for Dynamic VLAN Registration on page 16

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unit

Syntax

```
unit logical-unit-number {
  accept-source-mac {
    mac-address mac-address {
      policer {
        input cos-policer-name;
        output cos-policer-name;
      }
    }
  }
  accounting-profile name;
  advisory-options {
    downstream-rate rate;
    upstream-rate rate;
  }
  allow-any-vci;
  atm-scheduler-map (map-name | default);
  auto-configure {
    agent-circuit-identifier {
      dynamic-profile profile-name;
    }
    line-identity {
      include {
        accept-no-ids;
        circuit-id;
        remote-id;
      }
      dynamic-profile profile-name;
    }
  }
  backup-options {
    interface interface-name;
  }
  bandwidth rate;
  cell-bundle-size cells;
  clear-dont-fragment-bit;
  compression {
    rtp {
      maximum-contexts number <force>;
      f-max-period number;
      queues [queue-numbers];
      port {
        minimum port-number;
        maximum port-number;
      }
    }
  }
  compression-device interface-name;
  copy-tos-to-outer-ip-header;
  demux-destination family;
  demux-source family;
  demux-options {
```

```
    underlying-interface interface-name;
}
description text;
etree-ac-role (leaf | root);
interface {
    l2tp-interface-id name;
    (dedicated | shared);
}
dialer-options {
    activation-delay seconds;
    callback;
    callback-wait-period time;
    deactivation-delay seconds;
    dial-string [dial-string-numbers];
    idle-timeout seconds;
    incoming-map {
        caller caller-id | accept-all;
        initial-route-check seconds;
        load-interval seconds;
        load-threshold percent;
        pool pool-name;
        redial-delay time;
        watch-list {
            [routes];
        }
    }
}
disable;
disable-mlppp-inner-ppp-pfc;
dlci dlci-identifier;
drop-timeout milliseconds;
dynamic-call-admission-control {
    activation-priority priority;
    bearer-bandwidth-limit kilobits-per-second;
}
encapsulation type;
epd-threshold cells plp1 cells;
family family-name {
    ... the family subhierarchy appears after the main [edit interfaces interface-name unit
        logical-unit-number] hierarchy ...
}
fragment-threshold bytes;
host-prefix-only;
inner-vlan-id-range start start-id end end-id;
input-vlan-map {
    (pop | pop-pop | pop-swap | push | push-push | swap |
    swap-push | swap-swap);
    inner-tag-protocol-id tpid;
    inner-vlan-id number;
    tag-protocol-id tpid;
    vlan-id number;
}
interleave-fragments;
inverse-arp;
layer2-policer {
```


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```
    input-policer policer-name;
    input-three-color policer-name;
    output-policer policer-name;
    output-three-color policer-name;
}
link-layer-overhead percent;
minimum-links number;
mrru bytes;
multicast-dlci dlci-identifier;
multicast-vci vpi-identifier.vci-identifier;
multilink-max-classes number;
multipoint;
oam-liveness {
    up-count cells;
    down-count cells;
}
oam-period (disable | seconds);
output-vlan-map {
    (pop | pop-pop | pop-swap | push | push-push | swap |
    swap-push | swap-swap);
    inner-tag-protocol-id tpid;
    inner-vlan-id number;
    tag-protocol-id tpid;
}
passive-monitor-mode;
peer-unit unit-number;
plp-to-clp;
point-to-point;
ppp-options {
    mru size;
    mtu (size | use-lower-layer);
    chap {
        access-profile name;
        default-chap-secret name;
        local-name name;
        passive;
    }
    compression {
        acfc;
        pfc;
    }
    dynamic-profile profile-name;
    ipcp-suggest-dns-option;
    lcp-restart-timer milliseconds;
    loopback-clear-timer seconds;
    ncp-restart-timer milliseconds;
    pap {
        access-profile name;
        default-pap-password password;
        local-name name;
        local-password password;
        passive;
    }
}
pppoe-options {
```

```
    access-concentrator name;
    auto-reconnect seconds;
    (client | server);
    service-name name;
    underlying-interface interface-name;
}
pppoe-underlying-options {
    access-concentrator name;
    direct-connect;
    dynamic-profile profile-name;
    max-sessions number;
}
proxy-arp;
service-domain (inside | outside);
shaping {
    (cbr rate | rtvbr peak rate sustained rate burst length | vbr peak rate sustained rate burst
        length);
    queue-length number;
}
short-sequence;
targeted-distribution;
transmit-weight number;
(traps | no-traps);
trunk-bandwidth rate;
trunk-id number;
tunnel {
    backup-destination address;
    destination address;
    key number;
    routing-instance {
        destination routing-instance-name;
    }
    source source-address;
    ttl number;
}
vci vpi-identifier.vci-identifier;
vci-range start start-vci end end-vci;
vpi vpi-identifier;
vlan-id number;
vlan-id-range number-number;
vlan-tags inner tpid.vlan-id outer tpid.vlan-id;
family family {
    accounting {
        destination-class-usage;
        source-class-usage {
            (input | output | input output);
        }
    }
    access-concentrator name;
    address address {
        ... the address subhierarchy appears after the main [edit interfaces interface-name unit
            logical-unit-number family family-name] hierarchy ...
    }
    bundle interface-name;
    core-facing;
```


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```
demux-destination {
   destination-prefix;
}
demux-source {
   source-prefix;
}
direct-connect;
duplicate-protection;
dynamic-profile profile-name;
filter {
   group filter-group-number;
   input filter-name;
   input-list [filter-names];
   output filter-name;
   output-list [filter-names];
}
interface-mode (access | trunk);
ipsec-sa sa-name;
keep-address-and-control;
mac-validate (loose | strict);
max-sessions number;
mtu bytes;
multicast-only;
no-redirects;
policer {
   arp policer-template-name;
   input policer-template-name;
   output policer-template-name;
}
primary;
protocols [inet iso mpls];
proxy inet-address address;
receive-options-packets;
receive-ttl-exceeded;
remote (inet-address address | mac-address address);
rpf-check {
   fail-filter filter-name
   mode loose;
}
sampling {
   input;
   output;
}
service {
   input {
      post-service-filter filter-name;
      service-set service-set-name <service-filter filter-name>;
   }
   output {
      service-set service-set-name <service-filter filter-name>;
   }
}
service-name-table table-name
targeted-options {
   backup backup;
```

```
    group group;
    primary primary;
    weight ($junos-interface-target-weight | weight-value);
  }
  (translate-discard-eligible | no-translate-discard-eligible);
  (translate-fecn-and-becn | no-translate-fecn-and-becn);
  translate-plp-control-word-de;
  unnumbered-address interface-name destination address destination-profile profile-name;
  vlan-id number;
  vlan-id-list [number number-number];
  address address {
    arp ip-address (mac | multicast-mac) mac-address <publish>;
    broadcast address;
    destination address;
    destination-profile name;
    eui-64;
    master-only;
    multipoint-destination address {
      dlci dlci-identifier;
      epd-threshold cells <plp1 cells>;
      inverse-arp;
      oam-liveness {
        up-count cells;
        down-count cells;
      }
      oam-period (disable | seconds);
      shaping {
        (cbr rate | rtvbr burst length peak rate sustained rate | vbr burst length peak rate
          sustained rate);
        queue-length number;
      }
      vci vpi-identifier.vci-identifier;
    }
    preferred;
    primary;
    (vrrp-group | vrrp-inet6-group) group-number {
      (accept-data | no-accept-data);
      advertise–interval seconds;
      authentication-type authentication;
      authentication-key key;
      fast-interval milliseconds;
      (preempt | no-preempt) {
        hold-time seconds;
      }
      priority number;
      track {
        interface interface-name {
          bandwidth-threshold bits-per-second priority-cost number;
        }
        priority-hold-time seconds;
        route ip-address/prefix-length routing-instance instance-name priority-cost cost;
      }
      virtual-address [addresses];
      virtual-link-local-address ipv6–address;
      vrrp-inherit-from {
```


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```
            active-interface interface-name;
            active-group group-number;
          }
        }
      }
    }
  }
```

Hierarchy Level

[edit interfaces *interface-name*],
[edit logical-systems *logical-system-name* interfaces *interface-name*],
[edit interfaces interface-set *interface-set-name* interface *interface-name*]

Release Information

Statement introduced before Junos OS Release 7.4.
Range increased for static pseudowire interfaces to 1,073,741,823 in Junos OS Release 18.3R1.

Description

Configure a logical interface on the physical device. You must configure a logical interface to be able to use the physical device.

Options

logical-unit-number—Number of the logical unit.

Range: 0 through 1,073,741,823 for demux, PPPoE, and pseudowire static interfaces. 0 through 16,385 for all other static interface types.

etree-ac-role (leaf | root)—To configure an interface as either leaf or root.

The remaining statements are explained separately. Search for a statement in CLI Explorer or click a linked statement in the Syntax section for details.

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring Logical Interface Properties*
- *Junos OS Services Interfaces Library for Routing Devices*

vlan-id (Logical Port in Bridge Domain)

Syntax

vlan-id *number*;

Hierarchy Level

[edit interfaces *interface-name* unit *logical-unit-number* family bridge],
[edit logical-systems *logical-system-name* interfaces *interface-name* unit *logical-unit-number* family bridge]

Release Information

Statement introduced in Junos OS Release 9.2.
Statement introduced in Junos OS Release 15.1.

Description

The VLAN ID configured on the logical port. Received packets with no VLAN tags are forwarded within the bridge domain with the matching VLAN ID.

Options

number—The VLAN ID.

Range: 1 through 4095

Required Privilege Level

interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- *Configuring Access Mode on a Logical Interface*
- *Tunnel Services Overview*
- *Tunnel Interface Configuration on MX Series Routers Overview*

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vlan-id-list

Syntax

```
vlan-id-list [ vlan-id-numbers ];
```

Hierarchy Level

```
[edit bridge-domains bridge-domain-name],
[edit logical-systems logical-system-name bridge-domains bridge-domain-name],
[edit logical-systems logical-system-name routing-instances routing-instance-name
  bridge-domains bridge-domain-name],
[edit routing-instances routing-instance-name bridge-domains bridge-domain-name],
[edit interfaces interface-name unit 0],
[edit interfaces interface-name unit logical-unit-number],
[edit vlans vlan-name]
```

Release Information

Statement introduced in Junos OS Release 9.4.
Support for logical systems added in Junos OS Release 9.6.
Statement introduced in Junos OS Release 12.3R2 for EX Series switches.
Statement introduced in Junos OS Release 13.2 for the QFX Series.

Description

Specify a VLAN identifier list to use for a bridge domain or VLAN in trunk mode.

Specify the **trunk** option in the **interface-mode** statement to accept packets with a VLAN ID that matches the list of VLAN IDs specified in the **vlan-id-list** statement to forward the packet within the bridge domain or VLAN configured with the matching VLAN ID. Specify the **access** option to accept packets with no VLAN ID to forward the packet within the bridge domain or VLAN configured with the VLAN ID that matches the VLAN ID specified in the **vlan-id** statement.

This statement also enables you to bind a logical interface to a list of VLAN IDs, thereby configuring the logical interface to receive and forward a frame with a tag that matches the specified VLAN ID list.

WARNING: **On some EX and QFX Series switches, you can apply no more than eight VLAN identifier lists to a physical interface.**

Options

vlan-id-numbers—Valid VLAN identifiers. You can combine individual numbers with range lists by including a hyphen.

Range: 0 through 4095

NOTE: **On EX Series switches and the QFX Series, the range is 0 through 4094.**

Required Privilege Level

routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

Related Documentation

- *Configuring a Bridge Domain*
- *Configuring a VLAN*
- *Configuring VLAN Identifiers for Bridge Domains and VPLS Routing Instances*
- *Configuring VLAN Identifiers for VLANs and VPLS Routing Instances*

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CHAPTER 3

Operational Mode Commands

- show mvrp
- show mvrp applicant-state
- show mvrp dynamic-vlan-memberships
- show mvrp interface
- show mvrp registration-state
- show mvrp statistics

show mvrp

Syntax

```
show mvrp
```

Release Information

Command introduced in Junos OS Release 10.0 for EX Series switches.
Command introduced in Junos OS Release 10.1 for MX Series routers.
Command introduced in Junos OS Release 13.2X50-D10 for EX Series switches.
Command introduced in Junos OS Release 15.1X49-D70 for SRX Series devices.

Description

Display Multiple VLAN Registration Protocol (MVRP) configuration information.

Required Privilege Level

view

Related Documentation

- *Example: Configuring Automatic VLAN Administration Using MVRP on EX Series Switches*
- *Verifying That MVRP Is Working Correctly on Switches*
- show mvrp statistics on page 100
- show mvrp applicant-state on page 91
- show mvrp dynamic-vlan-memberships on page 94
- show mvrp interface on page 96
- show mvrp registration-state on page 98
- show mvrp statistics on page 100
- show mvrp applicant-state on page 91
- show mvrp dynamic-vlan-memberships on page 94
- show mvrp interface on page 96
- show mvrp registration-state on page 98

List of Sample Output

show mvrp (EX Series switches and MX Series routers) on page 89
show mvrp (SRX1500, SRX300, SRX550M, SRX345, SRX340 and SRX320) on page 89
show mvrp (EX Series switches) on page 90

Output Fields

Table 5 on page 88 lists the output fields for the **show mvrp** command. Output fields are listed in the approximate order in which they appear.

Table 5: show mvrp Output Fields

Field Name	Field Description
MVRP dynamic VLAN creation	Displays whether global MVRP dynamic VLAN creation is **Enabled** or **Disabled**.

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Table 5: show mvrp Output Fields (continued)

Field Name	Field Description
Global MVRP configuration	Displays global MVRP information: • **MVRP status**—Displays whether MVRP is **Enabled** or **Disabled**. • **MVRP dynamic vlan creation**—Displays whether global MVRP dynamic VLAN creation is **Dnabled** or **Disabled**.
MVRP BPDU MAC address	Displays the multicast media access control (MAC) address for MVRP. If configured, the provider MVRP multicast MAC address is used; otherwise, the customer MVRP multicast MAC address is used.
MVRP timers (ms)	Displays MVRP timer information: • **Interface**—The interface on which MVRP is configured. • **Join**—The maximum number of milliseconds the interfaces must wait before sending VLAN advertisements. • **Leave**—The number of milliseconds an interface must wait after receiving a Leave message to remove the interface from the VLAN specified in the message. • **LeaveAll**— The interval at which LeaveAll messages are sent on interfaces. LeaveAll messages maintain current MVRP VLAN membership information in the network.
Interface based configuration	Displays interface-specific MVRP information: • **Interface**—The interface on which MVRP is configured. • **Status**—Displays whether MVRP is **Enabled** or **Disabled**. • **Registration**—Displays whether registration for the interface is **Forbidden** or **Normal**. • **Dynamic VLAN Creation**—Displays whether interface dynamic VLAN creation is **Enabled** or **Disabled**.

Sample Output

show mvrp (EX Series switches and MX Series routers)

```
user@host> show mvrp

MVRP configuration for routing instance 'default-switch'
MVRP dynamic VLAN creation : Enabled
MVRP BPDU MAC address      : Customer bridge group (01-80-C2-00-00-21)
MVRP timers (ms)
  Interface       Join   Leave  LeaveAll
  ge-11/2/8        200     800     10000
  ge-11/0/9        200     800     10000
  ge-11/3/0        200     800     10000
```

Sample Output

show mvrp (SRX1500, SRX300, SRX550M, SRX345, SRX340 and SRX320)

```
user@host> show mvrp

MVRP configuration for routing instance 'default-switch'
MVRP dynamic VLAN creation : Enabled
MVRP BPDU MAC address      : Customer bridge group (00-00-5E-00-53-00)
MVRP timers (ms)
```

```
 Interface       Join   Leave  LeaveAll
 ge-0/0/1        200     800     60
```

Sample Output

show mvrp (EX Series switches)

```
user@switch> show mvrp

Global MVRP configuration
  MVRP status               : Enabled
  MVRP dynamic vlan creation: Enabled
  MVRP Timers (ms):
   Interface        Join   Leave   LeaveAll
   --------------   ----   -----   --------
   all              200    600     10000
   xe-0/1/1.0       200    600     10000

  Interface based configuration:
   Interface        Status     Registration   Dynamic VLAN Creation
   --------------   --------   ------------   ---------------------
   all       Disabled   Normal    Enabled
   xe-0/1/1.0     Enabled    Normal         Enabled
```


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show mvrp applicant-state

Syntax

```
show mvrp applicant-state
```

Release Information

Command introduced in Junos OS Release 10.1.
Command introduced in Junos OS Release 15.1X49-D70 for SRX Series devices.

Description

For MX Series routers, EX Series switches, SRX1500, SRX300, SRX550M, SRX345, SRX340, and SRX320, display Multiple VLAN Registration Protocol (MVRP) applicant state information.

Required Privilege Level

view

Related Documentation

- show mvrp on page 88
- show mvrp interface on page 96
- show mvrp registration-state on page 98
- show mvrp statistics on page 100
- show mvrp interface on page 96
- show mvrp registration-state on page 98

List of Sample Output

show mvrp applicant-state (EX Series and MX Series) on page 92
show mvrp applicant-state on page 92

Output Fields

Table 6 on page 91 lists the output fields for the **show mvrp applicant-state** command. Output fields are listed in the approximate order in which they appear.

Table 6: show mvrp applicant-state Output Fields

Field Name	Field Description
VLAN Id	Displays the VLAN ID number.
Interface	Displays the interface number associated with the VLAN ID.

Table 6: show mvrp applicant-state Output Fields (continued)

Field Name	Field Description
State	Displays one of the following MVRP registrar states: • VO— Very anxious observer. • VP —Very anxious passive. • VA —Very anxious new. • AN —Anxious new. • AA —Anxious active. • QA —Quiet active. • LA —Leaving active. • AO —Anxious observer. • QO —Quiet observer. • LO —Leaving observer. • AP —Anxious passive. • QA —Quiet passive.

Sample Output (EX Series and MX Series)

show mvrp applicant-state (EX Series and MX Series)

```
user@host> show mvrp applicant-state

MVRP applicant state for routing instance 'default-switch'
 (VO) Very anxious observer, (VP) Very anxious passive, (VA) Very anxious new,
 (AN) Anxious new, (AA) Anxious active, (QA) Quiet active, (LA) Leaving active,
 (AO) Anxious observer, (QO) Quiet observer, (LO) Leaving observer,
 (AP) Anxious passive, (QP) Quiet passive

VLAN Id     Interface          State
    100     ge-11/3/0          Declaring (QA)
    200     ge-11/3/0          Declaring (QA)
    300     ge-11/3/0          Declaring (QA)
```

Sample Output (SRX1500, SRX300, SRX550M, SRX345, SRX340, and SRX320)

show mvrp applicant-state

```
user@host> show mvrp applicant-state

MVRP applicant state for routing instance 'default-switch'
 (VO) Very anxious observer, (VP) Very anxious passive, (VA) Very anxious new,
 (AN) Anxious new, (AA) Anxious active, (QA) Quiet active, (LA) Leaving active,
 (AO) Anxious observer, (QO) Quiet observer, (LO) Leaving observer,
 (AP) Anxious passive, (QP) Quiet passive

VLAN Id     Interface          State
    1       ge-0/0/1          Idle (VO)
    30      ge-0/0/1          Idle (VO)
    40      ge-0/0/1          Idle (VO)
    50      ge-0/0/1          Idle (VO)
    100     ge-0/0/1          Idle (VO)
```


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show mvrp dynamic-vlan-memberships

Syntax

```
show mvrp dynamic-vlan-memberships
```

Release Information

Command introduced in Junos OS Release 10.0 for EX Series switches.
Command introduced in Junos OS Release 10.1 for MX Series routers.
Command introduced in Junos OS Release 13.2X50-D10 for EX Series switches.
Command introduced in Junos OS Release 15.1X49-D70 for SRX Series devices.

Description

Display all VLANs that have been created dynamically using Multiple VLAN Registration Protocol (MVRP) on the router, switch, or SRX Series device.

Required Privilege Level

clear

Related Documentation

- *Example: Configuring Automatic VLAN Administration Using MVRP on EX Series Switches*
- *Verifying That MVRP Is Working Correctly on Switches*
- show mvrp on page 88
- show mvrp applicant-state on page 91
- show mvrp interface on page 96
- show mvrp registration-state on page 98
- show mvrp registration-state on page 98
- show mvrp statistics on page 100

List of Sample Output

show mvrp dynamic-vlan-memberships (MX Series and EX Series) on page 95
show mvrp dynamic-vlan-memberships (EX Series) on page 95
show mvrp dynamic-vlan-memberships on page 95

Output Fields

Table 7 on page 94 lists the output fields for the **show mvrp dynamic-vlan-memberships** command on MX Series routers and EX Series switches. Output fields are listed in the approximate order in which they appear.

Table 7: show mvrp dynamic-vlan-memberships Output Fields

Field Name	Field Description
VLAN Id	The VLAN ID of the dynamically created VLAN.
Interfaces	The interface or interfaces that are bound to the dynamically created VLAN.

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Sample Output (MX Series Routers and EX Series Switches)

show mvrp dynamic-vlan-memberships (MX Series and EX Series)

```
user@host> show mvrp dynamic-vlan-memberships

MVRP dynamic vlans for routing instance 'default-switch'
 (s) static vlan, (f) fixed registration

VLAN Id            Interfaces
    100 (s)        ge-11/3/0
    200 (s)        ge-11/3/0
    300 (s)
```

Sample Output (EX Series Switches)

show mvrp dynamic-vlan-memberships (EX Series)

```
user@switch> show mvrp dynamic-vlan-memberships

VLAN Name             Interfaces
--------------------       ----------------
__mvrp_100__               xe-0/1/1.0
                           xe-0/1/0.0
__mvrp_200__               xe-0/1/1.0
                           xe-0/1/0.0
__mvrp_300__               xe-0/1/1.0
```

Sample Output (SRX1500, SRX300, SRX550M, SRX345, SRX340, SRX320)

show mvrp dynamic-vlan-memberships

```
user@host> show mvrp dynamic-vlan-memberships

MVRP dynamic vlans for routing instance 'default-switch'
 (s) static vlan, (f) fixed registration

VLAN Id            Interfaces
    1  (s)
    30 (s)
    40 (s)        ge-0/0/1
    50 (s)        ge-0/0/1
   100 (s)        ge-0/0/1 (f)
```

show mvrp interface

Syntax

show mvrp interface

Release Information

Command introduced in Junos OS Release 10.1.
Command introduced in Junos OS Release 15.1X49-D70 for SRX Series devices.

Description

Display Multiple VLAN Registration Protocol (MVRP) interface-specific information.

Required Privilege Level

view

Related Documentation

- show mvrp on page 88
- show mvrp applicant-state on page 91
- show mvrp dynamic-vlan-memberships on page 94
- show mvrp registration-state on page 98
- show mvrp registration-state on page 98
- show mvrp statistics on page 100

List of Sample Output

show mvrp interface on page 96
show mvrp interface on page 97

Output Fields

Table 8 on page 96 lists the output fields for the **show mvrp interface** command. Output fields are listed in the approximate order in which they appear.

Table 8: show mvrp interface Output Fields

Field Name	Field Description
Interface	Interface on which MVRP is configured.
Status	Status of the MVRP: **Enabled** or **Disabled**.
Registration Mode	Registration for the interface: **Fixed**, **Forbidden**, or **Normal**.
Applicant Mode	Applicant mode.

Sample Output (MX Series Routers and SX Series Switches)

show mvrp interface

```
user@host> show mvrp interface
MVRP interface information for routing instance 'default-switch'
```


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```
Interface       Status       Registration      Applicant
                             Mode              Mode
ge-11/2/8       Enabled      Normal            Normal
ge-11/0/9       Enabled      Normal            Normal
ge-11/3/0       Enabled      Normal            Normal
```

Sample Output (SRX1500, SRX300, SRX550M, SRX345, SRX340 and SRX320)

show mvrp interface

```
user@host> show mvrp interface
MVRP interface information for routing instance 'default-switch'

Interface       Status       Registration      Applicant
                Mode         Mode              Mode
ge-0/0/1        Enabled      Normal            Normal
```

show mvrp registration-state

Syntax

```
show mvrp registration-state
```

Release Information

Command introduced in Junos OS Release 10.1.
Command introduced in Junos OS Release 15.1X49-D70 for SRX Series devices.

Description

For MX Series routers, EX Series switches and SRX1500, SRX300, SRX550M, SRX345, SRX340 and SRX320, display Multiple VLAN Registration Protocol (MVRP) registration state information.

Required Privilege Level

view

Related Documentation

- show mvrp on page 88
- show mvrp dynamic-vlan-memberships on page 94
- show mvrp interface on page 96
- show mvrp statistics on page 100

List of Sample Output

show mvrp registration-state (EX Series and MX Series) on page 99
show mvrp registration-state (SRX1500, SRX300, SRX550M, SRX345, SRX340 and SRX320) on page 99

Output Fields

Table 9 on page 98 lists the output fields for the **show mvrp registration-state** command. Output fields are listed in the approximate order in which they appear.

Table 9: show mvrp registration-state Output Fields

Field Name	Field Description
VLAN Id	Displays the VLAN ID number.
Interface	Displays the interface number associated with the VLAN ID.
Registrar State	Displays whether the registrar state is Registered or Empty.
Forced State	Displays whether the forced state is Registered or Empty.
Managed State	Displays one of the following states: • **fixed**—VLANs always stay in a registered state and are declared as such on all other forwarding ports. • **normal** —VLANs participate in the MVRP protocol and honor incoming join requests normally. • **forbidden** —VLANs ignore the incoming join requests and always stay in an unregistered state.
STP State	Displays whether the Spanning Tree Protocol (STP) is Blocking or Forwarding.

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Sample Output

show mvrp registration-state (EX Series and MX Series)

```
user@host> show mvrp registration-state

MVRP registration state for routing instance 'default-switch'

VLAN Id   Interface   Registrar   Forced      Managed    STP
                      State       State       State      State
    100   ge-11/2/8   Empty       Registered  Fixed      Forwarding
          ge-11/0/9   Empty       Empty       Normal     Forwarding
          ge-11/3/0   Registered  Registered  Normal     Forwarding
    101   ge-11/2/8   Empty       Registered  Fixed      Forwarding
          ge-11/0/9   Empty       Empty       Normal     Forwarding
          ge-11/3/0   Registered  Registered  Normal     Forwarding
```

Sample Output

show mvrp registration-state (SRX1500, SRX300, SRX550M, SRX345, SRX340 and SRX320)

```
user@host> show mvrp registration-state

MVRP registration state for routing instance 'default-switch'

VLAN Id   Interface   Registrar   Forced      Managed    STP
                      State       State       State      State
    1     ge-0/0/1    Empty       Empty       Normal     Forwarding
    30    ge-0/0/1    Empty       Empty       Normal     Forwarding
    40    ge-0/0/1    Registered  Registered  Normal     Forwarding
    50    ge-0/0/1    Registered  Registered  Normal     Forwarding
   100    ge-0/0/1    Empty       Registered  Fixed      Forwarding
```

show mvrp statistics

List of Syntax

Syntax (EX Series Switches) on page 100
Syntax (Switches with ELS Support) on page 100
Syntax (SRX Devices) on page 100

Syntax (EX Series Switches)

```
show mvrp statistics
<interface interface-name>
```

Syntax (Switches with ELS Support)

```
show mvrp statistics
<interface interface-name>
<routing-instance routing-instance-name>
```

Syntax (SRX Devices)

```
show mvrp statistics
```

Release Information

Command introduced in Junos OS Release 10.0 for EX Series switches.
Command introduced in Junos OS Release 13.2X50-D10 (ELS).
Command introduced in Junos OS Release 15.1X49-D70 for SRX Series devices.

Description

Display Multiple VLAN Registration Protocol (MVRP) statistics in the form of Multiple Registration Protocol data unit (MRPDU) messages.

Options

none—Show MVRP statistics for all interfaces on the switch.

interface *interface-name*—(Optional) Show MVRP statistics for the specified interface.

Required Privilege Level

view

Related Documentation

- show mvrp on page 88
- *clear mvrp statistics*
- *Example: Configuring Automatic VLAN Administration Using MVRP on EX Series Switches*
- *Verifying That MVRP Is Working Correctly on Switches*
- *Verifying That MVRP Is Working Correctly on EX Series Switches with ELS Support*

List of Sample Output

show mvrp statistics interface xe-0/1/1.0 on page 103
show mvrp statistics on page 103
show mvrp statistics (SRX Devices) on page 103

Output Fields

Table 7 on page 94 lists the output fields for the **show mvrp statistics** command on EX Series switches. Output fields are listed in the approximate order in which they appear.

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Table 10: show mvrp statistics Output Fields

Field Name	Field Description
MRPDU received	Number of MRPDU messages received on the switch.
Invalid PDU received	Number of invalid MRPDU messages received on the switch.
New received	Number of new messages received on the switch.
Join Empty received	Number of MRP JoinEmpty messages received on the switch. Either this value or the value for *JoinIn received* should increase when the value for *MRPDU received* increases. If this value is not incrementing when it should, you might have a Junos OS release version compatibility issue. To fix a version compatibility issue, see *Configuring Multiple VLAN Registration Protocol (MVRP) on Switches* .
Join In received	Number of MRP JoinIn messages received on the switch. Either this value or the value for *JoinEmpty received* should increase when the value for *MRPDU received* increases. If this value is not incrementing when it should, you might have a Junos OS release version compatibility issue. To fix a version compatibility issue, see *Configuring Multiple VLAN Registration Protocol (MVRP) on Switches* .
Empty received	Number of MRP Empty messages received on the switch.
In received	Number of MRP In messages received on the switch.
Leave received	Number of MRP Leave messages received on the switch.
LeaveAll received	Number of LeaveAll messages received on the switch.
MRPDU transmitted	Number of MRPDU messages transmitted from the switch.
MRPDU transmit failures	Number of MRPDU transmit failures from the switch.
New transmitted	Number of new messages transmitted from the switch.
Join Empty transmitted	Number of JoinEmpty messages sent from the switch.
Join In transmitted	Number of MRP JoinIn messages sent from the switch.
Empty transmitted	Number of MRP Empty messages sent from the switch.
In transmitted	Number of MRP In messages sent from the switch.
Leave transmitted	Number of MRP Leave Empty messages sent from the switch.
LeaveAll transmitted	Number of MRP LeaveAll messages sent from the switch.

Table 11 on page 102 lists the output fields for the **show mvrp statistics** command on SRX devices. Output fields are listed in the approximate order in which they appear.

Table 11: show mvrp statistics Output Fields

Field Name	Field Description
Interface name	Interface for which MVRP statistics are displayed.
VLAN IDs registered	Number of Virtual LAN (VLAN) IDs registered.
Sent MVRP PDUs	Number of MRPDU messages transmitted from the switch.
Received MVRP PDUs without error	Number of MRPDU messages received on the switch.
Received MVRP PDUs with error	Number of invalid MRPDU messages received on the switch.
Transmitted Join Emply	Number of JoinEmpty messages sent from the switch.
Transmitted Leave All	Number of MRP LeaveAll messages sent from the switch.
Received Join In	Number of MRP JoinIn messages received on the switch. Either this value or the value for **Received Join Empty** should increase when the value for **Received MVRP PDUs without error** increases. If this value is not incrementing when it should, you might have a Junos OS release compatibility issue. To resolve the issue, see *Configuring Multiple VLAN Registration Protocol (MVRP) on Switches* .
Transmitted Join In	Number of MRP JoinIn messages sent from the switch.
Transmitted Empty	Number of MRP Empty messages sent from the switch.
Transmitted Leave	Number of MRP LeaveEmpty messages sent from the switch.
Transmitted In	Number of MRP In messages sent from the switch.
Transmitted New	Number of New messages transmitted from the switch.
Received Leave All	Number of LeaveAll messages received on the switch.
Received Leave	Number of MRP Leave messages received on the switch.
Received In	Number of MRP In messages received on the switch.
Received Empty	Number of MRP Empty messages received on the switch.
Received Join Empty	Number of MRP JoinEmpty messages received on the switch. Either this value or the value for **Received Join In** should increase when the value for **Received MVRP PDUs without error** increases. If this value is not incrementing when it should, you might have a Junos OS release compatibility issue. To resolve the issue, see *Configuring Multiple VLAN Registration Protocol (MVRP) on Switches* .
Received New	Number of New messages received on the switch.

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Sample Output

show mvrp statistics interface xe-0/1/1.0

user@switch> **show mvrp statistics interface xe-0/1/1.0**

```
MVRP statistics
  MRPDU received                : 3342
  Invalid PDU received          : 0
  New received                  : 2
  Join Empty received           : 1116
  Join In received              : 2219
  Empty received                : 2
  In received                   : 2
  Leave received                : 1
  LeaveAll received             : 1117
  MRPDU transmitted             : 3280
  MRPDU transmit failures       : 0
  New transmitted               : 0
  Join Empty transmitted        : 1114
  Join In transmitted           : 2163
  Empty transmitted             : 1
  In transmitted                : 1
  Leave transmitted             : 1
  LeaveAll transmitted          : 1111
```

show mvrp statistics

user@host> **show mvrp statistics**

```
MVRP statistics for routing instance 'default-switch'

Interface name                  : xe-0/1/1
VLAN IDs registered             : 117
Sent MVRP PDUs                  : 118824
Received MVRP PDUs without error: 118848
Received MVRP PDUs with error   : 0
Transmitted Join Empty          : 5229
Transmitted Leave All           : 2
Recieved Join In                : 11884924
Transmitted Join In             : 1835
Transmitted Empty               : 93606408
Transmitted Leave               : 888
Transmitted In                  : 13780024
Transmitted New                 : 2692
Received Leave All              : 118761
Received Leave                  : 97
Received In                     : 3869
Received Empty                  : 828
Received Join Empty             : 2020152
Received New                    : 224
...
```

show mvrp statistics (SRX Devices)

user@host> **show mvrp statistics**

```
MVRP statistics for routing instance 'default-switch'

Interface name                 : ge-0/0/1
VLAN IDs registered            : 2
Sent MVRP PDUs                 : 41
Received MVRP PDUs without error: 28
Received MVRP PDUs with error   : 0
Transmitted Join Empty          : 0
Transmitted Leave All           : 20
Received Join In                : 0
Transmitted Join In             : 0
Transmitted Empty               : 114
Transmitted Leave               : 0
Transmitted In                  : 10
Transmitted New                 : 0
Received Leave All              : 1
Received Leave                  : 0
Received In                     : 0
Received Empty                  : 67
Received Join Empty             : 24
Received New                    : 0
```


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