Cross-Module Trunking in ExtremeWare 7.1.1

Overview

ExtremeWare® release 7.1.1 adds support for the MSM-3 and cross-module trunking on BlackDiamond 6804 and 6808 chassis. Trunking, Link Aggregation, and Load Sharing are terms that have been used interchangeably in ExtremeWare documentation to refer to the same feature that allows multiple physical ports to be aggregated into one logical port. The advantages to Load Sharing include an increase in bandwidth and link redundancy.

Cross-module trunking is the ability for a load-share group to span multiple modules. Availability is improved by providing module redundancy in addition to link redundancy. Prior to release 7.1.1, this feature was only available on Alpine chassis. Now it is available on BlackDiamond 6804 and 6808 chassis with MSM-3. Load-sharing groups are still limited to a maximum of eight ports, but the ports can be located on any number of different modules.

About this Document

The first part of this document contains updated information from the *ExtremeWare Software User Guide, Software Version 7.1.0.* Use the information in this document to replace the Load Sharing information that begins on page 86 of that guide. The User Guide information in this document consists of the following sections:

- Load Sharing on the Switch on page 2
- Dynamic Versus Static Load Sharing on page 2
- Load-Sharing Algorithms on page 2
- Configuring Switch Load Sharing on page 3
- Load-Sharing Examples on page 5
- Verifying the Load-Sharing Configuration on page 6
- Performance Enhancements for Load Sharing on page 6

The second part of this document contains updated information from the *ExtremeWare Software Command Reference Guide, Software Version 7.1.0.* Use the information to replace the individual command information from that guide. The commands included in this document are the following:

- configure backplane-ls-policy on page 7

Updated User Guide Information

The following sections contain updated from the *ExtremeWare Software User Guide, Software Version 7.1.0.*

Load Sharing on the Switch

Load sharing allows you to increase bandwidth and availability by using a group of ports to carry traffic in parallel between switches. Load sharing allows the switch to use multiple ports as a single logical port. For example, VLANs see the load-sharing group as a single logical port. Most load-sharing algorithms guarantee packet sequencing between clients.

If a port in a load-sharing group fails, traffic is redistributed to the remaining ports in the load-sharing group. If the failed port becomes active again, traffic is redistributed to include that port.

NOTE

Load sharing must be enabled on both ends of the link or a network loop may result. The load-sharing types (dynamic, static) must match, but the load-sharing algorithms do not need to be the same on both ends.

Dynamic Versus Static Load Sharing

The two broad categories of load sharing supported on Extreme Network switches are dynamic load sharing and static load sharing:

- **Dynamic load sharing**—A grouping of ports that use IEEE 802.3ad load sharing to dynamically determine if load sharing is possible, and automatically configure load sharing when possible. Uses Link Aggregation Control Protocol (LACP), part of the IEEE 802.3ad standard, to allow the switch to dynamically reconfigure the sharing groups. The group is only enabled when LACP detects that the other side is also using LACP, and wants these ports to be in a group.

- **Static load sharing**—A grouping of ports specifically configured to load share. The switch ports at each end must be configured as part of a load-sharing group. Additionally, you can choose the load-sharing algorithm used by the group. This feature is supported between Extreme Networks switches only, but may be compatible with third-party trunking or link-aggregation algorithms. Check with an Extreme Networks technical representative for more information.

Load-Sharing Algorithms

Load-sharing algorithms allow you to select the distribution technique used by the load-sharing group to determine the output port selection. Algorithm selection is not intended for use in predictive traffic engineering. You can only choose the algorithm used in static load sharing, as dynamic load sharing exclusively uses an address-based algorithm.

You can configure one of three load-sharing algorithms on the switch, as follows:

- **Port-based**—Uses the ingress port to determine which physical port in the load-sharing group is used to forward traffic out of the switch.

- **Address-based**—Uses addressing information to determine which physical port in the load-sharing group to use for forwarding traffic out of the switch. Addressing information is based on the packet protocol, as follows:

  - **IP packets**—Uses the source and destination MAC and IP addresses, and the TCP port number.

  - **IPX packets**—Uses the source and destination MAC address, and IPX network identifiers.

  - **All other packets**—Uses the source and destination MAC address.

- **Round-robin**—When the switch receives a stream of packets, it forwards one packet out of each physical port in the load-sharing group using a round-robin scheme.

> ⚠ **NOTE**
>
> *Using the round-robin algorithm, packet sequencing between clients is not guaranteed.*

If you do not explicitly select an algorithm, the port-based scheme is used. However, the address-based algorithm has a more even distribution and is the recommended choice, except when running MPLS, in which case port-based is recommended.

Configured IP Address-Based Load Sharing

When you configure load sharing, the switch examines a specific place in the packet to determine which egress port to use for forwarding traffic:

- For layer 2 load sharing, the switch uses the MAC source address and destination address.

- For layer 3 load sharing, the switch uses the IP source address and destination address.

- For layer 4 load sharing, the switch using the UDP or TCP well-known port number.

You can control the field examined by the switch for IP address-based load sharing, using the following command:

```
configure sharing address-based <l2 | l2_l3 | l2_l3_l4>
```

where:

- `l2`—Indicates that the switch should examine the MAC source and destination address.

- `l3`—Indicates that the switch should examine the IP source and destination address.

- `l4`—Indicates that the switch should examine the UDP or TCP well-known port number.

This feature is available for the address-based load-sharing algorithm, only.

To verify your configuration, use the following command:

```
show sharing address-based
```

Configuring Switch Load Sharing

To set up a switch to load share among ports, you must create a load-sharing group of ports. The first port in the load-sharing group is configured to be the "master" logical port. This is the reference port

used in configuration commands. It can be thought of as the logical port representing the entire port group.

All the ports in a load-sharing group must have the same exact configuration, including auto negotiation, duplex setting, ESRP host attach or don't-count, and so on. All the ports in a load-sharing group must also be of the same bandwidth class.

The following rules apply:

- One group can contain up to 8 ports.
- The ports in the group do not need to be contiguous.
- If dynamic load sharing is used (LACP), the ports in the group must be on the same I/O module.
- A load share group that spans multiple modules must use ports that are all of the same maximum bandwidth capability.

On BlackDiamond 6804 and 6808 chassis, the following limitation applies:

- The chassis must use the MSM-3 if you are going to configure a load share group that spans multiple modules (cross-module trunking).

On BlackDiamond 6816 chassis, the following limitation applies:

- The ports in the group must be on the same I/O module.

To define a load-sharing group, you assign a group of ports to a single, logical port number. To enable or disable a load-sharing group, use the following commands:

```
enable sharing <port> grouping <portlist> {dynamic | algorithm {port-based |
address-based | round-robin}}

disable sharing <port>
```

⚠ NOTE

Do not disable a port that is part of a load-sharing group. Disabling the port prevents it from forwarding traffic, but still allows the link to initialize. As a result, a partner switch does not receive a valid indication that the port is not in a forwarding state, and the partner switch will continue to forward packets.

⚠ NOTE

BlackDiamond modules implement local switching; packets that ingress and egress on the same module are not passed to the chassis backplane but switched on the module from the ingress to the egress port. For this reason, packets arriving on a module that contains any of the configured cross-module load sharing ports will only be shared with the ports on that module, and not with the ports on any other modules.

Loopback Detection

Each port may enable loop detection. This optional feature detects that a port has been looped back to the local system. If a loopback is detected, the port is disabled. Note that loopbacks may exist between different ports. The feature will disable any port that both has the feature enabled, and receives an LACP message that was sent from the local system.

To enable or disable loopback detection, use the following commands:

```
enable lbdetect port <portlist> [retry-timeout<seconds>]

disable lbdetect port <portlist>
```

Load-Sharing Examples

This section provides examples of how to define load-sharing on modular and stand-alone switches.

Cross-Module Load Sharing on a Modular Switch

Cross-module load sharing is available on Alpine chassis, and on BlackDiamond 6804 and 6808 chassis that use the MSM-3. The following example defines a load-sharing group that contains ports 9 through 12 on slot 3, ports 7 through 10 on slot 5, and uses the first port in the slot 3 group as the master logical port 9:

```
enable sharing 3:9 grouping 3:9-3:12, 5:7-5:10
```

In this example, logical port 3:9 represents physical ports 3:9 through 3:12 and 5:7 through 5:10.

When using load sharing, you should always reference the master logical port of the load-sharing group (port 3:9 in the previous example) when configuring or viewing VLANs. VLANs configured to use other ports in the load-sharing group will have those ports deleted from the VLAN when load sharing becomes enabled.

For BlackDiamond chassis, packets are locally switched when possible, even with load sharing enabled. For example, in the configuration above, packets received on port 3:2 that are destined for the load-sharing group will only be shared with the ports 3:9-3:12 and not with ports 5:7-5:10. In contrast, packets received on port 2:2 that are destined for the load-sharing group will be shared with the all the ports in the load-sharing group (ports 3:9-3:12 and 5:7-5:10).

Single-Module Load Sharing on a Modular Switch

Single-module load sharing is supported on all modular switches. The BlackDiamond 6816 chassis, and the BlackDiamond 6804 and 6808 chassis without the MSM-3, support only single-module load sharing. The following example defines a load-sharing group that contains ports 9 through 12 on slot 3 and uses the first port as the master logical port 9:

```
enable sharing 3:9 grouping 3:9-3:12
```

In this example, logical port 3:9 represents physical ports 3:9 through 3:12.

When using load sharing, you should always reference the master logical port of the load-sharing group (port 3:9 in the previous example) when configuring or viewing VLANs. VLANs configured to use other ports in the load-sharing group will have those ports deleted from the VLAN when load sharing becomes enabled.

Load Sharing on a Stand-Alone Switch

The following example defines a load-sharing group that contains ports 9 through 12, and uses the first port in the group as the master logical port 9:

```
enable sharing 9 grouping 9-12
```

In this example, logical port 9 represents physical ports 9 through 12.

When using load sharing, you should always reference the master logical port of the load-sharing group (port 9 in the previous example) when configuring or viewing VLANs. VLANs configured to use other ports in the load-sharing group will have those ports deleted from the VLAN when load sharing becomes enabled.

NOTE

Do not disable a port that is part of a load-sharing group. Disabling the port prevents it from forwarding traffic, but still allows the link to initialize. As a result, a partner switch does not receive a valid indication that the port is not in a forwarding state, and the partner switch will continue to forward packets.

Verifying the Load-Sharing Configuration

The screen output resulting from the `show ports sharing` command lists the ports that are involved in load sharing and the master logical port identity.

Performance Enhancements for Load Sharing

You can modify the backplane load-sharing policy on BlackDiamond switches to enhance performance. The default backplane load-sharing policy is port-based. Selecting a policy for a particular situation will depend on the type of traffic and network topology, however, for many situations an address-based policy will enhance performance over other policies. You must save for changes to be saved across reboots.

To configure the switch backplane load-sharing policy, use the following command:

```
configure backplane-ls-policy [address-based | port-based | round-robin]
```

and specify the following:

- `address-based`—address-based load-sharing algorithm
- `port-based`—port-based load-sharing algorithm
- `round-robin`—round-robin load-sharing algorithm

For more information about the load-sharing algorithms, see "Load-Sharing Algorithms" on page 2.

Updated Command Reference Guide Information

The following sections contain updated from the *ExtremeWare Software Command Reference Guide, Software Version 7.1.0.*

configure backplane-ls-policy

```
configure backplane-ls-policy [address-based | port-based | round-robin]
```

Description

Selects a load-sharing policy for the backplane on a BlackDiamond switch.

Syntax Description

address-based	Specifies address-based algorithm.
port-based	Specifies port-based algorithm.
round-robin	Specifies round-robin algorithm.

Default

Port-based.

Usage Guidelines

On BlackDiamond switches, you can specify the backplane load-sharing policy to use. There are multiple paths that a packet can travel from the MSM to an I/O module, so this command sets the algorithm used to choose the path for each packet crossing the backplane. Selecting a policy for a particular situation will depend on the type of traffic and network topology, however, for many situations an address-based policy will enhance performance over other policies. You must save for changes to be saved across reboots.

Example

The following command sets the backplane load-sharing policy to address-based:

```
configure backplane-ls-policy address-based
```

History

This command was first available in ExtremeWare 6.2.2.

Platform Availability

This command is available on BlackDiamond switches.

disable sharing

```
disable sharing [<port>]
```

Description

Disables a load-sharing group of ports.

Syntax Description

port	Specifies the master port of a load-sharing group. On a modular switch, is a combination of the slot and port number, in the format <slot>:<port>.

Default

Disabled.

Usage Guidelines

This command increases bandwidth tracking and resiliency.

On a modular switch, `<port>` is specified as `<slot>:<port number>`. On a stand-alone switch, `<port>` is the port configured as the load-sharing master port. For a detailed explanation of port specification, see "Modular Switch Numerical Ranges" or "Stand-alone Switch Numerical Ranges" in Chapter 1.

When sharing is disabled, the master port retains all configuration including VLAN membership. Configuration for all other member ports is reset to default values. Member ports are removed from all VLANs to prevent loops.

Example

The following command disables sharing on master logical port 9, which contains ports 9-12 on a stand-alone switch:

```
disable sharing 9
```

The following command disables sharing on master logical port 9 in slot 3, which contains ports 9 through 12 on a modular switch:

```
disable sharing 3:9
```

History

This command was first available in ExtremeWare 2.0.

This command was modified in ExtremeWare 4.0 to support modular switches.

Platform Availability

This command is available on all platforms.

enable sharing grouping

```
enable sharing <port> grouping <portlist> {dynamic | algorithm {port-based
| address-based | round-robin}}
```

Description

This command enables the switch to configure static port load sharing or dynamic port load sharing. When configuring dynamic port load sharing, LACP will be used to detect and set up for the remote side's load sharing capabilities.

Syntax Description

port	Specifies the master port for a loadsharing group.
portlist	Specifies one or more ports or slots and ports to be grouped to the master port. On a modular switch, can be a list of slots and ports. On a stand-alone switch, can be one or more port numbers. May be in the form 1, 2, 3-5, 2:5, 2:6-2:8.
dynamic	Specifies dynamic sharing by using LACP.
algorithm	Specifies sharing by port-based, address-based, or round-robin algorithms.

Default

Disabled

Usage Guidelines

On a stand-alone switch, <portlist> can be one or more port numbers. For a detailed explanation of port specification, see "Modular Switch Numerical Ranges" or "Stand-alone Switch Numerical Ranges" in Chapter 1.

Load sharing allows you to increase bandwidth and availability between switches by using a group of ports to carry traffic in parallel between switches. The sharing algorithm allows the switch to use multiple ports as a single logical port or a "master" port. For example, VLANs see the load-sharing group as a single logical port. The algorithm also guarantees packet sequencing between clients.

If a port in a load-sharing group fails, traffic is redistributed to the remaining ports in the load-sharing group. If the failed port becomes active again, traffic is redistributed to include that port.

Load sharing must be enabled on both ends of the link, or a network loop will result.

While LACP is based on industry standard, this feature is supported between Extreme Networks switches only. However, it may be compatible with third-party "trunking" or sharing algorithms. Check with an Extreme Networks technical representative for more information.

Modular switch load-sharing groups are defined according to the following rules:

- The first port in the load-sharing group is configured to be the "master" logical port. This is the reference port used in configuration commands. It can be thought of as the logical port representing the entire port group.

- A master port can be a member of a Spanning Tree Domain (STPD), but the other ports assigned to a load-sharing group cannot.

- When using load sharing, you should always reference the master logical port of the load-sharing group when configuring or viewing VLANs. VLANs configured to use other ports in the load-sharing group will have those ports deleted from the VLAN when load sharing becomes enabled.

- A load-sharing group can include a maximum of eight ports.

- The ports in a load-sharing group on a BlackDiamond 6816, and on a BlackDiamond 6804 and 6808 that do not use the MSM-3, must all be on the same I/O module. Groups can span multiple modules with other chassis.

- Dynamic load sharing (LACP) cannot be used for groups that span multiple modules.

There are two broad categories of load sharing supported on Extreme Network switches:

- **Dynamic load sharing**—A grouping of ports that will use IEEE 802.3ad load sharing to dynamically determine if load sharing is possible, and will automatically configure load sharing when possible. Uses Link Aggregation Control Protocol (LACP), part of the IEEE 802.3ad standard, to allow the switch to dynamically reconfigure the sharing groups. The group is only enabled when LACP detects that the other side is also using LACP, and wants these ports to be in a group

- **Static load sharing**—A grouping of ports specifically configured to load share. The switch ports at each end must be configured as part of a load-sharing group. Additionally, you can choose the load-sharing algorithm used by the group. This feature is supported between Extreme Networks switches only, but may be compatible with third-party trunking or link-aggregation algorithms. Check with an Extreme Networks technical representative for more information.

Load-sharing algorithms allow you to select the distribution technique used by the load-sharing group to determine the output port selection. Algorithm selection is not intended for use in predictive traffic engineering. You can only choose the algorithm used in static load sharing. There is no option to choose an algorithm when you use dynamic load sharing.

- **Port-based**—Uses the ingress port to determine which physical port in the load-sharing group is used to forward traffic out of the switch.

- **Address-based**—Uses addressing information to determine which physical port in the load-sharing group to use for forwarding traffic out of the switch. Addressing information is based on the packet protocol, as follows:

  — IP packets—Uses the source and destination MAC and IP addresses, and the TCP port number.

  — IPX packets—Uses the source and destination MAC address, and IPX network identifiers.

  — All other packets—Uses the source and destination MAC address.

- **Round-robin**—When the switch receives a stream of packets, it forwards one packet out of each physical port in the load-sharing group using a round-robin scheme.

Using the round-robin algorithm, packet sequencing between clients is not guaranteed.

If you do not explicitly select an algorithm, the port-based scheme is used. However, the address-based algorithm has a more even distribution and is the recommended choice.

Example

The following example defines a load-sharing group that contains ports 9 through 12, and uses the first port in the group as the master logical port on a stand-alone switch:

```
enable sharing 9 grouping 9-12
```

The following example defines a load-sharing group that contains ports 9 through 12 on slot 3, ports 7 through 10 on slot 5, and uses the first port on slot 3 as the master logical port 9 on a modular switch:

```
enable sharing 3:9 grouping 3:9-3:12, 5:7-5:10
```

In this example, logical port 3:9 represents physical ports 3:9 through 3:12 and 5:7 through 5:10.

History

This command was first available in ExtremeWare 2.0.

The command was modified in ExtremeWare 4.0 to support modular switches.

The command was modified in ExtremeWare 6.0 to support the `algorithm` parameter.

The command was modified in ExtremeWare 7.0.0 to support the `dynamic` parameter.

The command was modified in ExtremeWare 7.1.1 to support cross-module trunking on BlackDiamond switches.

Platform Availability

This command is available on all platforms.

show ports sharing

```
show ports {mgmt | <portlist>} sharing
```

Description

Displays port loadsharing groups.

Syntax Description

mgmt	Specifies the management port. Supported only for switches that provide a management port.
portlist	Specifies one or more ports or slots and ports. On a modular switch, can be a list of slots and ports. On a stand-alone switch, can be one or more port numbers. May be in the form 1, 2, 3-5, 2:*, 2:5, 2:6-2:8.

Default

N/A

Usage Guidelines

None.

Example

The following command displays the port loadsharing group configured for port 5:4; the current master has shifted to port 7:4 since both ports 5:4 and 5:5 of the group are not active links:

```
show ports 5:4 sharing
```

The following is the output from this command:

```
* admin:3 # sh port 5:4 sharing
Load Sharing Monitor
Config      Current    Ld Share    Ld Share    Link      Link
Master      Master     Type        Group       Status    Ups
==========================================================
5:4         7:4        r           5:4         NP        1
                       r           5:5         NP        1
                       r           7:4         A         2
                       r           7:5         A         1

Link Status: (A) Active, (D) Disabled, (ND) Not Distributing
             (NP) Not Present, (R) Ready

Ld Share Type: (a) address based, (p) port based, (r) round robin
               (dy) dynamic
```

History

This command was first available in ExtremeWare 6.2.2.

This command was modified in ExtremeWare 7.0.0 to support the `dynamic` algorithm.

Platform Availability

This command is available on all platforms.

show vlan

```
show vlan {<vlan name> | detail | stats {vlan} <vlan name>}
```

Description

Displays information about VLANs.

Syntax Description

vlan name	Specifies a VLAN name.
detail	Specifies that detailed information should be displayed for each VLAN.
stats	Specifies a real-time display of utilization statistics (packets transmitted and received) for a specific VLAN.

Default

Summary information for all VLANs on the device.

Usage Guidelines

Unlike many other vlan-related commands, the keyword "vlan" is required in all forms of this command except when requesting information for a specific vlan.

Use the command show vlan to display summary information for all VLANs. It shows various configuration options as a series of "flags" (see the example below). VLAN and protocol names may be abbreviated in this display.

Use the command show vlan detail to display detailed information for all VLANs. This displays the same information as for an individual VLAN, but shows every VLAN, one-by-one. After each VLAN display you can elect to continue or quit.

Protocol None indicates that this VLAN was configured with a user-defined protocol that has subsequently been deleted.

Use the command show vlan stats <vlan name> to show real-time statistics on the number of packets transmitted and received for the named VLAN. This command will continue to run until you cancel it using the [Esc] key.

Example

The following is an example of the show vlan command:

```
MSM64:1 # show vlan
Name              VID  Protocol Addr        Flags          Proto   Ports
Default           1    0.0.0.0         /BP -----T-------- ANY     0/7
MacVlanDiscover   4095 ----------------- ------          ANY     0/0
Mgmt              4094 10.5.4.80       /24 -------------- ANY     1/1
pv1               4093 192.168.11.1    /24 ------f------- ANY     0/1
pv2               4092 192.168.12.1    /24 ------f------- ANY     0/1
pv3               4091 ----------------- ------          ANY     0/0
pv4               4090 ----------------- ------          ANY     0/0


Flags:  (C) Domain-masterVlan, (c) Domain-memberVlan, (d) DVMRP Enabled
        (E) ESRP Slave, (f) IP Forwarding Enabled, (G) GVRP Enabled
        (i) ISIS Enabled, (I) IP Forwarding lpm-routing Enabled
        (L) Loopback Enabled, (M) ESRP Master, (m) IPmc Forwarding Enabled
        (N) GNS Reply Enabled, (o) OSPF Enabled, (P) IPX SAP Enabled
        (p) PIM Enabled, (R) SubVLAN IP Range Configured, (r) RIP Enabled
        (S) SuperVlan, (s) SubVlan, (T) Member of STP Domain
        (v) VRRP Enabled, (X) IPX RIP Enabled
        (2) IPX Type 20 Forwarding Enabled


Total number of Vlan(s) : 7
```

The following is an example of the show vlan Default command:

```
VLAN Interface[0-200] with name "Default" created by user
     Tagging:   802.1Q Tag 1
     Priority:  802.1P Priority 7
     IP:        Waiting for bootp reply.
     STPD:      s0(Disabled,Auto-bind)
     Protocol:  Match all unfiltered protocols.
     Loopback:  Disable
     RateShape: Disable
     QosProfile:QP1
     QosIngress:None
     Ports:     72.     (Number of active ports=1)
        Flags: (*) Active, (!) Disabled
               (B) BcastDisabled, (R) RateLimited, (L) Loopback
               (g) Load Share Group
        Untag: *3:1     3:2     3:3     3:4     3:5     3:6     3:7     3:8
                3:9     3:10    3:11    3:12    3:13    3:14    3:15    3:16
                3:17    3:18    3:19    3:20    3:21    3:22    3:23    3:24
                3:25    3:26    3:27    3:28    3:29    3:30    3:31    3:32
                3:33    3:34    3:35    3:36    3:37    3:38    3:39    3:40
                3:41    3:42    3:43    3:44    3:45    3:46    3:47    3:48
                4:1     4:2     4:3     4:4     4:5     4:6     4:7     4:8
                4:9     4:10    4:11    4:12    4:13    4:14    4:15    4:16
                4:17    4:18    4:19    4:20    4:21    4:22    4:23    4:24
```

The following is an example of using the command to show a specific VLAN, *v2*, that contains a port for a load-sharing group that spans multiple modules:

```
VLAN Interface[3-201] with name "v2" created by user
      Tagging:   802.1Q Tag 2
      Priority:  802.1P Priority 7
```

```
        IP:        10.222.0.2/255.255.255.0
        STPD:      s0(Disabled,Auto-bind)
        Protocol:  Match all unfiltered protocols.
        Loopback:  Disable
        RateShape: Disable
        QosProfile:QP1
        QosIngress:IQP1
         Ports:      5.       (Number of active ports=4)
           Flags:  * - Active, ! - Disabled
                    B - BcastDisabled, R - RateLimited, L - Loopback
                  (g) Load Share Group, (c) Cross Module Trunk
           Untag:  *1:25     5:10     5:25     7:25
           Tagged: *5:4c
```

History

This command was first available in ExtremeWare 1.0.

This command was modified to support longer VLAN names in ExtremeWare 6.2.2.

This command was modified to include the Member of STP Domain flag in ExtremeWare 7.0.

This command was modified to support the "3" series modules in ExtremeWare 7.0.1.

This command was modified to include the cross-module trunk flag in ExtremeWare 7.1.1

Platform Availability

This command is available on all platforms.