ExtremeXOS Release Notes

Software Version ExtremeXOS 12.5.4

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1 Overview

CHAPTER

These Release Notes document ExtremeXOS® 12.5.4, which resolves software deficiencies.

This chapter contains the following sections:

Feature Corrections in ExtremeXOS 12.5.4

This section lists the feature corrections supported in ExtremeXOS 12.5.4 software:

- **Secure Shell (SSH) Serialized Licensing and Distribution**—This process is not supported in ExtremeXOS 12.5.4 software.

Feature Corrections in ExtremeXOS 12.5.3

This section lists the feature corrections supported in ExtremeXOS 12.5.3 software:

- **BFD Static Routes—**The Bidirectional Forwarding Detection (BFD) feature can be used to bring down static routes when the host link fails. Without BFD, static routes always remain operationally Up because there is no dynamic routing protocol to report network changes. This can lead to a black hole situation, where data is lost for an indefinite duration. Because upper layer protocols are unaware that a static link is not working, they cannot switch to alternate routes and continue to use system resources until the appropriate timers expire.
- **IGMP Router Alert—**Per the current ExtremeXOS implementation, all IGMPv2 and IGMPv3 messages generated by a switch are sent without the Router Alert option in the IP header. IGMP packets are accepted and processed with or without the Router Alert option in the IP header. The IETF standard (RFC 2236 and RFC 3376) states that IGMPv2 and IGMPv3 messages should be sent with Router Alert Option in the IP header.
- **ELRP Port Shutdown—**When you have configured a switch to automatically disable the port where the looped packet arrived, there may be certain ports that you do not want disabled. You can then create a list of ports that are excluded from this automatic disabling and that will remain enabled. This list can also contain EAPS ring ports. You can also specify that EAPS ring ports are excluded. When this option is selected, the actual EAPS ring ports do not have to be explicitly listed.
- **SNMP INFORM—**This feature allows for confirmation of a message delivery. When an SNMP manager receives an INFORM message from an SNMP agent, it sends a confirmation response back to the agent. If the message has not been received and therefore no response is returned, the INFORM message is resent. You can configure the number of attempts to make and the interval between attempts.
- **Autopolarity for Combo Ports—**Autopolarity is now supported on combo ports. This feature applies to only the 10/100/1000 BASE-T ports on the switch and copper medium on Summit combination ports.

Feature Corrections in ExtremeXOS 12.5.2

This section lists the feature corrections supported in ExtremeXOS 12.5.2 software:

- **Data Center Solutions**—The following section has been added to the "Data Center Solutions" chapter of the *ExtremeXOS Concepts Guide*:
  - Introduction to Data Center Solutions.
- **ELRP Addition**—The following has been added to Appendix D, "Troubleshooting, Example: ELRP on Protocol-based VLANs" of the *ExtremeXOS Concepts Guide*:
  - For ELRP to detect loops on a protocol-based VLAN (other than the protocol any), you need to add the ethertype 0x00bb to the protocol.

    Example

    ```
    # Create VLANs
    create vlan v1
    create vlan v2

    # Protocol filter configuration
    configure vlan v1 protocol IP
    configure vlan v2 protocol decnet
    ```

```
# Add ports to the VLAN
configure vlan v1 add ports 1
configure vlan v2 add ports 2
# Enable ELRP on the create VLANs
enable elrp-client
configure elrp-client periodic v1 ports all interval 5 log
configure elrp-client periodic v2 ports all interval 5 log
# Add the ethertype to the protocol
configure protocol IP add snap 0x00bb
configure protocol decnet add snap 0x00bb
```

VLANs v1 and v2 can then detect the loop on their respective broadcast domains.

- **EPICenter Name Change**—EPICenter is now called Ridgeline. Ridgeline is an Extreme Networks-proprietary graphical user interface (GUI) network management system.
- **EXTREME-SYSTEM-MIB Table Addition**—The following Table/Group has been added to the EXTREME-SYSTEM-MIB Table.
  - extremeImageTable—This table contains image information for all images installed on the device.
- **ExtremeXOS Feature Pack Additions**—The following feature packs have been added to Table 143, ExtremeXOS Feature Pack Features, in Appendix A, of the *ExtremeXOS Concepts Guide*:
  - CNA Feature Pack
  - Legacy CLI Feature Pack
  - SSH Feature Pack
- **Extreme Network Virtualization (XNV) Feature**—The XNV feature is updated in this release to allow you to specify the repository server directory on the FTP server that serves as the repository server. To specify the repository server directory, enter the following command:

  ```
  configure vm-tracking repository [primary | secondary] server [<ipaddress> |
  <hostname>] {vr <vr-name>} {refresh-interval <seconds>} {path-name <path_name>}
  ```

  The path_name specifies the path to the repository server files from the FTP server root directory. The default directory for repository server files is: pub.

  To display the configured repository server directory, use the following command:

  ```
  show vm-tracking repository
  Primary VM-Map FTP server:
       Server name:
       IP address      :   10.100.1.200
       VR Name         :   VR-Mgmt
       Refresh-interval  :   600 seconds
       Path Name         :   pub
  Secondary vm-map FTP server: Unconfigured
  Last sync         : 16:35:15          Last sync server   : Primary
  Last sync status  : Successful
  ```

- **Identity Management Revision**—The following note has been added to Chapter 22, "Identity Management," in the *ExtremeXOS Concepts Guide:*

NOTE

This chapter discusses identity management features that are managed using the switch CLI. Related features are described in other chapters and in the Ridgeline product documentation. For a description of identity management that ties all the related components together, see the application note titled Deploying an Identity Aware Network, which is available from Extreme Networks.

- **Revised QoS Meters Description**—For ExtremeXOS 12.5.2 and later, the description of QoS meters is changed as follows:

  On BlackDiamond® 8800 series switches, SummitStack™, and Summit® family switches that are supported by this software release, meters are a per-VLAN resource. For example, if you assign a 50 Mbps meter to a VLAN, the total throughput for all ports in that VLAN is limited to 50 Mbps. (PD4-1727668151)

- **Secure Shell (SSH) Serialized Licensing and Distribution**—Extreme Networks has enhanced its processes regarding SSH licensing. SSH contains strong encryption algorithms, which heightens the export controls required in the United States and other countries. SSH is now delivered and licensed on a serialized basis, with a separate license key required to activate SSH on each Extreme Networks switch. See the *ExtremeXOS Concepts Guide, Software Version 12.5.2*, for more detailed information.

  For frequently asked questions (FAQs) pertaining to the SSH License Process Change, see Product Change Notice No. 2011002, "ExtremeXOS SSH Process Change" on eSupport.

  https://esupport.extremenetworks.com/eservice_enu/docs/pcn/PCN2011002_EXOS_SSH_Process_Change_TEST.php

- **VM MIBs**—The following VM MIBs are supportecd in ExtremeXOS 12.5.2 and will be added to the EXTREME-VM-MIB table in the next version of the *ExtremeXOS Concepts Guide*:

Table/Group	Supported Variables	Comments
extremeVMFTPServerTable	extremeVMFTPServerEntry	
	extremeVMFTPServerType	The type of the FTP server. The backup server is contacted if the primary fails to respond.
	extremeVMFTPPathName	The FTP server directory name for the policies to be synchronized. A value of '/pub' will be used by default.
extremeVMGeneral	extremeVMLastSynch	The timestamp of the most recent synchronization attempt
	extremeVMSynchAdminState	Triggers a synchronization cycle on demand. A synchronization will automatically download new or updated policies as well as delete policies to match those on the server. idle(1) is returned whenever this object is read. synchronizeNow(2) triggers an immediate synchronization, and will be reflected in extremeVMSynchOperState. Attempts to set this variable to synchronizeNow(2) will be rejected if a synchronization is currently in progress.
	extremeVMSynchOperState	Indicates if a synchronization is in progress, either on-demand or automatic
extremeVMMappingTable		This table contains the mapping of port policies to virtual machine MAC addresses.

Table/Group	Supported Variables	Comments
	extremeVMMappingIngressVPPName	The ingress policy associated with the VM/MAC address. Note that this may refer to a policy without a corresponding entry in the extremeVMVPPTable if a network policy mapping refers to a non-existent policy. This would indicate an error in the policy mapping file that is consulted if network authentication fails. When creating an entry in this table, this name must refer to an existing, valid, local policy. The creation of a mapping to a network policy is not permitted. Those mappings must be created at the central policy server.
	extremeVMMappingEgressVPPName	The egress policy associated with the VM/MAC address. Note that this may refer to a policy without a corresponding entry in the extremeVMVPPTable if a network policy mapping refers to a non-existent policy. This would indicate an error in the policy mapping file that is consulted if network authentication fails. When creating an entry in this table, this name must refer to an existing, valid, local policy. The creation of a mapping to a network policy is not permitted. Those mappings must be created at the central policy server.
extremeVMVPP2PolicyEntry		An individual mapping of VPP to Policy.
	extremeVMVPP2PolicyRowStatus	The row status for this mapping.
extremeVMDetectedEntry		An entry in the table of VM information of this device.
	extremeVMDetectedIngressVPPName	The name of the policy applied (or attempted to apply) to this virtual machine.
	extremeVMDetectedEgressVPPName	The name of the policy applied (or attempted to apply) to this virtual machine.

Table/Group	Supported Variables	Comments
	extremeVMDetectedResultIngress	Indicates the result of a VM entry into the network and indicates whether the policy applied or not in ingress direction policyApplied(1) indicates that the named policy was successfuly applied to the port. policyNotApplied(2) indicates that the named policy was not applied to the port. policyInvalid(3) indicates that the named policy was either invalid or missing, and could not be applied to the port. policyNotFound(4) indicates that the named policy was not found. policyNotMapped(5) indicates that the no policy was mapped to this VM Entry.
	extremeVMDetectedResultEgress	Indicates the result of a VM entry into the network. and indicates whether the policy applied or not in egress direction policyApplied(1) indicates that the named policy was successfuly applied to the port. policyNotApplied(2) indicates that the named policy was not applied to the port. policyInvalid(3) indicates that the named policy was either invalid or missing, and could not be applied to the port. policyNotFound(4) indicates that the named policy was not found. policyNotMapped(5) indicates that the no policy was mapped to this VM Entry.

- **Upgrading ExtremeXOS Software**—The following note has been added to the "Installing a Core Image" section of "Appendx B: Software Upgrade and Boot Options," in the *ExtremeXOS Concepts Guide*.

NOTE

When updating from ExtremeXOS 12.0.x or earlier to ExtremeXOS 12.5.x or later, you must first update to ExtremeXOS 12.3.4 and then update to ExtremeXOS 12.5.x or later.

- **"Using Auto Provision of Edge Switches" Correction**—Paragraph three of the"Using Auto Provision of Edge Switches" section of the *ExtremeXOS Concepts Guide,* page 105, should read:

  A switch enabled with auto provision can be identified as follows:

New Features and Functionality in ExtremeXOS 12.5.1

This section lists the new features and functionality supported in ExtremeXOS 12.5.1 software:

- **ACL Match Condition—**Based on IEEE 802.1p, this feature provides the ability to create an access list (ACL) based on VLAN tag priority information.
- **Access Profile Logging—**This feature provides ACL support for traffic reaching the following applications: SNMP, Telnet, SSH2, and HTTP/HTTPS. This is in addition to using policy files to add ACLs.
- **Auto Provisioning for Edge Switches—**This feature allows for the configuration of certain parameters on a switch automatically using DHCP and TFTP servers. This process can make an Extreme Networks switch ready to do the initial provisioning without any manual intervention.
- **"check firmware version" CLI Command for the BlackDiamond 20800 Series Switch—**Use the new `check firmware version` command to check whether any upgrade is to be done to any of the uC or FPGAs. If an upgrade is required, the output shows the running and expected versions for the boards. If there is no upgrade required, the same is printed. Refer to the *ExtremeXOS Command Reference Guide* for more details.
- **CLEAR-Flow Support—**CLEAR-Flow is now supported on BlackDiamond 20800 series switches.
- **Direct Attach—**The direct attach feature is a port configuration feature that supports VM-to-VM communication on a directly connected server that uses the Virtual Ethernet Port Aggregator (VEPA) feature on that server. Without VEPA and direct attach, a VM server must use a virtual Ethernet bridge or switch on the VM server to enable Ethernet communications between VMs. With VEPA and direct attach, the VM server can rely on a directly connected switch to receive and reflect VM-to-VM messages between VMs on the same server.
- **Distributed IP ARP Mode for BlackDiamond 8800 Series Switches**—This feature increases the IPv4 ARP limit from 16,000 up to a maximum of 260,000 on a BlackDiamond 8800 series switch. The actual limit depends on the number and types of modules present on a BlackDiamond 8810 or BlackDiamond 8806 switch.
- **DDMI Optics—**Digital Diagnostic Monitoring Interface (DDMI) optics provide critical information about the installed Gigabit and 10 Gigabit optical transceiver modules.
- **EAPS and PBB Redundant Access—**EAPS now recognizes an SVLAN or CVLAN to BVLAN mapping and makes the BVLAN facing port the Active-Open port, which keeps the link to the core forwarding when the shared-port goes down.
- **EAPS Priority Domains—**EAPS now supports high and normal priority domains, allowing you to give priority response to the most important protected VLANs if a ring fault occurs.
- **EAPS Secondary Control Port—**The EAPS hello packet period now supports more values (`configure eaps hellotime`), and the software supports transmission of hello PDUs out of the secondary port (`configure eaps hello-pdu-egress`). Secondary port hello PDU transmission is provided for special circumstances; Extreme Networks recommends the default configuration, primary port hello PDU transmission.
- **Enable and Disable DHCP/BOOTP Relay per VLAN—**Currently you can enable and disable

  BOOTP relay only on a virtual router (VR), which means the DHCP is enabled or disabled on all VLANs on that VR. With ExtremeXOS 12.5.1, you can enable or disable BOOTP relay a VR or on individual VLANs.
- **Enable and Disable SNMP per Virtual Router—**To provide SNMP support based on a virtual router, the existing enable/disable SNMP access CLI commands have been modified. These commands now include a VR option. SNMP access is enabled by default on all VRs. If SNMP access is disabled on a VR, the incoming SNMP request is dropped and an EMS log message is displayed.

- **Extreme Network Virtualization (XNV)—**The Extreme Network Virtualization (XNV) feature, which is also known as Virtual Machine (VM) tracking, supports VM port movement, port configuration for VMs, and VM inventory on network switches. The XNV feature enables a switch to configure switch ports in response to VM detection and port movement and report VM activity to network management software.
- **FDB Entry Statistics—**The `show fdb stats` command has been updated to display information that is dynamically updated. A `no-refresh` option is provided for those who prefer the static display.
- **Identity Management, Phase 2—**The identity management feature has been extended to support identity authentication through a RADIUS server or local database. As part of the authentication, identities can be associated with hierarchical roles, to which policies or dynamic ACL rules are attached. These policies and rules can be used to configure port settings for the discovered identity.
- **IP ARP Entry Statistics—**The `show iparp stats` command has been added to display IP ARP statistics in a display that is dynamically updated. Statistics can be displayed for VRs, ports, or VLANs.
- **IPFIX Protocol Support—**The IP Flow Information Export (IPFIX) protocol captures information about traffic flows passing through network elements in a data network and sends the information to an external collector.
- **IP Multicast Scaling Enhancement—**To support more IP multicast (IPMC) FDB entries, BlackDiamond 8900 series modules with external tables can now be configured to support additional IPMC FDB entries. This feature is configured with the `configure forwarding external-tables` command.
- **LAG Port Selection—**This feature allows you to apply an ACL that causes matching packets to egress a specific port in a link aggregation (or load-sharing) group.
- **Login Banner Enhancements—**A user configurable banner can now be displayed after a successful login. Enhancements for banners used with network login have also been added.
- **MIB Support for Extreme Target Address MIB—**Support for the VR option has been added to the Extreme target-addr MIB.
- **Mirroring Scaling—**On all ExtremeXOS platforms, the maximum number of mirroring filters has been increased from 16 to 128. The maximum number of VLAN or virtual ports filters remains at 16. If there are no configured VLAN or virtual port filters, 128 ports can be mirrored. If you have the maximum of 16 VLAN or virtual ports filters configured, 112 ports (128-16) can be configured.
- **MLAG Switch Support—**The multi-switch link aggregation group (MLAG) feature allows you to combine ports on two switches to form a single logical connection to another network device. The other network device can be either a server or a switch and is separately configured with a regular LAG (or appropriate server port teaming) to form the port aggregation. The basic operation of this feature requires two ExtremeXOS switches interconnected by an inter-switch connection (ISC).
- **MPLS Support on BlackDiamond 8800 Series Switches**—Multiprotocol Label Switching (MPLS) is now supported on BlackDiamond 8800 series switches that contain only certain BlackDiamond 8900 series modules: 8900-10G8X-xl, 8900-G48T-xl, 8900-G48X-xl with MSM 8900-MSM128. Be sure to read the *ExtremeXOS Concepts Guide*, as this feature is only supported when the proper hardware, software, and feature pack is installed.
- **MPLS Support on Summit X460 and X480 Switches—**MPLS is now also supported on Summit X460 and X480 switches. Be sure to read the *ExtremeXOS Concepts Guide*, as this feature is only supported when the proper hardware, software, and feature pack is installed.
- **Packet Buffer Configuration—**This feature provides more efficient buffer usage and more control of buffer usage on select BlackDiamond 8000 series modules and Summit family switches. Control is implemented through the `configure port shared-packet-buffer` command.
- **Power over Ethernet plus (PoE+)—**PoE+ (IEEE 802.3at) has been implemented and supports up to 30W at the power sourcing equipment.

- **Priority Flow Control—**This feature provides the functionality to allow traffic associated with certain priorities to be paused while traffic associated with other priorities on the same port continues to flow.
- **Round Robin LAG—**The round robin algorithm is used to select a member from a LAG to route a packet rather than using a hash algorithm that is based on the L2/l3 address fields of the packet.
- **"show tech" Command Enhancements—**The commands `show management` and `ls internal-memory` have been added to the output of the `show tech` command.
- **SummitStack-V—**This feature uses 10 Gb or faster switch ports as stacking ports, which allows greater cable distances between stacking nodes and allows a stack to span between racks, building floors, or buildings.
- **SyncE**—Synchronous Ethernet (SyncE) allows the hardware to synchronize the clock time that is used for data transmission to a reference clock. The primary reference clock comes from a base station controller.
- **Tunable DWDM—**Tunable Dense Wavelength Division Multiplexing (DWDM) allows you to configure a DWDM channel to a DWDM capable XFP module on a port, providing the capability to multiplex 40x10G traffic over a single fiber. Supported on Summit X480 series switches, BlackDiamond 20800 series switches, and BlackDiamond 8800 series switches.
- **Virtual Router Scaling—**The software now supports Virtual Router and Forwarding instances (VRFs), which are an extension of the VR feature. VRFs function as children of VRs and support many more VR instances than previously provided by the VR feature.
- **VLAN Statistics Support for BlackDiamond 8800 Series Switches and Summit Family Switches—**Support for VLAN statistics is based on the current implementation of VLAN statistics on the BlackDiamond 12800 series switch. Statistics gathering is initiated through the *configure ports [<port_list>| all] monitor vlan <vlan_name>* CLI command. Packet and byte counters are displayed on a per-port per-VLAN basis using the *show ports {<port_list>} vlan statistics {no-refresh}* CLI command or through SNMP Gets.
- **VPLS MIB Enhancement for EPICenter**—ExtremeXOS 12.5.1 introduces new VPLS MIBs for EPICenter.
- **Virtual Router Support for OSPFv3 and RIPng—**IPv6 unicast routing protocols (OSPFv3 and RIPng) are now supported in user created virtual routers (VRs).
- **Wide Key ACL—**This feature allows the use of a 362-bit double wide match key instead of a standard 181-bit single wide key to be used with match conditions. It allows you to add more match conditions to an ACL and also allows matching on a full destination-source IPv6 address.

New Hardware Supported in ExtremeXOS 12.5.4

No new hardware support is being introduced in ExtremeXOS 12.5.4.

New Hardware Supported in ExtremeXOS 12.5.3

The following modules are supported in ExtremeXOS 12.5.3:

- Summit X480
  - VIM2-SummitStack-V80
- 8500-MSM24, MSM-48c, 8900-MSM128
  - S-10G2Xc

New Hardware Supported in ExtremeXOS 12.5.2

No new hardware support is being introduced in ExtremeXOS 12.5.2.

New Hardware Supported in ExtremeXOS 12.5.1

The following modules are supported in ExtremeXOS 12.5.1:

- BlackDiamond 20800 Series Switch
  - HM-2X24GA I/O module
- Summit X450e
  - Summit X450e-24t

Summit X450e-48t

- Summit X460
  - Summit X460-24x
  - Summit X460-24t
  - Summit X460-24p
  - Summit X460-48x
  - Summit X460-48t
  - Summit X460-48p

Hardware No Longer Supported

The following hardware is no longer supported in ExtremeXOS 12.5.1:

- BlackDiamond 8800 original series modules:
  - G48T
  - G48P
  - G24X
  - 10G4X
- Summit family switches
  - Summit X450-24x
  - Summit X450-24t
  - XGM-2xn module

Supported Hardware

Refer to the Extreme Networks hardware installation guides for more information about supported hardware. The following tables list the software filenames for the hardware that requires software.

BlackDiamond 8800 Series of Switches Component Support

BlackDiamond 8800 and BlackDiamond 8806 components supported with ExtremeXOS 12.5, and the minimum BootROM version required by the chassis to support each component, include:

Table 1: BlackDiamond 8800 Series of Switches Component Support

BlackDiamond 8810 and BlackDiamond 8806 Components	ExtremeXOS Filenames	ExtremeXOS Required	BootROM Version
MSM-G8X	bd8800-12.5.4.5.xos	11.1.1.9	1.0.1.7
MSM-48	bd8800-12.5.4.5.xos	11.6.1.9	1.0.1.11
MSM-48c	bd8800-12.5.4.5.xos	12.1.1.4	1.0.3.7
8500-MSM24	bd8800-12.5.4.5.xos	12.3.1	1.0.4.2
8500-G48T-e	N/A	12.3.1	1.0.4.0
8500-G24X-e	N/A	12.3.1	1.0.4.0
8900-MSM128	bd8800-12.5.4.5.xos	12.3.1	1.0.4.2
8900-10G24X-c	N/A	12.3.1	1.0.1.0
8900-G96T-c	N/A	12.3.2	1.0.1.0
8900-G48X-xl	N/A	12.4.1	1.0.1.2
8900-G48T-xl	N/A	12.4.1	1.0.1.2
8900-10G8X-xl	N/A	12.4.1	1.0.1.2
G48Te	N/A	11.5.1.4	1.0.1.10
G48Pe	N/A	11.5.1.4	1.0.1.10
G48Ta	N/A	11.5.1.4	1.0.1.10
G48Xa	N/A	11.5.1.4	1.0.1.10
G48Tc	N/A	12.1.1.4	1.0.3.7
G48Te2	N/A	12.1.1.4	1.0.3.7
G48Xc	N/A	12.1.1.4	1.0.3.7
G24Xc	N/A	12.1.1.4	1.0.3.7
S-G8Xc	N/A	12.1.1.4	1.0.3.7
10G4Xa	N/A	11.6.1.9	1.0.1.11
10G4Ca	N/A	12.0.1.11	1.0.1.11
10G4Xc	N/A	12.1.1.4	1.0.3.7
10G8Xc	N/A	12.1.1.4	1.0.3.7
S-10G1Xc	N/A	12.1.1.4	1.0.3.7
S-10G2Xc	N/A	12.5.3.9	1.0.3.9
PSU Controller	N/A	11.1.1.9	2.13
700/1200 W AC PSU (Model # 60020/PS 2336)	N/A	11.1.1.9	N/A

Table 1: BlackDiamond 8800 Series of Switches Component Support (Continued)

BlackDiamond 8810 and BlackDiamond 8806 Components	ExtremeXOS Filenames	ExtremeXOS Required	BootROM Version
600/900 W AC PSU (Model # 41050/PS 2431) (BlackDiamond 8806 only)	N/A	11.6.1.9	N/A
1200 W DC PSU (Model # 60021/PS 2350)	N/A	11.3.2.6	N/A

NOTE

Upgrading the BootROM on a BlackDiamond 8810 or BlackDiamond 8806 switch is not automatic when software is upgraded. The user must be running the minimum required BootROM version or later. Use the install firmware command after upgrading the ExtremeXOS image to insure the BootROM is at the latest level.

BlackDiamond 10808 Switch Component Support

BlackDiamond 10808 components supported with ExtremeXOS 12.5, and the minimum ExtremeXOS version required by the chassis to support each component, include:

Table 2: BlackDiamond 10808 Component Support

BlackDiamond Component	ExtremeXOS Filenames	ExtremeXOS Required	BootROM Version
MSM-1	bd10k-12.5.4.5.xos	10.1.0	1.0.1.5
MSM-1XL	bd10k-12.5.4.5.xos	10.1.0	1.0.1.5
10G2X	N/A	11.1.1	1.3.0.0
10G2H	N/A	11.2.0	1.3.0.0
10G6X	N/A	10.1.0	1.3.0.0
G20X	N/A	11.1.1	1.3.0.0
G60X	N/A	10.1.0	1.3.0.0
G60T	N/A	10.1.0	1.3.0.0
PSU Controller	N/A	10.1.0	N/A
700/1200 W AC PSU (Model # 60020/PS 2336)	N/A	10.1.0	N/A
1200 W DC PSU (Model # 60021 PS 2350)	N/A	11.3.2.6	N/A

Following are the part numbers for the BlackDiamond 10808 modules with the Rev. D ASIC:

Table 3: BlackDiamond 10808 I/O Modules with Part Numbers

I/O Module	8000 Level Part No.	9000 Level Part No.	Description	ExtremeXOS Required
G60T	804403-00, after Rev. 16	904015-00	BlackDiamond 10808 60-port 10/100/1000BASE-T RJ-45 Module	11.2.1.3
	804408-00, after Rev. 03	904015-10	BlackDiamond 10808 60-port 10/100/1000BASE-T RJ-45 Module	11.2.1.3
G60X	804402-00, after Rev. 16	904009-00/11	BlackDiamond 10808 60-port 1000BASE-X SFP (mini-GBIC) Module	11.2.1.3
	804404-00, after Rev. 03	904009-10	BlackDiamond 10808 60-port 1000BASE-X SFP (mini-GBIC) Module	11.2.1.3
G20X	804407-00, after Rev. 03	904020-10	BlackDiamond 10808 20-port 1000BASE-X SFP (mini-GBIC) Module	11.2.1.3
	804470-00, after Rev. 08	904020-00/11	BlackDiamond 10808 20-port 1000BASE-X SFP (mini-GBIC) Module	11.2.1.3
10G2X	804410-00, after Rev. 03	904032-10	BlackDiamond 10808 2-port 10GBASE-X XENPAK Module	11.2.1.3
	804471-00, after Rev. 11	904032-00/11	BlackDiamond 10808 2-port 10GBASE-X XENPAK Module	11.2.1.3
10G2H	804406-00, after Rev. 09	904027-00/11	BlackDiamond 10808 Hybrid Module (2-port 10GBASE-X XENPAK, 20-port 1000BASE-X SFP, 20-port 10/100/1000BASE-T RJ-45)	11.2.1.3
	804411-00, after Rev. 03	904027-10	BlackDiamond 10808 Hybrid Module (2-port 10GBASE-X XENPAK, 20-port 1000BASE-X SFP, 20-port 10/100/1000BASE-T RJ-45)	11.2.1.3
10G6X	804405-00, after Rev. 18	904016-00/11	BlackDiamond 10808 6-port 10GBASE-X XENPAK Module	11.2.1.3
	804409-00, after Rev. 03	904016-10	BlackDiamond 10808 6-port 10GBASE-X XENPAK Module	11.2.1.3

BlackDiamond 12800 Series Switches Component Support

BlackDiamond 12802, BlackDiamond 12804, BlackDiamond 12802 R-Series, and BlackDiamond 12804 R-Series components supported with ExtremeXOS 12.5, and the minimum BootROM version required by the chassis to support each component, include:

Table 4: BlackDiamond 12800 Series Switches Component Support

BlackDiamond 12802/12804 Components	ExtremeXOS Filenames	ExtremeXOS Required	BootROM Version
MSM-5R (BlackDiamond 12804)	bd12k-12.5.4.5.xos	11.4.1.4	1.0.0.2
MSM-5 (BlackDiamond 12804)	bd12k-12.5.4.5.xos	11.4.1.4	1.0.0.2
MSM-5 (BlackDiamond 12802)	bd12k-12.5.4.5.xos	12.0.1.11	1.0.0.2
MSM-6R	bd12k-12.5.4.5.xos	12.0.2.25	1.0.1.8
MSM-5R (BlackDiamond 12802)	bd12K-12.5.4.5.xos	12.0.1.11	1.0.0.2
XM-2X	N/A	12.3.1	N/A
XM-2XR	N/A	11.4.1.4	N/A
XM-2HR	N/A	12.1.1.4	N/A

Table 4: BlackDiamond 12800 Series Switches Component Support (Continued)

BlackDiamond 12802/12804 Components	ExtremeXOS Filenames	ExtremeXOS Required	BootROM Version
GM-20XTR	N/A	11.4.1.4	N/A
GM-20XT	N/A	11.4.1.4	N/A
GM-20T	N/A	11.4.1.4	N/A
PSU Controller	N/A	11.4.1.4	2.13
700/1200 W AC PSU (Model # 60020/PS 2336)	N/A	11.4.1.4	N/A
1200 W DC PSU (Model # 60021/PS 2350)	N/A	11.4.1.4	N/A

BlackDiamond 20800 Series Switch Component Support

BlackDiamond 20800 series switch components supported with ExtremeXOS 12.5, and the firmware version required by the software to support each component, include:

Table 5: BlackDiamond 20800 Series Switch Component Support

BlackDiamond 20800 Components	ExtremeXOS Filenames	ExtremeXOS Required	Firmware Version Required with ExtremeXOS 12.5.3
GM-40X	N/A	12.3.2	
uC			2.9
FPGA: A			0.1.7
FPGA: P			0.0.6
FPGA: T1			0.0.11
FPGA: W1 & W2			0.0.d
BootROM			0.3.5
HM-2X24GA	N/A	12.5.1	
uC			2.9
FPGA: A			0.1.7
FPGA: P			0.0.6
FPGA: T1			0.0.5
FPGA: W1			0.0.4
FPGA: D1			0.0.b
BootROM			0.3.5
XM-8X	N/A	12.3.2	
uC			3.0
FPGA: A			0.1.7
FPGA: P			0.0.6
FPGA: D1 and D2 (manual upgrade)			0.0.b
FPGA: T1 & T2			0.0.11
FPGA: WH			0.0.9
BootROM			0.3.5
XFM-1 (shown as Fabric-1 through Fabric-5) (BlackDiamond 20808)	N/A	12.3.2	
uC			2.9
XFM-2 (shown as Fabric-1 through Fabric-5) (BlackDiamond 20804)	N/A	12.4.1	
uC			2.9

Table 5: BlackDiamond 20800 Series Switch Component Support (Continued)

BlackDiamond 20800 Components	ExtremeXOS Filenames	ExtremeXOS Required	Firmware Version Required with ExtremeXOS 12.5.3
MM Basic	bd20k-12.5.4.5.xos	12.3.2	
uC			2.9
FPGA: S			0.3.e
BootROM			0.2.1
PSUCTRL			3.0
Fan Tray (BlackDiamond 20808)	N/A	12.3.2	
uC (shown as “Revision”)			2.9
Fan Tray (BlackDiamond 20804)	N/A	12.4.1	
uC (shown as “Revision”)			2.9

NOTE

Use the `check firmware version` command to verify that all components on the BlackDiamond 20800 series switches (I/O modules, fans, and so on) are running the latest version of ExtremeXOS firmware. If the command output shows that one or more component is not running the latest firmware, use the `install firmware` command to update all down level components. Be sure to run the `show slot`, `show fans`, `show power`, and `show fabric` commands to verify that all components are installed and operational before attempting to upgrade or downgrade the switch firmware.

Summit X150 and X350 Component Support

Summit X150 and X350 series components supported with ExtremeXOS 12.5, and the minimum BootROM version required by the switch to support each component, include:

Table 6: Summit X150 and X350 Component Support

Summit X150 and X350 Components	ExtremeXOS Filenames	Minimum ExtremeXOS Required	Minimum BootROM Version
Summit X150-24t	summitX-12.5.4.5.xos	12.0.2.25	1.0.3.1
Summit X150-48t	summitX-12.5.4.5.xos	12.0.2.25	1.0.3.1
Summit X150-24p	summitX-12.5.4.5.xos	12.0.2.25	1.0.3.1
Summit X350-24t	summitX-12.5.4.5.xos	12.0.3.16	1.0.3.1
Summit X350-48t	summitX-12.5.4.5.xos	12.0.3.16	1.0.3.1
XGM2-2xf (Summit X350 only)	summitX-12.5.4.5.xos	12.1.2	N/A
XGM2-2sf (Summit X350 only)	summitX-12.5.4.5.xos	12.2.1	N/A
XGM2-2bt (Summit X350 only)	summitX-12.5.4.5.xos	12.2.1	N/A

Summit X250e Component Support

Summit X250e components supported with ExtremeXOS 12.5, and the minimum BootROM version required by the switch to support each component, include

Table 7: Summit X250e Component Support

Summit X250 Components	ExtremeXOS Filenames	Minimum ExtremeXOS Required	Minimum BootROM Version
Summit X250e-24p	summitX-12.5.4.5.xos	12.0.1.11	1.0.3.0
Summit X250e-48p	summitX-12.5.4.5.xos	12.0.1.11	1.0.3.0
Summit X250e-24t	summitX-12.5.4.5.xos	12.0.1.11	1.0.3.0
Summit X250e-48t	summitX-12.5.4.5.xos	12.0.1.11	1.0.3.0
Summit X250e-24x	summitX-12.5.4.5.xos	12.0.2.25	1.0.3.1
Summit X250e-24tDC	summitX-12.5.4.5.xos	12.0.3.16	1.0.3.1
Summit X250e-24xDC	summitX-12.5.4.5.xos	12.0.3.16	1.0.3.1
Summit X250e-48tDC	summitX-12.5.4.5.xos	12.0.3.16	1.0.3.1

Summit X450a and X450e Component Support

Summit X450a and X450e components supported with ExtremeXOS 12.5, and the minimum BootROM version required by the switch to support each component, include:

Table 8: Summit X450a and X450e Component Support

Summit X450a and X450e Components	ExtremeXOS Filenames	Minimum ExtremeXOS Required	Minimum BootROM Version
Summit X450a Series			
Summit X450a-48t	summitX-12.5.4.5.xos	11.5.1.4	1.0.2.2
Summit X450a-48tDC	summitX-12.5.4.5.xos	11.6.1.9	1.0.2.2
Summit X450a-24t	summitX-12.5.4.5.xos	11.5.1.4	1.0.2.2
Summit X450a-24tDC	summitX-12.5.4.5.xos	11.5.1.4	1.0.2.2
Summit X450a-24xDC	summitX-12.5.4.5.xos	11.6.1.9	1.0.2.2
Summit X450a-24x	summitX-12.5.4.5.xos	11.6.1.9	1.0.2.2
Summit X450e Series			
Summit X450e-24p	summitX-12.5.4.5.xos	11.5.1.4	1.0.2.2
Summit X450e-48p	summitX-12.5.4.5.xos	11.6.1.9	1.0.2.2
Summit X450e-24t	summitX-12.5.4.5.xos	12.5.1	1.0.5.6
Summit X450e-48t	summitX-12.5.4.5.xos	12.5.1	1.0.5.6
Option Cards			
XGM2-2xn (Summit X450a and X450e series only)	summitX-12.5.4.5.xos	11.5.1.4	N/A
XGM2-2xf (Summit X450a and X450e series only)	summitX-12.5.4.5.xos	11.5.1.4	N/A

Table 8: Summit X450a and X450e Component Support (Continued)

Summit X450a and X450e Components	ExtremeXOS Filenames	Minimum ExtremeXOS Required	Minimum BootROM Version
XGM2-2sf (Summit X450a and X450e series only)	summitX-12.5.4.5.xos	12.2.1	N/A
XGM2-2bt (Summit X450a and X450e series only)	summitX-12.5.4.5.xos	12.2.1	N/A

Summit X460 Component Support

Summit X460 components supported with ExtremeXOS 12.5, and the minimum BootROM version required by the chassis to support each component, include:

Table 9: Summit X460 Component Support

Summit X460 Components	ExtremeXOS Filenames	Minimum ExtremeXOS Required	Minimum BootROM Version
Summit X460-24x	summitX-12.5.4.5.xos	12.5.1	2.0.1.0
Summit X460-24t	summitX-12.5.4.5.xos	12.5.1	2.0.1.0
Summit X460-24p	summitX-12.5.4.5.xos	12.5.1	2.0.1.0
Summit X460-48x	summitX-12.5.4.5.xos	12.5.1	2.0.1.0
Summit X460-48t	summitX-12.5.4.5.xos	12.5.1	2.0.1.0
Summit X460-48p	summitX-12.5.4.5.xos	12.5.1	2.0.1.0
Option Cards and Stacking Modules			
XGM3-2sf	summitX-12.5.4.5.xos	12.5.1	N/A
SummitStack	summitX-12.5.4.5.xos	12.5.1	2.0.1.0
SummitStack-V80	summitX-12.5.4.5.xos	12.5.1	2.0.1.0

Summit X480 Component Support

Summit X480 components supported with ExtremeXOS 12.5, and the minimum BootROM version required by the chassis to support each component, include:

Table 10: Summit X480 Component Support

Summit X480 Components	ExtremeXOS Filenames	Minimum ExtremeXOS Required	Minimum BootROM Version
Summit X480-24x	summitX-12.5.4.5.xos	12.4.1	2.0.0.9
Summit X480-48x	summitX-12.5.4.5.xos	12.4.1	2.0.0.9
Summit X480-48t	summitX-12.5.4.5.xos	12.4.1	2.0.0.9
VIM2-SummitStack	summitX-12.5.4.5.xos	12.4.1	N/A
VIM2-SummitStack-V80	summitX-12.5.4.5.xos	12.5.3	N/A
VIM2-SummitStack128	summitX-12.5.4.5.xos	12.4.1	N/A
VIM2-10G4X	summitX-12.5.4.5.xos	12.4.1	N/A

Summit X650 Component Support

Summit X650 components supported with ExtremeXOS 12.5, and the minimum BootROM version required by the chassis to support each component, include:

Table 11: Summit X650 Component Support

Summit X650 Components	ExtremeXOS Filenames	Minimum ExtremeXOS Required	Minimum BootROM Version
Summit X650-24x	summitX-12.5.4.5.xos	12.3.1	1.0.5.5
Summit X650-24t	summitX-12.5.4.5.xos	12.3.1	1.0.5.5
VIM1-SummitStack	summitX-12.5.4.5.xos	12.3.1	N/A
VIM1-10G8X	summitX-12.5.4.5.xos	12.3,.1	N/A
VIM1-SummitStack256	summitX-12.5.4.5.xos	12.4.1	N/A
VIM1-SummitStack512	summitX-12.5.4.5.xos	12.3.3	N/A

NOTE

Upgrading the BootROM on Summit family switches is not automatic when software is upgraded. The user must be running the minimum required BootROM version. Use the `download bootrom` command to download a BootROM image.

SFP (Mini-GBIC) Support

SFPs supported on the BlackDiamond 8810 and BlackDiamond 8806 switches with ExtremeXOS 12.5, and the minimum ExtremeXOS version required, include:

Table 12: BlackDiamond 8800 Series of Switches SFP Support

SFP	ExtremeXOS Required
1000BASE-T SFP	11.1.1.9
SX SFP	11.1.1.9
LX SFP	11.1.1.9
ZX SFP	11.1.1.9
100FX/1000LX SFP	11.3.1.3
100FX SFP	11.4.3.4 or 11.5.2.10 (not supported in 11.5.1.4)
1000BX SFP	11.4.1.4
LX100 SFP	12.0.1.11
10/100/1000BASE-T Copper SFP	12.0.2.25

Table 13: BlackDiamond 8800 Series of Switches SFP+ Support

SFP	ExtremeXOS Required
ER SFP+	12.3.3
SR SFP+	12.3.1

Table 13: BlackDiamond 8800 Series of Switches SFP+ Support (Continued)

SFP	ExtremeXOS Required
LR SFP+	12.3.1
SFP+ twin coax cable	12.3.1

SFPs supported on the BlackDiamond 10808 switch with ExtremeXOS 12.5, and the minimum ExtremeXOS version required, include:

Table 14: BlackDiamond 10808 Switch SFP Support

SFP	ExtremeXOS Required
LX100 SFP	12.0.1.11
SX SFP	10.1.0
LX SFP	10.1.0
ZX SFP	10.1.0
1000BASE-T SFP	11.1.1.9
1000BX SFP	11.6.1.9

SFPs supported on the BlackDiamond 12804 switch with ExtremeXOS 12.5, and the minimum ExtremeXOS version required, include:

Table 15: BlackDiamond 12804 Switch SFP Support

SFP	ExtremeXOS Required
SX SFP	11.4.1.4
LX SFP	11.4.1.4
ZX SFP	11.4.1.4
1000BASE-T SFP	11.4.1.4
1000BX SFP	11.6.1.9
LX100 SFP	12.0.1.11
100FX/1000LX SFP	11.6.1.9

SFPs supported on the BlackDiamond 12802 switch with ExtremeXOS 12.5, and the minimum ExtremeXOS version required, include:

Table 16: BlackDiamond 12802 Switch SFP Support

SFP	ExtremeXOS Required
SX SFP	12.0.1.11
LX SFP	12.0.1.11
ZX SFP	12.0.1.11
1000BASE-T SFP	12.0.1.11
1000BX SFP	12.0.1.11
LX100 SFP	12.0.1.11
100FX/1000LX SFP	12.0.1.11

SFPs supported on the BlackDiamond 20800 switch with ExtremeXOS 12.5, and the minimum ExtremeXOS version required, include:

Table 17: BlackDiamond 20800 Switch SFP Support

SFP	ExtremeXOS Required
SX SFP	12.2
LX SFP	12.2
ZX SFP	12.2
LX100	12.2
BXU	12.2
BXD	12.2

SFPs supported on the Summit X150 series switches with ExtremeXOS 12.5, and the minimum ExtremeXOS version required, include:

Table 18: Summit X150 Series Switches SFP Support

SFP	ExtremeXOS Required
100BASE-FX (P/N 10067)	12.0.2.25
100BASE-BX SFP	12.0.2.25
100BASE LX10 SFP	12.0.2.25
SX SFP	12.0.2.25
LX SFP	12.0.2.25
ZX SFP	12.0.2.25
LX100 SFP	12.0.2.25
1000BX SFP	12.0.2.25

SFPs supported on the Summit X250e switch with ExtremeXOS 12.5, and the minimum ExtremeXOS version required, include:

Table 19: Summit X250e SFP Support

SFP	ExtremeXOS Required
SX SFP, ports 25 and 26	12.0.2.25
LX SFP, ports 25 and 26	12.0.2.25
ZX SFP, ports 25 and 26	12.0.2.25
LX100 SFP, ports 25 and 26	12.0.2.25
1000BX SFP, ports 25 and 26	12.0.2.25
100BASE FX SFP (P/N 10067), ports 1 through 26	12.0.2.25
100BASE BX SFP, ports 1 through 26	12.0.2.25
100BASE LX10 SFP, ports 1 through 26	12.0.2.25

SFPs supported on the Summit X350 series switches with ExtremeXOS 12.5, and the minimum ExtremeXOS version required, include:

NOTE

The XGM2-2sf ports are 10Gb SFP+ ports and do not support 1-Gb optics (PD4-739782255).

Table 20: Summit X350 Series Switches SFP/SFP+ (XGM2-2sf Option Card Required) Support

SFP	ExtremeXOS Required
SX SFP	12.0.3.16
LX SFP	12.0.3.16
ZX SFP	12.0.3.16
LX100 SFP	12.0.3.16
1000BX SFP	12.0.3.16
ER SFP+	12.3.3
SR SFP+	12.2.1
LR SFP+	12.2.1
SFP+ twin coax cables	12.2.1

SFPs supported on the Summit X450a switch with ExtremeXOS 12.5, and the minimum ExtremeXOS version required, include:

NOTE

The XGM2-2sf ports are 10-Gb SFP+ ports and do not support 1-Gb optics (PD4-739782255).

Table 21: Summit X450a Switch SFP/SFP+ (XGM2-2sf Option Card Required) Support

SFP	ExtremeXOS Required
10/100/1000BASE-T Copper SFP **Note**: Not supported on combo ports.	12.0.2.25
SX SFP	11.2.2.4
LX SFP	11.2.2.4
ZX SFP	11.2.2.4
ER SFP+	12.3.3
SR SFP+	12.2.1
LR SFP+	12.2.1
SFP+ twin coax cables	12.2.1
100FX SFP (P/N 10063) **Note**: Not supported on combo ports.	11.6.1.9

Table 21: Summit X450a Switch SFP/SFP+ (XGM2-2sf Option Card Required) Support

SFP	ExtremeXOS Required
100FX/1000LX SFP • Summit X450a-24x, ports 1 through 20 **Note**: Not supported on combo ports.	11.6.1.9
LX100 SFP	12.0.1.11
1000BX SFP	11.6.1.9

SFPs supported on the Summit X450e switch with ExtremeXOS 12.5, and the minimum ExtremeXOS version required, include:

NOTE

The XGM2-2sf ports are 10-Gb SFP+ ports and do not support 1-Gb optics (PD4-739782255).

Table 22: Summit X450e Switch SFP/SFP+ (XGM2-2sf Option Card Required) Support

SFP	ExtremeXOS Required
SX SFP	11.6.1.9
LX SFP	11.6.1.9
ZX SFP	11.6.1.9
LX100 SFP	12.0.1.11
1000BX SFP	11.6.1.9
ER SFP+	12.3.3
SR SFP+	12.2.1
LR SFP+	12.2.1
SFP+ twin coax cables	12.2.1

SFPs supported on the Summit X460 switch with ExtremeXOS 12.5, and the minimum ExtremeXOS version required, include:

Table 23: Summit X460 SFP/SFP+ (XGM3-2sf Option Cared Required) Support

SFP	ExtremeXOS Required
1000BASE-SX SFP	12.5.1
1000BASE-LX SFP	12.5.1
1000BASE-ZX SFP	12.5.1
1000BASE-BX SFP BX-D	12.5.1
1000BASE-BX SFP BX-U	12.5.1
LX100 SFP	12.5.1
10/100/1000BASE-T SFP	12.5.1
100BASE-BX SFP BX-D	12.5.1
100BASE-BX SFP BX-U	12.5.1
100BASE-FX/1000BASE-LX SFP	12.5.1
10GBASE-ER SFP+	12.5.1

Table 23: Summit X460 SFP/SFP+ (XGM3-2sf Option Cared Required) Support (Continued)

SFP	ExtremeXOS Required
10GBASE-SR SFP+	12.5.1
10GBASE-LR SFP+	12.5.1
100BASE-FX SFP	12.5.1
100BASE-LX10 SFP	12.5.1
100BASE-FX SFP	12.5.1

SFPs supported on the Summit X480 switch with ExtremeXOS 12.5, and the minimum ExtremeXOS version required, include:

Table 24: Summit X480 SFP Support

SFP	ExtremeXOS Required
SX mini-GBIC	12.4.1
LX mini-GBIC	12.4.1
ZX mini-GBIC	12.4.1
1000BASE-BX mini-GBIC BX-D	12.4.1
1000BASE-BX mini-GBIC BX-U	12.4.1
100BASE-BX mini-GBIC BX-D	12.4.1
100BASE-BX mini-GBIC BX-U	12.4.1
100BASE LX10 mini-GBIC	12.4.1
100BASE FX mini-GBIC module	12.4.1
LX100 mini-GBIC module	12.4.1
100 FX/1000LX mini-GBIC, not supported on combo ports	12.4.1
100FX mini-GBIC module, not supported on combo ports	12.4.1
10/100/1000BASE-T mini-GBIC, not supported on combo ports	12.4.1

SFPs supported on the Summit X650 series switches with ExtremeXOS 12.5, and the minimum ExtremeXOS version required, include:

Table 25: Summit X650 Series Switches SFP/SFP+ Support

SFP	ExtremeXOS Required
SR SFP+, ports 1 through 24, and ports 25 through 32 (for the VIM1-10G8X)	12.3.1
LR SFP+, ports 1-24 and 25-32 for VIM1-10G8X	12.3.1
SFP+ twin coax cable - 1-24 and 25-32 for VIM1-10G8X	12.3.1
10/100/1000BASE-T SFP+ Copper—1000 speed support only **Note:** Not supported on port 23 and 24	12.3.3
ER SFP+	12.3.3
1000BX SFP, not supported on ports 23, 24	12.2.1
1000SX SFP, not supported on ports 23, 24	12.2.1
1000LX SFP, not supported on ports 23, 24	12.2.1

Table 25: Summit X650 Series Switches SFP/SFP+ Support

SFP	ExtremeXOS Required
1000 BASE-T SFP, not supported on ports 23, 24	12.3.1
LX100 SFP, not supported on ports 23, 24	12.2.1
ZX SFP, not supported on ports 23, 24	12.2.1

XENPAK Module Support

XENPAK modules supported on the BlackDiamond 10808 switch with ExtremeXOS 12.5, and the minimum ExtremeXOS version required, include:

Table 26: BlackDiamond 10808 Switch XENPAK Support

XENPAK Module	ExtremeXOS Required
LR	11.1.1.9
ER	11.1.1.9
SR	11.1.1.9
LX4	11.3.1.3
ZR	11.3.1.3
LW	11.4.1.4

XENPAK modules supported on the BlackDiamond 12804 switch with ExtremeXOS 12.5, and the minimum ExtremeXOS version required, include:

Table 27: BlackDiamond 12804 Switch XENPAK Support

XENPAK Module	ExtremeXOS Required
LR	11.4.1.4
ER	11.4.1.4
SR	11.4.1.4
LX4	11.4.1.4
ZR	11.4.1.4
LW	11.4.1.4

XENPAK modules supported on the BlackDiamond 12802 switch with ExtremeXOS 12.5, and the minimum ExtremeXOS version required, include:

Table 28: BlackDiamond 12802 Switch XENPAK Support

XENPAK Module	ExtremeXOS Required
LR	12.0.1.11
ER	12.0.1.11
SR	12.0.1.11
LX4	12.0.1.11
ZR	12.0.1.11
LW	12.0.1.11

XENPAK modules supported on the Summit X350 switch with ExtremeXOS 12.5, and the minimum ExtremeXOS version required, include:

Table 29: Summit X350 Switch XENPAK Support

XENPAK Module	ExtremeXOS Required
SR	12.0.3.16
LR	12.0.3.16
ER	12.0.3.16
LX4	12.0.3.16
ZR	12.0.3.16

XENPAK modules supported on the Summit X450a switch with ExtremeXOS 12.5, and the minimum ExtremeXOS version required, include:

Table 30: Summit X450a Switch XENPAK Support

XENPAK Module	ExtremeXOS Required
SR	11.6.1.9
LR	11.6.1.9
ER	11.6.1.9
LX4	11.6.1.9
ZR	11.6.1.9
LW	11.6.1.9
CX4	12.0.1.11

XENPAK modules supported on the Summit X450e switch with ExtremeXOS 12.5, and the minimum ExtremeXOS version required, include:

Table 31: Summit X450e Switch XENPAK Support

XENPAK Module	ExtremeXOS Required
SR	11.5.1.4
LR	11.5.1.4
ER	11.5.1.4
LX4	11.5.1.4
ZR	11.5.1.4
CX4	12.0.1.11

NOTE

XENPAKs not supplied by Extreme Networks will show up as “Unsupported Optic Module” in the `show port x:y` information detail and `show port x:y configuration` command output.

XFP Module Support

XFP modules supported on the BlackDiamond 8800 series of switches with ExtremeXOS 12.5, the minimum ExtremeXOS version required include:

Table 32: BlackDiamond 8800 Series of Switches XFP Support

XFP Module	ExtremeXOS Required
SR	11.6.1.9
LR	11.6.1.9
ER	12.0.2.25
DWDM	12.1.2.17
ZR	12.1.2.17
Tunable DWDM	12.5.1

XFP modules supported on the BlackDiamond 20800 switch with ExtremeXOS 12.5, the minimum ExtremeXOS version required include:

Table 33: BlackDiamond 20800 Switch XFP Support

XFP Module	ExtremeXOS Required
SR	12.2
LR	12.2
ER	12.2
ZR	12.2
Tunable DWDM	12.5.1

XFP modules supported on the Summit X350 switch with ExtremeXOS 12.5, the minimum ExtremeXOS version required, and the manufacturers supported include:

Table 34: Summit X350 Switch XFP Support

XFP Module	ExtremeXOS Required
SR	12.0.3.16
LR	12.0.3.16
ER	12.0.3.16
DWDM	12.5.1
ZR	12.1.2.17

XFP modules supported on the Summit X450a and X450e series switch with ExtremeXOS 12.5, the minimum ExtremeXOS version required, and the manufacturers supported include:

Table 35: Summit X450a and X450e Series Switch XFP Support

XFP Module	ExtremeXOS Required
SR	11.5.1.4
LR	11.5.1.4
ER	12.0.2.25

Table 35: Summit X450a and X450e Series Switch XFP Support (Continued)

XFP Module	ExtremeXOS Required
DWDM	12.5.1
ZR	12.1.2.17

XFP modules supported on the Summit X480 series switch with ExtremeXOS 12.5, the minimum ExtremeXOS version required, and the manufacturers supported include:

Table 36: Summit X480 Series Switch XFP Support

XFP Module	ExtremeXOS Required
SR	12.4.1
LR	12.4.1
ER	12.4.1
ZR	12.4.1
DWDM	12.4.1
Tunable DWDM	12.5.1

Upgrading to ExtremeXOS

See “Software Upgrade and Boot Options” in the *ExtremeXOS Concepts Guide* for instructions on upgrading ExtremeXOS software. Following are miscellaneous hitless upgrade notes:

- Beginning with ExtremeXOS 12.1, an ExtremeXOS core image (.xos file) must be downloaded and installed on the alternate (non-active) partition. If you try to download to an active partition, the error message "Error: Image can only be installed to the non-active partition." is displayed. An ExtremeXOS modular software package (.xmod file) can still be downloaded and installed on either the active or alternate partition.
- For the BlackDiamond 8800 series of switches, a hitless upgrade to ExtremeXOS 12.5.4 from an earlier release is not supported and should not be attempted. Use the normal software upgrade process for these switches.
- Hitless upgrade from ExtremeXOS 12.0 and earlier to ExtremeXOS 12.1 and later is not supported on the BlackDiamond 12800 switch.

Downloading Supported MIBs

The Extreme Networks MIBs are located on the eSupport website under Download Software Updates, located at:

https://esupport.extremenetworks.com/

ExtremeXOS Command Line Support

The following is true for all Summit X150 and X350 series switches:

- Summit X150 and X350 series switches do not support L3 functionality; this platform does not support CLI commands for L3 functionality.
- Summit X150 and X350 series switches do not support stacking; all CLI commands for stacking are not supported on this platform.
- Summit X150 and X350 series switches do not support IP forwarding; however, CLI commands that configure IP addresses function in order to access the management functionality of the switch are supported.
- Upgrade or trial licensing is not available on the Summit X150 and X350 series switches.

Tested Third-Party Products

This section lists the third-party products tested for ExtremeXOS 12.5.

Tested RADIUS Servers

The following RADIUS servers are fully tested:

- Microsoft—Internet Authentication Server
- FreeRADIUS

Tested Third-Party Clients

The following third-party clients are fully tested:

- Windows XP
- Linux

PoE Capable VoIP Phones

The following PoE capable VoIP phones are fully tested:

- Avaya 4620
- Avaya 4620SW IP telephone
- Avaya 9620
- Avaya 4602
- Avaya 9630
- Avaya 4621SW
- Avaya 4610
- Avaya 1616
- Avaya one-X
- Cisco 7970

- Cisco 7910
- Cisco 7960
- ShoreTel ShorePhone IP 212k
- ShoreTel ShorePhone IP 560
- ShoreTel ShorePhone IP 560g
- ShoreTel ShorePhone IP 8000
- ShoreTel ShorePhone IP BB 24
- Siemens OptiPoint 410 standard–2
- Siemens OpenStage 20
- Siemens OpenStage 40
- Siemens OpenStage 60
- Siemens OpenStage 80

Extreme Switch Security Assessment

DoS Attack Assessment

Tools used to assess DoS attack vulnerability:

- Network Mapper (NMAP)

ICMP Attack Assessment

Tools used to assess ICMP attack vulnerability:

- SSPing
- Twinge
- Nuke
- WinFreeze

Port Scan Assessment

Tools used to assess port scan assessment:

- Nessus

2 Limits

CHAPTER

This chapter summarizes the supported limits in ExtremeXOS 12.5.4.

Supported Limits

Table 37 summarizes tested metrics for a variety of features, as measured in a per-system basis unless otherwise noted. These limits may change but represent the current status. The contents of this table supersede any values mentioned in the *ExtremeXOS Concepts Guide*.

NOTE

The term “BlackDiamond 8000 e-series” refers to all BlackDiamond 8500 e-series and 8800 e-series modules.The term “BlackDiamond 8000 series” refers to all BlackDiamond 8500, 8800, and 8900 series modules.

The scaling and performance information shown in Table 37 is provided for the purpose of assisting with network design. It is recommended that network architects and administrators design and manage networks with an appropriate level of network scaling “head room.” The scaling and performance figures provided have been verified using specific network topologies using limited switch configurations. There is no guarantee that the scaling and performance figures shown are applicable to all network topologies and switch configurations and are provided as a realistic estimation only. If you experience scaling and performance characteristics that you feel are sufficiently below what has been documented, contact Extreme Networks technical support for additional assistance.

The route limits shown in Table 37 for IPv4 and IPv6 routing protocols are software limits only. The actual hardware limits may be lower than the software limits, based on platform. The hardware limits for specific platforms are specified as "IPv4/IPv6 routes (LPM entries in hardware)" in the following table.

On certain BlackDiamond 8000 and Summit products, it is not advised to have greater than 25,000 total IP routes from all routing protocols. This includes a BlackDiamond 8000 series switch with an 8500-MSM24, MSM-G8X or MSM-48, and Summit X250e, X450a, X450e, or X650 switches, either in a SummitStack or standalone. Adverse effects can occur with routing tables larger than this, especially when a single network event or CLI command affects a significant number of routes. For example, just after such a network event, the added system load will cause a “save configuration” command to time out.

Table 37: Supported Limits

Metric	Product	Limit
Access lists (meters)—maximum number of meters,	BlackDiamond 8000 series	
	e-series, group of 24 ports	512
	a-series, group of 24 ports	1,024
	c-series	2,048 ingress, 256 egress
	BlackDiamond 8900 series	
	8900-10G24X-c, group of 12 ports	1,024 ingress, 256 egress
	8900 xl-series, 8900-G96T-c	4,096 ingress, 512 egress
	Summit X150, X250e, X350, X450e group of 24 ports	512
	Summit X450a, group of 24 ports	1,024
	Summit X460 group of 24 ports	2,048 ingress, 256 egress
	Summit X480	4,096 ingress, 512 egress
	Summit 650, group of 12 ports	1,024 ingress, 256 egress
Access lists (policies)—suggested maximum number of lines in a single policy file.	All platforms	300,000
Access lists (policies)—maximum number of rules in a single policy file.[a]	BlackDiamond 8000 series	
	a-series, group of 24 ports	2,048
	c-series, group of 24 ports	4,096 ingress, 512 egress
	e-series, group of 24 ports	1,024 ingress
	BlackDiamond 8900 c-series	
	8900-10G24X-c modules, group of 12 ports	2,048 ingress, 512 egress
	8900-G96T-c modules, group of 48 ports	8,192 ingress, 1,024 egress
	8900 xl-series	61,440 (up to)
	BlackDiamond 10808	30,000
	Summit X150, X250e, X350, X450e group of 24 ports	1,024
	Summit X450a, group of 24 ports	2,048
	Summit 460	4,096 ingress, 512 egress
	Summit X480	61,440 (up to) ingress[b], 1,024 egress
	Summit X650, group of 12 ports	2,048 ingress 512 egress

Table 37: Supported Limits (Continued)

Metric	Product	Limit
Access lists (slices)—number of ACL slices.	BlackDiamond 8000 series	
	a- and c-series, group of 48 ports	16
	e-series, group of 24 ports	8
	BlackDiamond 8900 series	
	8900-10G24X-c modules, group of 12 ports	12 ingress, 4 egress
	8900-G96T-c modules, group of 48 ports	16 ingress, 4 egress
	8900 xl-series	17[b]
	Summit X150, X250e, X350, X450e, group of 48 ports	8
	Summit X450a, group of 24 ports	16
	Summit 460	16 ingress, 4 egress
	Summit X480	17[b] ingress, 4 egress
	Summit X650, group of 12 ports	12 ingress, 4 egress
ACL static ingress L2 entries—maximum number of static ACL L2 entries.	BlackDiamond 12800 series	10,000
	BlackDiamond 20800 series	10,000
ACL static ingress L3 rules—maximum number of static L3 ACL rules.	BlackDiamond 12800 series	20,000
	BlackDiamond 20800 series	20,000
ACL static egress L2 entries—maximum number of static ACL L2 entries.	BlackDiamond 12800 series	20,000
	BlackDiamond 20800 series	20,000
ACL static egress L3 rules—maximum number of static L3 ACL rules.	BlackDiamond 12800 series	20,000
	BlackDiamond 20800 series	20,000
ACL dynamic L2 entries—maximum number of ACL L2 entries	BlackDiamond 20800 series	2,000
ACL dynamic L3 rules—maximum number of L3 ACL rules	BlackDiamond 20800 series	2,000
AAA (local)—maximum number of admin and local user accounts.	All platforms	16
BFD (bidirectional forwarding detection)—maximum BFD sessions with MPLS as client.	BlackDiamond 10808	32
	BlackDiamond 12800 R-series	32
	BlackDiamond 20800 series	64
	Summit X460	32
	Summit X480	32
BFD sessions—maximum BFD sessions with static route as client.	All platforms (default timers)	512
	All platforms (minimal timers)	10
BGP (aggregates)—maximum number of BGP aggregates.	All platforms with Core license or higher	256
BGP (networks)—maximum number of BGP networks.	All platforms (except BlackDiamond 20800 series) with Core license or higher	1,024
	BlackDiamond 20800 series	2,048

Table 37: Supported Limits (Continued)

Metric	Product	Limit
BGP (peers)—maximum number of BGP peers.	BlackDiamond 8000 series	256*
	BlackDiamond xl-series	512
	BlackDiamond 10808	
	MSM-1XL MSM-1	512 256
	BlackDiamond 12800 series	
	MSM-5, MSM-5R MSM-6R	256* 512
	BlackDiamond 20800 series	512
	Summit X450a, X460, X650	128*
	Summit X480	512
	* With default keepalive and hold timers.	
BGP (peer groups)—maximum number of BGP peer groups.	All platforms (except BlackDiamond 8900 series, BlackDiamond 20800 series, and Summit X480) with Core license or higher	64
	BlackDiamond 8900 series	128
	BlackDiamond 20808 series	128
	Summit X480	128
BGP (policy entries)—maximum number of BGP policy entries per route policy.	All platforms with Core license or higher	256
BGP (policy statements)—maximum number of BGP policy statements per route policy.	All platforms with Core license or higher	1,024
BGP (unicast address-family routes)—maximum number of unicast address-family routes (LPM entries is limited to support TCAM entries on a BlackDiamond 10808).	BlackDiamond 8000 series	25,000
	BlackDiamond 8900 xl-series	524,256 (up to)[b]
	BlackDiamond 10808	
	MSM-1XL MSM-1	1,000,000 400,000
	BlackDiamond 12800 series	
	MSM-5, MSM-5R MSM-6R	400,000 1,000,000
	BlackDiamond 20800 series	512,000
	Summit X450a, X460, X650	25,000
	Summit X480	524,256 (up to)[b]

Table 37: Supported Limits (Continued)

Metric	Product	Limit
BGP (non-unique routes)—maximum number of non-unique BGP routes (LPM entries is limited to support TCAM entries on a BlackDiamond 10808).	BlackDiamond 8000 series	25,000
	BlackDiamond 8900 xl-series	1,000,000
	BlackDiamond 10808	
	MSM-1XL MSM-1	2,000,000 900,000
	BlackDiamond 12800 series	
	MSM-5, MSM-5R MSM-6R	900,000 2,000,000
	BlackDiamond 20800 series	2,000,000
	Summit X450a, X460, X650	25,000
	Summit X480	1,000,000
BGP multicast address-family routes — maximum number of multicast address-family routes.	BlackDiamond 8000 series	25,000
	BlackDiamond 8900 xl-series	524,256 (up to)[b]
	BlackDiamond 10808	
	MSM-1XL MSM-1	1,000,000 450,000
	BlackDiamond 12800 series	
	MSM-5, MSM-5R MSM-6R	450,000 1,000,000
	BlackDiamond 20800 series	512,000
	Summit X450a, X460, X650	25,000
	Summit X480	524,256 (up to)[b]
BOOTP/DHCP relay—maximum number of BOOTP or DHCP servers per virtual router.	All platforms	4
CLEAR-Flow—total number of rules supported. The ACL rules plus CLEAR-Flow rules must be less than the total number of supported ACLs. **Note:** CLEAR-Flow is not supported on "e" series switches and is only supported in a non-stack configuration in the Summit family of switches.	BlackDiamond 8800 c-series	4,096
	BlackDiamond 8900 series	4,096
	BlackDiamond 20800 series	5,000
	Summit X450a and X650	2,048
	Summit X480	4,096
Connectivity Fault Management (CFM)—maximum number or CFM domains.	All platforms	8
CFM—maximum number of CFM associations.	All platforms	4,094
CFM—maximum number of CFM up end points.	BlackDiamond 8000 series	32
	BlackDiamond 10808	1,000
	BlackDiamond 12800 series	1,000
	BlackDiamond 20800 series	1,000
	Summit series	32

Table 37: Supported Limits (Continued)

Metric	Product	Limit
CFM—maximum number of CFM down end points.	BlackDiamond 8000 series	32
	BlackDiamond 10808	1,000
	BlackDiamond 12800 series	1,000
	BlackDiamond 20800 series	1,000
	Summit series	32
CFM—maximum number of CFM remote end points per up/down end point.	All platforms	64
CFM—maximum number of dot1ag ports.	All platforms	128
CFM—maximum number of CFM segments.	All platforms	1,000
Dynamic ACLs—maximum number of ACLs processed per second. **Note**: Limits are load dependent.	BlackDiamond 8800 with c-series MSM and I/O modules	8
	BlackDiamond 8900 series	8
	BlackDiamond 12800 series	12
	Summit X450a, X480, X650	
	with 50 DACLs with 500 DACLs	10 5
EAPS domains—maximum number of EAPS domains. **Note**: An EAPS ring that is being spatially reused cannot have more than four configured EAPS domains.	BlackDiamond 8000 series	64
	BlackDiamond 10808	128
	BlackDiamond 12800 series	128
	BlackDIamond 20800 series	128
	Summit series	32
EAPSv1 protected VLANs—maximum number of protected VLANs.	BlackDiamond 8000 series	2,000
	BlackDiamond 10808	4,000
	BlackDiamond 12800 series	4,000
	BlackDiamond 20800 series	4,000
	Summit series	1,000
EAPSv2 protected VLANs—maximum number of protected VLANs.	BlackDiamond 8000 series	2,000
	BlackDiamond 10808	4,000
	BlackDiamond 12800 series	4,000
	BlackDIamond 20800 series	4,000
	Summit series	500
ELSM (vlan-ports)—maximum number of VLAN ports.	BlackDiamond 8000 series	5,000
	BlackDiamond 10808	5,000
	BlackDiamond 12800 series	5,000
	BlackDIamond 20800 series	5,000
	Summit series	5,000
ESRP groups—maximum number of ESRP groups.	All platforms	7

Table 37: Supported Limits (Continued)

Metric	Product	Limit
ESRP domains—maximum number of ESRP domains.	BlackDiamond 8000 series	64
	BlackDiamond 8900 series	128
	BlackDiamond 10808	128
	BlackDiamond 12800 series	64
	BlackDiamond 20800 series	128
	Summit series	64
ESRP VLANs—maximum number of ESRP VLANs.	BlackDiamond 8000 series	1,000
	BlackDiamond 8900 series	2,048
	BlackDiamond 10808	3,000
	BlackDiamond 12800 series	3,000
	BlackDiamond 20800 series	255
	Summit series	1,000
ESRP (maximum ping tracks)—maximum number of ping tracks per VLAN.	All platforms	8
ESRP (IP route tracks)—maximum IP route tracks per VLAN.	All platforms	8
ESRP (VLAN tracks)—maximum number of VLAN tracks per VLAN.	All platforms	1
Forwarding rate—maximum L2/L3 software forwarding rate.	BlackDiamond 8000 series	10,000 pps
	BlackDiamond 12800 series	16,000 pps
	Summit series	10,000 pps
FDB (blackhole entries)—maximum number of unicast blackhole FDB entries.	BlackDiamond 8800 a-series	16,000
	BlackDiamond 8800 c-series	32,000
	BlackDiamond 8000 e-series	8,000
	BlackDiamond 8900 c-series	32,000
	BlackDiamond 8900 xl-series	524,288 (up to)[b]
	BlackDiamond 20800 series	100,000
	Summit X150, X250e, X350, X450e	8,000
	Summit X450a	16,000
	Summit X480	524,288 (up to)[b]
	Summit X 460, X650	32,000
FDB (blackhole entries)—maximum number of multicast blackhole FDB entries.	BlackDiamond 8000 series	1,024
	Summit series	1,024
FDB (MAC learning rate)—maximum number of packets per second.	BlackDiamond 20800 series	200,000
FDB (maximum L2/L3 entries)—maximum number of MAC addresses/IP host routes.	BlackDiamond 10808	224,000
	BlackDiamond 12800 series	49,000
	BlackDiamond 12800 R-series	224,000

Table 37: Supported Limits (Continued)

Metric	Product	Limit
FDB (maximum L2 entries)—maximum number of MAC addresses.	BlackDiamond 8800 a-series	16,384
	BlackDiamond 8000 c-series	32,768
	BlackDiamond 8000 e-series	8,192
	BlackDiamond 8000 (system), except 8900 xl-series	128,000
	BlackDiamond 8900 xl-series	524,488 (up to)[b]
	BlackDiamond 20800 series	400,000
	Basic I/O modules Advanced I/O modules	512,000 1,049,000
	Summit X150, X350, X250e, X450e	8,192
	Summit X450a	16,384
	Summit X480	524,488 (up to)[b]
	Summit X460, 650	32,768
	SummitStack, except X480	128,000
Hierarchical QoS—maximum number of ingress-only traffic queues per system. (For 20XTR, first 10 ports ranges from 1 to 10 are UNIT-I, second 10 ports ranges from 11 to 20 are UNIT-II, for 10 Gig slot each port is one UNIT.)	BlackDiamond 12800 R-series	20,000
Hierarchical QoS—maximum number of ingress traffic queues with egress shaping allowed per switch.	BlackDiamond 12800 R-series	20,000
Hierarchical QoS—maximum number of egress-only traffic queues allowed per switch.	BlackDiamond 12800 R-series	20,000
Hierarchical QoS—maximum number of traffic queues attach per port.	BlackDiamond 12800 R-series	4,076
	BlackDiamond 20800 series (This is based on traffic queue mode [strict priority/ bandwidth]. This number will decrease the more egress ports are configured.)	1,142/824
Identity management—-—maximum number of roles that can be created.	All platforms except BlackDiamond 20800 series	64
Identity management—-maximum role hierarchy depth allowed.	All platforms except BlackDiamond 20800 series	5
Identity management—-maximum number of attribute value pairs in a role match criteria.	All platforms except BlackDiamond 20800 series	16
Identity management—-maximum of child roles for a role.	All platforms except BlackDiamond 20800 series	8
Identity management—-maximum number of policies/dynamic ACLs that can be configured per role.	All platforms except BlackDiamond 20800 series	8
Identity management—-maximum number of LDAP servers that can be configured.	All platforms except BlackDiamond 20800 series	8
Identity management—--maximum number of kerberos servers that can be configured.	All platforms except BlackDiamond 20800 series	20

Table 37: Supported Limits (Continued)

Metric	Product	Limit
Identity management—--maximum database memory-size.	All platforms except BlackDiamond 20800 series	64–49,152
Identity management—--recommended number of identities per switch. **Note:** Number of identities per switch is for a default identity management database size (512 Kbytes) across all platforms.	All platforms except BlackDiamond 20800 series	100
Identity management—-recommended number of ACL entries per identity. **Note:** Number of ACLs per identity based on system ACL limitation.	All platforms except BlackDiamond 20800 series	20
Identity management—-maximum number of dynamic ACL entries configured as an individual dynamic rule, or as an ACL entry in a policy file.	All platforms except BlackDiamond 20800 series	500
IGMP sender—maximum number of IGMP senders per switch (IP multicast compression disabled).	BlackDiamond 8800 a-series	1,024
	BlackDiamond 8800 c-series	2,048[c]
	BlackDiamond 8000 e-series	500[d]
	8900-10G24X-c modules	2,048[c]
	8900-G96T-c modules	4,096[c]
	8900 xl-series	4,096[c]
	BlackDiamond 10808	15,000
	BlackDiamond 12800 series	15,000
	BlackDiamond 20800 series	3,700
	Summit X150, X250e, X350, X450e	500[d]
	Summit X450a	1,024
	Summit X480	4,096
	Summit X460, X650	2,048
IGMP sender—maximum number of IGMP senders per switch (IP multicast compression enabled).	BlackDiamond 8800 a-series	2,000[d]
	BlackDiamond 8800 c-series	6,000[d]
	BlackDiamond 8000 e-series	500[d]
	BlackDiamond 8900 c-series	6,000[d]
	BlackDiamond 8900 xl-series	12,000[b]
	Summit X150, X250e, X350, X450e	500[d]
	Summit X450a	2,000[d]
	Summit X460, X650	6,000[d]
	Summit X480	12,000[b]

Table 37: Supported Limits (Continued)

Metric	Product	Limit
IGMP snooping per VLAN filters—maximum number of VLANs supported in per-VLAN IGMP snooping mode.	BlackDiamond 8800 a-series	1,000
	BlackDiamond 8800 c-series	2,000
	BlackDiamond 8000 e-series	448
	BlackDiamond 8900 xl-series	4,000
	Summit X150, X250e, X350, X450e	448
	Summit X450a, X460, X650	1,000
	Summit X480	4,000
IGMPv1/v2 SSM-map entries—maximum number of IGMPv1/v2 SSM mapping entries.	All platforms	500
IGMPv1/v2 SSM-MAP entries—maximum number of sources per group in IGMPv1/v2 SSM mapping entries.	All platforms	50
IGMPv2 subscriber—maximum number of IGMPv2 subscribers per port.	BBlackDiamond 8800 c-series	2,000
	BlackDiamond 8900 c-series	2,000
	BlackDiamond 10808	5,000
	BlackDiamond 12800 series	5,000
	BlackDIamond 20800 series	5,000
	Summit series (except Summit X480, X650)	1,000
	Summit X460, X480, X650	2,000
IGMPv2 subscriber—maximum number of IGMPv2 subscribers per switch.	BlackDiamond 8800 c-series	20,000
	BlackDiamond 8900 c-series	20,000
	BlackDiamond 10808	30,000
	BlackDiamond 12800 series	30,000
	BlackDiamond 20800 series	30,000
	Summit series (except Summit X480, X650)	10,000
	Summit X460, X480, X650	20,000
IGMPv3 maximum source per group—maximum number of source addresses per group.	All platforms	250
IGMPv3 subscriber—maximum number of IGMPv3 subscribers per port.	BlackDiamond 8800 a-, e-series	1,000
	BlackDiamond 8800 c-series	2,000
	BlackDiamond 8900 series	5,000
	BlackDiamond 10808	5,000
	BlackDiamond 12800 series	5,000
	BlackDiamond 20800 series	5,000
	Summit series (except Summit X460)	1,000
	Summit X460	2,000

Table 37: Supported Limits (Continued)

Metric	Product	Limit
IGMPv3 subscriber—maximum number of IGMPv3 subscribers per switch.	BlackDiamond 8800 a-, e-series	10,000
	BlackDiamond 8800 c-series	20,000
	BlackDiamond 8900 series	30,000
	BlackDiamond 10808	30,000
	BlackDiamond 12800 series	30,000
	BlackDiamond 20800 series	30,000
	Summit series (except Summit X460)	10,000
	Summit X460	20,000
IP ARP entries in software—maximum number of IP ARP entries in software.	All platforms (except BlackDiamond 20800 series)	20,480
	BlackDiamond 20800 series	32,000
IP ARP entries in software with distributed mode on—maximum number of IP ARP entries in software with distributed mode on.	BlackDiamond 8000 series with 8900-MSM-128 or MSM-48c, and only 8900-series I/O modules	260,000
	BlackDiamond 8000 series with any I/O modules that are not 8900-series	100,000
	All other platforms	N/A
IPv4 ARP entries in hardware with Distributed mode on—maximum number of IP ARP entries in hardware with distributed mode on	Per BlackDiamond 8900-10G8X-xl, up to 260,000 per system	32,500[b]
	Per BlackDiamond 8900-G48X-xl or 8900-G48T-xl, up to 130,000 per system	16,250[b]
	Per BlackDiamond 8000 c-series, up to 18,000 per system	8,000
	All other platforms	N/A
IPv4 ARP entries in hardware with minimum LPM routes—maximum recommended number of IPv4 ARP entries in hardware, with minimum LPM routes present. For BlackDiamond 8800 and Summit series switches, assumes number of IP route reserved entries is 100 or less.	BlackDiamond 8800 a-, c-series	8,000
	BlackDiamond 8000 e-series	1,000[d]
	BlackDiamond 8900 xl-series	16,000
	BlackDiamond 10808	224,000
	BlackDiamond 12800 series	49,000
	BlackDiamond 12800 R-series	224,000
	BlackDiamond 20800 series	32,000
	Summit X250e, X450e	1,000[d]
	Summit X450a, X650	8,000
	Summit X460, X480	16,000

Table 37: Supported Limits (Continued)

Metric	Product	Limit
IPv4 ARP entries in hardware with maximum LPM routes—maximum recommended number of IPv4 ARP entries in hardware, with maximum LPM routes present. For BlackDiamond 8800 and Summit series, assumes number of IP route reserved entries is "maximum."	BlackDiamond 8800 a-series	2,000[d]
	BlackDiamond 8800 c-series	6,000[d]
	BlackDiamond 8000 e-series	500[d]
	BlackDiamond 8900 xl-series	12,000[d]
	BlackDiamond 10808	224,000
	BlackDiamond 12800 series	49,000
	BlackDiamond 12800 R-series	224,000
	BlackDiamond 20800 series	32,000
	Summit X250e, X450e	500[d]
	Summit X450a	2,000[d]
	Summit X460, X480	12,000[d]
	Summit X650	6,000[d]
IPv4 remote hosts in hardware with zero LPM routes—maximum recommended number of IPv4 remote hosts (hosts reachable through a gateway) in hardware when LPM routing is not used. For BlackDiamond 8800 and Summit series, assumes number of IP route reserved entries is 0, and number of IPv4 ARP entries present is 100 or less.	BlackDiamond 8800 a-series	14,000[d]
	BlackDiamond 8800 c-series	18,000[d]
	BlackDiamond 8000 e-series	1,000[d]
	BlackDIamond 8900 xl-series	40,000[b]
	BlackDiamond 10808	N/A
	BlackDiamond 12800 series	N/A
	BlackDiamond 12800 R-series	N/A
	BlackDiamond 20800 series	N/A
	Summit X250e, X450e	1,000[d]
	Summit X450a	14,000[d]
	Summit X460	20,000[d]
	Summit X480	40,000[b]
	Summit X650	18,000[d]
IPv4 routes—maximum number of IPv4 routes in software (combination of unicast and multicast routes).	BlackDiamond 8900 xl-series with 8900-MSM128 or MSM-48c	524,256 (up to)[b]
	All other BlackDiamond 8000 series hardware	25,000
	BlackDiamond 10808	1,000,000
	BlackDiamond 12800 series	1,000,000
	BlackDiamond 20800 series	1,000,000
	Summit X250e, X450a, X450e, X460, X650	
	SummitStack or standalone	25,000
	Summit X480	
	SummitStack or standalone	524,256 (up to)[b]

Table 37: Supported Limits (Continued)

Metric	Product	Limit
IPv4 routes (LPM entries in hardware)—number of IPv4 routes in hardware.	BlackDiamond 8800 a-, c-series	12,000
	BlackDiamond 8000 e-series	480
	BlackDiamond 8900 xl-series	524,256 (up to)[b]
	BlackDiamond 10808	256,000
	MSM-1 MSM-1XL	98,000 229,000
	BlackDiamond 12800 series	
	MSM-5 MSM-5R, MSM-6R	49,000 229,000
	BlackDiamond 20800 series	512,000
	Summit X250e, X450e	480
	Summit X450a, X460, X650	12,000
	Summit X480	524,256 (up to)[b]
IPv6 addresses on an interface—maximum number of IPv6 addresses on an interface.	All platforms	255
IPv6 addresses on a switch—maximum number of IPv6 addresses on a switch	BlackDiamond 8000 series	512
	BlackDiamond 10808	1,024
	BlackDiamond 12800 series	1,024
	BlackDiamond 20800 series	1,024
	Summit X460, X480, X650	512
IPv6 host entries in hardware—maximum number of IPv6 neighbor entries in hardware.	BlackDiamond 8800 a-series	1,000[d]
	BlackDiamond 8800 c-series	3,000[d]
	BlackDiamond 8000 e-series	250[d]
	BlackDiamond 8900-10G24X-c modules	2,000[d]
	BlackDiamond 8900-G96T-c modules	4,000[d]
	BlackDiamond 8900 xl-series	4,000[d]
	BlackDiamond 10808	112,000
	BlackDiamond 12800 series	24,500
	BlackDiamond 12800 R-series	112,000
	BlackDiamond 20800 series	40,000
	Summit X250e, X450e	250[d]
	Summit X450a	1,000[d]
	Summit X460, X480	4,000[d]
	Summit X650	2,000[d]

Table 37: Supported Limits (Continued)

Metric	Product	Limit
IPv6 routes (LPM entries in hardware)—maximum number of IPv6 routes in hardware.	BlackDiamond 8800 a-, c-series	6,000
	BlackDiamond 8000 e-series	240
	BlackDiamond 8900 xl-series	8,000
	BlackDiamond 10808	114,500
	BlackDiamond 12800 series	114,500
	BlackDiamond 20800 series	40,000
	Summit X250e, X450e	240
	Summit X450a, X460, X650	6,000
	Summit X480	8,000
IPv6 routes with a mask greater than 64 bits in hardware—maximum number of such IPv6 LPM routes in hardware.	BlackDiamond 8000 a-, c-, e-, xl-series	256
	BlackDiamond 10808	114,500
	BlackDiamond 12800 series	114,500
	BlackDiamond 20800 series	40,000
	Summit X250e, X450e, X450a, X460, X480, X650	256
IPv6 routes in software—maximum number of IPv6 routes in software.	BlackDiamond 8900 xl-series with 8900-MSM128 or MSM-48c	65,000
	All other BlackDiamond 8000 series hardware	25,000
	BlackDiamond 10808	65,000
	BlackDiamond 12800 series	65,000
	BlackDiamond 20800 series	65,000
	Summit X250e, X450a, X450e, X460, X650	25,000
	SummitStack or standalone	65,000
IP router interfaces—maximum number of VLANs performing IP routing–excludes sub VLANs (IPv4 and IPv6 interfaces).	All BlackDiamond 8000 series and Summit family switches with Edge license or higher	512
	All other BlackDiamond platforms	4,096
IP multicast static routes—maximum number of permanent multicast IP routes.	All platforms	1,024
IP unicast static routes—maximum number of permanent IP unicast routes.	All platforms	1,024
IP route sharing (maximum gateways)—configurable maximum number of configurable gateways used by equal cost multipath OSPF, BGP, or static routes.	BlackDiamond 8000 series	2, 4, or 8
	Summit series	2, 4, or 8

Table 37: Supported Limits (Continued)

Metric	Product	Limit
IP route sharing (total destinations)—maximum number of unique destinations used by multipath OSPF, OSPFv3, BGP, IS-IS, or static routes. OSPFv3 only applies to BlackDiamond 10808 and BlackDiamond 12800 series, which support ECMP for IPv6.	BlackDiamond 8800 a-series, c-series	
	with up to 8 gateways per destination	12,256
	BlackDiamond 8000 e-series	
	with up to 8 gateways per destination	480
	BlackDiamond 8900 xl-series	
	with up to 8 gateways per destination	524,256 (up to)[b]
	BlackDiamond 10808	
	with up to 8 gateways per destination	7,136
	BlackDiamond 12800 series	
	with up to 8 gateways per destination	7,136
	BlackDiamond 20800 series	
	with up to 8 gateways per destination	512,000
	Summit X250e, X450e	
	with up to 8 gateways per destination	480
	Summit X450a, X460, X650	
	with up to 8 gateways per destination	12.256
	Summit X480	
	with up to 8 gateways per destination	524,256 (up to)[b]
IP route sharing (total combinations of gateway sets)—maximum number of combinations of sets of adjacent gateways used by multipath OSPF, BGP, IS-IS, or static routes.	BlackDiamond 8800 a-series	
	default maximum gateways of 4 if maximum gateways is 2 if maximum gateways is 8	510 1,022 254
	BlackDiamond 8000 e-series	
	default maximum gateways of 4 if maximum gateways is 2 if maximum gateways is 8	30 62 14
	BlackDiamond 8800 c-series	
	default maximum gateways of 4 if maximum gateways is 2 if maximum gateways is 8	510 1,022 254
	BlackDiamond 8900 xl-series	
	default maximum gateways of 4 if maximum gateways is 2 if maximum gateways is 8	510 1,022 254
	BlackDiamond 20800 series	
	with up to 8 gateways per set	60
	Summit X460, X480, X650	
	default maximum gateways of 4 if maximum gateways is 2 if maximum gateways is 8	510 1,022 254
IP multinetting (secondary IP addresses)—maximum number of secondary IP addresses per VLAN.	All platforms	64

Table 37: Supported Limits (Continued)

Metric	Product	Limit
IS-IS adjacencies—maximum number of supported IS-IS adjacencies.	BlackDiamond 8000 series	128
	BlackDiamond 8900 xl-series	255
	BlackDiamond 10808	255
	BlackDiamond 12800 series	255
	BlackDiamond 20800 series	255
	Summit X450a, X460, X480, X650	128
IS-IS ECMP—maximum number of equal cost multipath for IS-IS.	BlackDiamond 8000 series	2, 4, or 8
	BlackDiamond 10808	8
	BlackDiamond 12800 series	8
	BlackDiamond 20800 series	8
	All Summit series	2, 4, or 8
IS-IS interfaces—maximum number of interfaces that can support IS-IS.	All platforms	255
IS-IS routers in an area—recommended maximum number of IS-IS routers in an area.	Summit X480	128
	All other platforms	256
IS-IS route origination—recommended maximum number of routes that can be originated by an IS-IS node.	BlackDiamond 8000 series	20,000
	BlackDiamond 8900 xl-series	30,000
	BlackDiamond 10808	30,000
	BlackDiamond 12800 series	30,000
	BlackDiamond 20800 series	30,000
	Summit X450a	5,000
	SUmmit X480	30,000
	Summit X460, X650	20,000
IS-IS IPv4 L1 routes in an L1 router—recommended maximum number of IS-IS Level 1 routes in a Level 1 IS-IS router.	BlackDiamond 8000 series	25,000
	BlackDiamond 8900 xl-series	120,000
	BlackDiamond 10808	
	MSM-1	120,000
	MSM-1XL	180,000
	BlackDiamond 12800 series	
	MSM-5	100,000
	MSM-5R	120,000
	MSM-6R	180,000
	BlackDiamond 20800 series	120,000
	Summit X450a	5,000
	Summit X480	50,000
	Summit X460, X650	25,000

Table 37: Supported Limits (Continued)

Metric	Product	Limit
IS-IS IPv4 L2 routes—recommended maximum number of IS-IS Level 2 routes.	BlackDiamond 8000 series	25,000
	BlackDiamond 8900 xl-series	120,000
	BlackDiamond 10808	
	MSM-1	120,000
	MSM-1XL	180,000
	BlackDiamond 12800 series	
	MSM-5	100,000
	MSM-5R	120,000
	MSM-6R	180,000
	BlackDiamond 20800 series	120,000
	Summit X450a	5,000
	Summit X480	50,000
	Summit X460, X650	25,000
IS-IS IPv4 L1 routes in an L1/L2 router—recommended maximum number of IS-IS Level 1 routes in an L1/L2 IS-IS router.	BlackDiamond 8000 series	20,000
	BlackDiamond 8900 xl-series	20,000
	BlackDiamond 10808	
	MSM-1	20,000
	MSM-1XL	25,000
	BlackDiamond 12800 series	
	MSM-5, MSM-5R	20,000
	MSM-6R	25,000
	BlackDiamond 20800 series	20,000
	Summit X450a	3,000
	Summit X460, X480, X650	20,000
IS-IS IPv6 L1 routes in an L1 router—recommended maximum number of IS-IS Level 1 routes in a Level 1 IS-IS router.	BlackDiamond 8000 series	10,000
	BlackDiamond 8900 xl-series	40,000
	BlackDiamond 10808	
	MSM-1	30,000
	MSM-1XL	65,000
	BlackDiamond 12800 series	
	MSM-5	30,000
	MSM-5R	40,000
	MSM-6R	65,000
	BlackDiamond 20800 series	40,000
	Summit X450a	5,000
	Summit X480	25,000
	Summit X460, X650	10,000

Table 37: Supported Limits (Continued)

Metric	Product	Limit
IS-IS IPv6 L2 routes—recommended maximum number of IS-IS Level 2 routes.	BlackDiamond 8000 series	10,000
	BlackDiamond 8900 xl-series	40,000
	BlackDiamond 10808	
	MSM-1 MSM-1XL	30,000 65,000
	BlackDiamond 12800 series	
	MSM-5 MSM-5R MSM-6R	30,000 40,000 65,000
	BlackDiamond 20800 series	40,000
	Summit X450a	5,000
	Summit X480	25,000
	Summit X460, X650	10,000
IS-IS IPv6 L1 routes in an L1/L2 router—recommended maximum number of IS-IS Level 1 routes in a L1/l2 router.	BlackDiamond 8000 series	10,000
	BlackDiamond 8900 xl-series	15,000
	BlackDiamond 10808	
	MSM-1 MSM-1XL	15,000 25,000
	BlackDiamond 12800 series	
	MSM-5, MSM-5R MSM-6R	15,000 25,000
	BlackDiamond 20800 series	15,000
	Summit X450a	3,000
	Summit X480	15,000
	Summit X460, X650	10,000
IS-IS IPv4/IPv6 L1 routes in an L1 router—recommended maximum number of IS-IS Level 1 routes in a Level 1 IS-IS router. The numbers documented are based on 50% IPv4 routes and 50% IPv6 routes.	BlackDiamond 8000 series	20,000
	BlackDiamond 8900 xl-series	60,000
	BlackDiamond 10808	
	MSM-1 MSM-1XL	60,000 130,000
	BlackDiamond 12800 series	
	MSM-5 MSM-5R MSM-6R	30,000 60,000 130,000
	BlackDiamond 20800 series	60,000
	Summit X450a	5,000
	Summit X480	40,000
	Summit X460, X650	20,000

Table 37: Supported Limits (Continued)

Metric	Product	Limit
IS-IS IPv4/IPv6 L2 routes in an L2 router—recommended maximum number of IS-IS Level 2 routes in a Level 2 IS-IS router. The numbers documented are based on 50% IPv4 routes and 50% IPv6 routes.	BlackDiamond 8000 series	20,000
	BlackDiamond 8900 xl-series	60,000
	BlackDiamond 10808	
	MSM-1 MSM-1XL	60,000 130,000
	BlackDiamond 12800 series	
	MSM-5 MSM-5R MSM-6R	30,000 60,000 130,000
	BlackDiamond 20800 series	60,000
	Summit X450a	5,000
	Summit X480	40,000
	Summit X460, X650	20,000
IS-IS IPv4/IPv6 L1 routes in an L1/L2 router—recommended maximum number of IS-IS Level 1 routes in a Level 1/Level2 IS-IS router. The numbers documented are based on 50% IPv4 routes and 50% IPv6 routes.	BlackDiamond 8000 series	20,000
	BlackDiamond 8900 xl-series	20,000
	BlackDiamond 10808	20,000
	BlackDiamond 12800 series	20,000
	BlackDiamond 20800 series	20,000
	Summit X450a	3,000
	Summit X460, X480, X650	20,000
Jumbo frames—maximum size supported for jumbo frames, including the CRC.	All platforms	9,216
Load-sharing groups—maximum number of load-share groups. **Note:** The actual number of load-share groups that can be configured is limited by the number of physical ports present in the switch or SummitStack.	All platforms (except BlackDiamond 8000 series)	128
	BlackDiamond 8000 series	
	with distributed IP ARP mode off (default) with distributed IP ARP mode on	128 64
Load sharing—maximum number of ports per load share group.	BlackDiamond 8000 series	8
	BlackDiamond 10808	16
	BlackDiamond 12800 series	16
	BlackDiamond 20800 series	16
	Summit series	8
Logged messages—maximum number of messages logged locally on the system.	All platforms	20,000
MAC-based security—maximum number of MAC-based security policies.	All platforms	1,024
MAC-in-MAC—maximum number of MAC FDB entries (MAC addresses on the local side) and MAC binding entries (MAC addresses on remote side).	BlackDiamond 10808	100,000
	BlackDiamond 12800 series	100,000
MAC-in-MAC—maximum number of regular VLANs (VLAN, vMAN, BVLAN).	BlackDiamond 10808	4,000
	BlackDiamond 12800 series	4,000

Table 37: Supported Limits (Continued)

Metric	Product	Limit
MAC-in-MAC—maximum number of SVLANs.	BlackDiamond 10808 (1G DRAM)	2,000
	BlackDiamond 12800 series (512 DRAM)	2,000
MAC-in-MAC—maximum number of BVLANs.	BlackDiamond 20800 series	
	per GigE ports	16
	per 10 GigE ports	160
Mirroring (filters)—maximum number of mirroring filters.	BlackDiamond 8000 series	128
	BlackDiamond 10808	64
	BlackDiamond 12800 series	64
	BlackDiamond 20800 series	128
	Summit series	128
Mirroring (monitor port)—maximum number of monitor ports.	All platforms	1
Mirroring, one-to-many (filters)—maximum number of one-to-many mirroring filters.	BlackDiamond 8000 series	128
	BlackDiamond 10808	64
	BlackDiamond 12800 series	64
	BlackDiamond 20800 series	128
	Summit series	128
Mirroring, one-to-many (monitor port)—maximum number of one-to-many monitor ports.	All platforms	16
MLAG ports—maximum number of MLAG ports allowed.	BlackDiamond 8800 series	768
	Summit series	768
MLAG peers—maximum number of MLAG peers allowed.	BlackDiamond 8800 series	1
	Summit series	1
MPLS LDP enabled interfaces—maximum number of MPLS LDP configured interfaces per switch.	BlacDiamond 8900 xl-series	32
	BlackDiamond 10808	32
	BlackDiamond 12800 R-series	32
	BlackDiamond 20800 series	50
	Summit X460, X480	32
MPLS LDP peers—maximum number of MPLS LDP peers per switch.	BlacDiamond 8900 xl-series	32
	BlackDiamond 10808	32
	BlackDiamond 12800 R-series	32
	BlackDiamond 20800 series	64
	Summit X460, X480	32
MPLS LDP adjacencies—maximum number of MPLS LDP adjacencies per switch.	BlacDiamond 8900 xl-series	50
	BlackDiamond 10808	64
	BlackDiamond 12800 series	64
	BlackDiamond 20800 series	64
	Summit X460, X480	50

Table 37: Supported Limits (Continued)

Metric	Product	Limit
MPLS LDP ingress LSPs—maximum number of MPLS LSPs that can originate from a switch. * **Note:** The maximum number of ingress LSPs is reduced by one for each transit LSP, that is, If 16,000 transit LSPs are in use, the maximum number of ingress LSPs is 16,000.	BlacDiamond 8900 xl-series BlackDiamond 10808 BlackDiamond 12800 R-series BlackDiamond 20800 series Summit X460 and X480	8,000 40,000 30,000 32,000* 8,000
MPLS LDP transit LSPs—maximum number of MPLS transit LSPs per switch.	BlacDiamond 8900 xl-series BlackDiamond 10808 BlackDiamond 12800 R-series BlackDiamond 20800 series Summit X460, X480	4,000 40,000 30,000 16,000 4,000
MPLS LDP egress LSPs—maximum number of MPLS egress LSPs that can terminate on a switch.	BlacDiamond 8900 xl-series BlackDiamond 10808 BlackDiamond 12800 R-series BlackDiamond 20800 series Summit X460, X480	8,000 40,000 30,000 32,000 8,000
MPLS static LSPs—maximum number of static LSPs.	BlacDiamond 8900 xl-series BlackDiamond 10808 BlackDiamond 12800 R-series BlackDiamond 20800 series Summit X460, X480	10 1,000 1,000 100 10
MSDP active peers—maximum number of active MSDP peers.	BlackDiamond 8000 series BlackDiamond 8900 series BlackDiamond 10808 BlackDiamond 12800 series BlackDiamond 20800 series Summit X460, X480, X650	32 64 32 32 64 16
MSDP SA cache entries—maximum number of entries in SA cache.	BlackDiamond 8000 series BlackDiamond 8900 series BlackDiamond 10808 BlackDiamond 12800 series BlackDiamond 20800 series Summit X460, X480, X650	16,000 16,000 16,000 16,000 15,000 8,000
MSDP maximum mesh groups—maximum number of MSDP mesh groups.	BlackDiamond 8000 series BlackDiamond 8900 series BlackDiamond 10808 BlackDiamond 12800 series BlackDiamond 20800 series Summit X460, X480, X650	8 16 8 8 16 4

Table 37: Supported Limits (Continued)

Metric	Product	Limit
Multicast VLAN registration (MVR)—maximum number of MVR senders per switch (IP multicast compression disabled).	BlackDiamond 8800 a-series	1,024
	BlackDiamond 8800 c-series	2,048[c]
	BlackDiamond 8000 e-series	500[d]
	BlackDiamond 8900 series	
	8900-10G24X-c modules 8900-G96T-c modules 8900 xl-series	2,048[c] 4,096[c] 4,096[c]
	BlackDiamond 10808	15,000
	BlackDiamond 12800 series	15,000
	BlackDiamond 20800 series	3,700
	Summit X150, X250, X350, X450e	500[d]
	Summit X450a	1,024
	Summit X480	4,096
	Summit X460, X650	2,048
Multicast VLAN registration (MVR)—maximum number of MVR senders per switch (IP multicast compression enabled).	BlackDiamond 8800 a-series	2,000[d]
	BlackDiamond 8800 c-series	6,000[d]
	BlackDiamond 8000 e-series	500[d]
	BlackDiamond 8900 c-series	6,000[d]
	BlackDiamond 8900 xl-series	12,000[b]
	Summit X150, X250e, X350, X450e	500[d]
	Summit X450a	2,000[d]
	Summit X460, X650	6,000[d]
	Summit X480	12,000[b]
Network login—maximum number of clients being authenticated on MAC-based VLAN enabled ports.	BlackDiamond 8000 series (clients per module/per system)	1,024
	BlackDiamond 12804 (per system)	4,000
	Summit series	1,024
Network login—maximum number of dynamic VLANs.	All platforms (except the BlackDiamond 20800 series)	2,000
Network login VLAN VSAs—maximum number of VLANs a client can be authenticated on at any given time.	All platforms	10
OSPF adjacencies—maximum number of supported OSPF adjacencies.	BlackDiamond 8000 series	128
	BlackDiamond 8900 xl-series	255
	BlackDiamond 10808	255
	BlackDiamond 12800 series	255
	BlackDiamond 20800 series	255
	Summit X250e, X460, X650	128
	Summit X480	255
OSPF areas—as an ABR, how many OSPF areas are supported within the same switch.	All platforms	8

Table 37: Supported Limits (Continued)

Metric	Product	Limit
OSPF ECMP—maximum number of equal cost multipath OSPF.	BlackDiamond 8000 series	2, 4, or 8
	BlackDiamond 10808	8
	BlackDiamond 12800 series	8
	BlackDiamond 20800 series	8
	All Summit series	2, 4, or 8
OSPF external routes—recommended maximum number of external routes contained in an OSPF LSDB without too many other types of OSPF routes.	BlackDiamond 8000 series	20,000
	BlackDiamond 8900 xl-series	130,000
	BlackDiamond 10808	130,000
	BlackDiamond 12800 series	130,000
	BlackDiamond 20800 series	130,000
	Summit X250e, X450a, X460, X650	5,000
	Summit X480	130,000
OSPF inter- or intra-area routes—recommended maximum number of inter- or intra-area routes contained in an OSPF LSDB without too many other types of OSPF routes, with one ABR in OSPF domain.	BlackDiamond 8000 series	7,000
	BlackDiamond 8900 xl-series	7,000
	BlackDiamond 10808	7,000
	BlackDiamond 12800 series	7,000
	BlackDiamond 20800 series	7,000
	Summit X250e, X450a, X460, X650	2,000
	Summit X480	7,000
OSPF routers in a single area—recommended maximum number of routers in a single OSPF area.	BlackDiamond 8000 series	100
	BlackDiamond 8900 xl-series	200
	BlackDiamond 10808	200
	BlackDiamond 12800 series	100
	BlackDiamond 20800 series	200
	Summit X250e, X450a, X460, X650	50
	Summit X480	200
OSPF subnets on a single router—recommended maximum number of OSPF routed subnets on a switch.	All platforms with Core license or higher	400
OSPF virtual links—maximum number of supported OSPF virtual links.	All platforms with Core license or higher	32
OSPFv2 links—maximum number of links in the router LSA.	All platforms	419
OSPFv3 active interfaces—maximum number of OSPFv3 active interfaces.	All platforms with Advanced Edge license	4
OSPFv3 areas—as an ABR, the maximum number of supported OSPFv3 areas.	All platforms with Core license or higher	16

Table 37: Supported Limits (Continued)

Metric	Product	Limit
OSPFv3 external routes—recommended maximum number of external routes.	BlackDiamond 8000 series	10,000
	BlackDiamond 8900 xl-series	60,000
	BlackDiamond 10808	60,000
	BlackDiamond 12800 series	50,000
	BlackDiamond 20800 series	60,000
	Summit X450a, X460, X650	10,000
	Summit X480	60,000
OSPFv3 interfaces—maximum number of OSPFv3 interfaces.	BlackDiamond 8000 series	256
	BlackDiamond 8900 xl-series	384
	BlackDiamond 10808	384
	BlackDiamond 12800 series	256
	BlackDiamond 20800 series	384
	Summit X450a, X460, X650	128
	Summit X480	384
OSPFv3 inter- or intra-area routes—recommended maximum number of inter- or intra-area routes.	BlackDiamond 8000 series	6,000
	BlackDiamond 8900 xl-series	6,000
	BlackDiamond 10808	6,000
	BlackDiamond 12800 series	6,000
	BlackDiamond 20800 series	6,000
	Summit X450a, X460, X650	3,000
	Summit X480	6,000
OSPFv3 neighbors—maximum number of OSPFv3 neighbors.	BlackDiamond 8000 series	64
	BlackDiamond 8900 xl-series	128
	BlackDiamond 10808	128
	BlackDiamond 12800 series	128
	BlackDiamond 20800 series	128
	Summit X450a, X460, X650	64
	Summit X480	128
OSPFv3 virtual links—maximum number of OSPFv3 virtual links supported.	All platforms with Core license or higher	16

Table 37: Supported Limits (Continued)

Metric	Product	Limit
PIM snooping—maximum number of (S,G) entries programmed in the hardware (IP multicast compression disabled).	BlackDiamond 8800 c-series	2,048[c]
	BlackDiamond 8000 e-series	500[c]
	BlackDiamond 8900 series	
	8900-10G24X-c modules 8900-G96T-c modules 8900 xl-series	2,048[c] 4,096[c] 4,096[c]
	BlackDiamond 10808	15,000
	BlackDiamond 12800 series	15,000
	BlackDiamond 20800 series	3,700
	Summit X150, X250e, X350, X450e	500[d]
	Summit X450a	1,024
	Summit X480	4,096
	Summit X460, X650	2,048
PIM snooping—maximum number of (S,G) entries programmed in the hardware (IP multicast compression enabled).	BlackDiamond 8800 a-series	2,000[d]
	BlackDiamond 8800 c-series	6,000[d]
	BlackDiamond 8000 e-series	500[d]
	BlackDiamond 8900 c-series	6,000[d]
	BlackDiamond 8900 xl-series	12,000[b]
	Summit X150, X250e, X350, X450e	500[d]
	Summit X450a	2,000[d]
	Summit X480	12,000[b]
	Summit X460, X650	6,000[d]
PIM—maximum routes—maximum number of (S,G) entries installed in the hardware (IP multicast compression disabled).	BlackDiamond 8800 c-series	2,048[c]
	BlackDiamond 8000 e-series	500[d]
	BlackDiamond 8900 series	
	8900-10G24X-c modules 8900-G96T-c modules 8900 xl-series	2,048[c] 4,096[c] 4.096[c]
	BlackDiamond 10808	12,000
	BlackDiamond 12800 series	12,000
	BlackDiamond 20800 series	3,700
	Summit X150, X250e, X350, X450e	500[d]
	Summit X450a	1,024
	Summit X480	4,096
	Summit X460, X650	2,048

Table 37: Supported Limits (Continued)

Metric	Product	Limit
PIM—maximum routes—maximum number of (S,G) entries installed in the hardware (IP multicast compression enabled).	BlackDiamond 8800 a-series	2,000[d]
	BlackDiamond 8800 c-series	6,000[d]
	BlackDiamond 8000 e-series	500[d]
	BlackDiamond 8900 c-series	6,000[d]
	BlackDiamond 8900 xl-series	12,000[b]
	Summit X150, X250e, X350, X450e	500[d]
	Summit X450a	1,024
	Summit X480	12,000[b]
	Summit X460, X650	2,048
PIM-SSM (maximum SSM routes)—maximum number of (S,G) entries installed in the hardware with PIM SSM configuration (IP multicast compression disabled).	BlackDiamond 8800 c-series	2,048[c]
	BlackDiamond 8000 e-series	500[d]
	BlackDiamond 8900 series	
	8900-10G24X-c modules	2,048[c]
	8900-G96T-c modules	4,096[c]
	8900 xl-series	15,000
	BlackDiamond 10808	15,000
	BlackDiamond 12800 series	4,096[c]
	BlackDiamond 20800 series	3,700
	Summit X150, X250e, X350, X450e	500[d]
	Summit X450a	1,024
	Summit X480	4,096
	Summit X460, X650	2,048
PIM-SSM (maximum SSM routes)—maximum number of (S,G) entries installed in the hardware with PIM SSM configuration (IP multicast compression enabled).	BlackDiamond 8800 a-series	2,000[d]
	BlackDiamond 8800 c-series	6,000[d]
	BlackDiamond 8000 e-series	500[d]
	BlackDiamond 8900 c-series	6,000[d]
	BlackDiamond 8900 xl-series	12,000[b]
	Summit X150, X250e, X350, X450e	500[d]
	Summit X450a	2,000[d]
	Summit X480	12,000[b]
	Summit X460, X650	6,000[d]
PIM (maximum interfaces)—maximum number of PIM active interfaces.	All platforms	256
PIM (maximum interfaces)—maximum number of PIM snooping enabled interfaces.	All platforms	256
Policy-based routing (PBR) redundancy—maximum number of flow-redirect and nexthops per each flow-direct.	All platforms	32

Table 37: Supported Limits (Continued)

Metric	Product	Limit
Private VLANs—maximum number of subscribers. Assumes a minimum of one port per network and subscriber VLAN.	BlackDiamond 8800 a-, c-, e-, xl-series	
	with eight modules of 48 ports	383
	8900-G96T-c modules	767
	BlackDiamond 10808	1,400
	BlackDiamond 12800 series	1,400
	Summit series	One less than the number of available user ports
Private VLANs—maximum number of private VLANs with an IP address on the network VLAN.	All platforms	512
Private VLANs—maximum number of private VLANs in an L2-only environment.	BlackDiamond 8800 a-, c-, e-series	384
	BlackDiamond 8900 series	2,046
	BlackDiamond 10808	2,046
	BlackDiamond 12800 series	2,046
	Summit X250e, X450a, X450e, X460	384
	Summit X480, X650	2,046
Provider Backbone Bridging (PBB) Service and Customer VLANs—maximum number of service and customer VLANs	BlackDiamond 20800 series	4,000
PBB Backbone VLANs—maximum number of backbone VLANs.	BlackDiamond 20800 series	2,000
PBB ISIDs—maximum number of ISIDs. Range is 256 to 330, 221.	BlackDiamond 20800 series	4,000
PBB Backbone Edge Bridges (BEBs) in a PBB Network—maximum number of BEBs in a PBB network.	BlackDiamond 20800 series	256
PBB MAC Binding Entries—maximum number of MAC-binding entries.	BlackDiamond 20800 series	400,000
PBB-Traffic Engineering (PBB-TE)—maximum number of static MAC binding entries.	BlackDiamond 10808	
	MSM-1	98,000
	MSM-1XL	100,000
	BlackDiamond 12800 series	
	MSM-5	49,000
	MSM-5R	100,000
	MSM-6R	100,000
Route policies—suggested maximum number of lines in a route policy file.	All platforms	10,000
RIP-learned routes—maximum number of RIP routes supported without aggregation.	BlackDiamond 8000 series	10,000
	BlackDiamond 8900 xl-series	10,000
	BlackDiamond 10808	10,000
	BlackDiamond 20800 series	10,000
	Summit X250e, X450a	3,000
	Summit X460	10,000
	Summit X480, X650	10,000

Table 37: Supported Limits (Continued)

Metric	Product	Limit
RIP interfaces on a single router—recommended maximum number of RIP routed interfaces on a switch.	BlackDiamond 8000 series	256
	BlackDiamond 8900 xl-series	384
	BlackDiamond 10808	384
	BlackDiamond 20800 series	384
	Summit X250e, X450a	128
	Summit X460	256
	Summit X480	384
	Summit X650	256
RIPng learned routes—maximum number of RIPng routes.	BlackDiamond 8000 series	3,000
	BlackDiamond 8900 xl-series	5,000
	BlackDiamond 10808	5,000
	BlackDiamond 12800 series	5,000
	BlackDiamond 20800 series	5,000
	Summit X250e, X450a	1,500
	Summit X480	5,000
	Summit X460, X650	3,000
RSVP-TE interfaces—maximum number of interfaces.	BlacDiamond 8900 xl-series	32
	BlackDiamond 10808	32
	BlackDiamond 12800 R-series	32
	BlackDiamond 20800 series	64
	Summit X460, X480	32
RSVP-TE ingress LSPs—maximum number of ingress LSPs.	BlacDiamond 8900 xl-series	2,000
	BlackDiamond 10808	2,000
	BlackDiamond 12800 R-series	2,000
	BlackDiamond 20800 series	2,000
	Summit X460, X480	2,000
RSVP-TE egress LSPs—maximum number of egress LSPs.	BlacDiamond 8900 xl-series	2,000
	BlackDiamond 10808	4,000
	BlackDiamond 12800 R-series	4,000
	BlackDiamond 20800 series	4,000
	Summit X460, X480	2,000
RSVP-TE transit LSPs—maximum number of transit LSPs.	BlacDiamond 8900 xl-series	2,000
	BlackDiamond 10808	2,000
	BlackDiamond 12800 R-series	1,500
	BlackDiamond 20800 series	2,000
	Summit X460, X480	2,000
RSVP-TE paths—maximum number of paths.	BlacDiamond 8900 xl-series	1,000
	BlackDiamond 10808	1,000
	BlackDiamond 12800 R-series	1,000
	BlackDiamond 20800 series	1,000
	Summit X460, X480	1,000

Table 37: Supported Limits (Continued)

Metric	Product	Limit
RSVP-TE profiles—maximum number of profiles.	BlacDiamond 8900 xl-series	1,000
	BlackDiamond 10808	1,000
	BlackDiamond 12800 R-series	1,000
	BlackDiamond 20800 series	1,000
	Summit X460, X480	1,000
RSVP-TE EROs—maximum number of EROs per path.	BlacDiamond 8900 xl-series	64
	BlackDiamond 10808	64
	BlackDiamond 12800 R-series	64
	BlackDiamond 20800 series	64
	Summit X460, X480	64
Spanning Tree (maximum STPDs)—maximum number of Spanning Tree Domains on port mode EMISTP.	All platforms	64
Spanning Tree PVST—maximum number of port mode PVST domains. **Notes:** • Maximum of 7 active ports per PVST domain when 128 PVST domains are configured. • For the Black Diamond 20800 series switch, there is a maximum of 10 active ports per PVST domain when 256 PVST domains are configured,	All platforms (except BlackDiamond 20800 series)	128
	BlackDiamond 20800 series	256
Spanning Tree—maximum number of multiple spanning tree instances (MSTI) domains.	All platforms	64
Spanning Tree—maximum number of VLANs per MSTI. **Note:** Maximum number of 10 active ports per VLAN when all 500 VLANs are in one MSTI.	All platforms (except Summit X460)	500
	Summit X460	600
Spanning Tree—maximum number of VLANs on all MSTP instances.	All platforms (except BlackDiamond 20800 series and Summit X460)	1,000
	BlackDiamond 20800 series	1,024
	Summit X460	1,024
Spanning Tree (802.1d domains)—maximum number of 802.1d domains per port.	All platforms	1
Spanning Tree (number of ports)—maximum number of ports including all Spanning Tree domains.	All platforms	2,048
Spanning Tree (maximum VLANs)—maximum number of STP protected VLANs (dot1d and dot1w).	BlackDiamond 8900 series	1,024
	BlackDiamond 20800 series	1,024
	Summit X460	600
	All other platforms	560
SSH (number of sessions)—maximum number of simultaneous SSH sessions.	All platforms	8

Table 37: Supported Limits (Continued)

Metric	Product	Limit
Static MAC multicast FDB entries—maximum number of permanent multicast MAC entries configured into the FDB.	BlackDiamond 8000 a-, c-, e-, xl-series	1,024
	BlackDiamond 10808	1,024
	BlackDiamond 12800 series	1,024
	Summit X150, X350, X250e, X450a, X450e, X460, X480, X650	1,024
Syslog servers—maximum number of simultaneous syslog servers that are supported.	All platforms	4
TCAM entries—amount of entries available in the lookup tables for Longest Prefix Match routing lookups, learned MAC address, and ACLs.	BlackDiamond 10808, MSM-1	128,000
	BlackDiamond 10808, MSM-1XL	256,000
	BlackDiamond 12800 series	49,000
	BlackDiamond 12800 R-series	229,000
	BlackDiamond 20800 series	128,000
Telnet (number of sessions)—maximum number of simultaneous Telnet sessions.	All platforms	8
Virtual routers—maximum number of user-created virtual routers that can be created on a switch. **Note:** Virtual routers are not supported on Summit X150, X250e, X350, X450a, and X450e series switches.	BlackDiamond 8000 c-series	63
	BlackDiamond 8900 xl-series	63
	BlackDiamond 10808	63
	BlackDiamond 12800 series	63
	BlackDiamond 20800 series	63
	Summit X460, X480, X650	63
Virtual router forwarding (VRFs)—maximum number of VRFs that can be created on a switch. **Note:** VRF of type VPN-VRF are not supported in ExtremeXOS 12.5.1.	BlackDiamond 8000 c-series	190
	BlackDiamond 8900 xl-series	190
	BlackDiamond 10808	1000
	BlackDiamond 12800 series	1000
	BlackDiamond 20800 series	1000
	Summit X460, X480, X650	190
VRF forwarding instances—number of non-VPN VRFs that can be created on a switch.	BlackDiamond 8000 c-series	190
	BlackDiamond 8900 xl-series	190
	BlackDiamond 10808	800
	BlackDiamond 12800 series	800
	BlackDiamond 20800 series	400
	Summit X460, X480, X650	190
Virtual router protocols per VR—maximum number of routing protocols per VR.	All platforms	8
Virtual router protocols per switch—maximum number of VR protocols per switch.	All platforms	64
VLAN aggregation—maximum number of port-VLAN combinations on any one super VLAN and all of its sub VLANs.	All platforms	1,000
VLANs—includes all VLANs.	All platforms	4,094

Table 37: Supported Limits (Continued)

Metric	Product	Limit
VLANs—maximum number of virtual ports.	BlackDiamond 12804	50,029
	BlackDiamond 20800 series	50,029
VLANs (Layer 2)—maximum number of Layer 2 VLANs.	All platforms	4,094
VLANs (Layer 3)—maximum number of Layer 3 VLANs.	All platforms	512
VLANs (maximum active port-based)—number of simultaneously active port-based VLANs.	All platforms	4,094
VLANs (maximum active protocol-sensitive filters)—number of simultaneously active protocol filters in the switch.	All platforms	15
VLAN translation—maximum number of translation VLANs. Assumes a minimum of one port per translation and member VLAN.	BlackDiamond 8000 a-, c-, e-, xl-series	
	with eight modules of 48 ports 8900-G96T-c modules	383 767
	BlackDiamond 10808	1,400
	BlackDiamond 12800 series	1,400
	Summit X450a and X450e, group of 24 ports	
	with two-port option cards without option cards	25 23
	Summit series	One less than the number of available user ports
VLAN translation—maximum number of translation VLAN pairs with an IP address on the translation VLAN.	All platforms	512
VLAN translation—maximum number of translation VLAN pairs in an L2-only environment.	BlackDiamond 8800 a-, c-, e-series	384
	BlackDiamond 8900 xl-series	2,046
	BlackDiamond 10808	2,046
	BlackDiamond 12800 series	2,046
	Summit X250e, X450a, X450e, X460	384
	Summit X480, X650	2,046
vMAN (maximum ACL rules for vMAN)—maximum number of ACL rules for vMAN.	BlackDiamond 10808	4,000
	BlackDiamond 12800 series	4,000
vMAN (0x8100 ethertype vMANs)—maximum number of vMANs configured on a port whose ethertype is 0x8100.	BlackDiamond 20800 series	4,092
VPLS: VCCV (pseudo wire Virtual Circuit Connectivity Verification) VPNs—maximum number of VCCV enabled VPLS VPNs.	BlacDiamond 8900 xl-series	16
	BlackDiamond 10808	16
	BlackDiamond 12800 R-series	16
	BlackDiamond 20800 series	16
	Summit X460, X480	16

Table 37: Supported Limits (Continued)

Metric	Product	Limit
VPLS: MAC addresses in an H-VPLS network—maximum number of MAC address learned by a switch in an evenly distributed hierarchical VPLS **Note:** Increasing the number of spokes per VPLS will decrease the maximum number of MAC addresses that can be learned.	BlackDiamond 10808	60,000
	BlackDiamond 12800 R-series	60,000
	BlackDiamond 8900 xl-series	524,288 (up to)[b]
	BlackDiamond 20800 series	500,000
	Summit X460	32,768
	Summit X480	524,288 (up to)[b]
VPLS: MAC addresses in a fully meshed VPLS network—maximum number of MAC addresses learned by a switch in an evenly distributed fully meshed VPLS network.	BlackDiamond 10808	100,000
	BlackDiamond 12800 R-series	80,000
VPLS: MAC addresses—maximum number of MAC addresses learned by a switch.	BlacDiamond 8900 xl-series	524,288 (up to)[b]
	BlackDiamond 10808	100,000
	BlackDiamond 12800 R-series	80,000
	BlackDiamond 20800 series	500,000
	Summit X460	32,768
	Summit X480	524,288 (up to)[b]
VPLS VPNs—maximum number of VPLS virtual private networks per switch.	BlackDiamond 8900 xl-series	1,023
	BlackDiamond 10808	2,000
	BlackDiamond 12800 R-series	2,000
	BlackDiamond 20800 series	4,000
	Summit X460, X480	1,023
VPLS peers—maximum number of VPLS peers per VPLS instance.	BlacDiamond 8900 xl-series	32
	BlackDiamond 10808	32
	BlackDiamond 12800 R-series	32
	BlackDiamond 20800 series	64
	Summit X460, X480	32
VPLS pseudo wires—maximum number of VPLS pseudo wires per switch.	BlacDiamond 8900 xl-series	7,090
	BlackDiamond 10808	2,000
	BlackDiamond 12800 R-series	2,000
	BlackDiamond 20800 series	16,000
	Summit X460, X480	7,090
Virtual Private Wire Service (VPWS) VPNs—maximum number of virtual private networks per switch.	BlackDiamond 8900 xl-series	4,000
	BlackDiamond 10808	4,000
	BlackDiamond 12800 series	4,000
	BlackDiamond 20800 series	4,000
	Summit X460	1,000
	Summit X480	4,000

Table 37: Supported Limits (Continued)

Metric	Product	Limit
VRRP (maximum instances)—maximum number of VRRP instances for a single switch.	BlackDiamond 8800 c-series MSM-48c BlackDiamond 8900 xl-series 8900-MSM128 BlackDiamond 20800 series All other platforms with Advanced Edge license or higher	 256 256 256 128
VRRP (maximum VRID)—maximum number of unique VRID numbers per switch.	All platforms with Advanced Edge license or higher	7
VRRP (maximum VRIDs per VLAN)—maximum number of VRIDs per VLAN.	All platforms with Advanced Edge license or higher	7
VRRP (maximum ping tracks)—maximum number of ping tracks per VLAN.	All platforms with Advanced Edge license or higher	8
VRRP (maximum ping tracks)—maximum number of ping tracks per VRRP Instance under 128 VRRP instances. **Hello interval:** 100 milliseconds Frequency: 3 seconds Miss: 3 **Hello interval:** 1 second Frequency: 3 seconds Miss: 3	All platforms with Advanced Edge license or higher	 2 4
VRRP (maximum iproute tracks)—maximum number of IP route tracks per VLAN.	All platforms with Advanced Edge license or higher	8
VRRP—maximum number of VLAN tracks per VLAN.	All platforms with Advanced Edge license or higher	8
XML requests—maximum number of XML requests per second. **Note**: Limits are dependent on load and type of XML request. These values are dynamic ACL data requests.	BlackDiamond 8800 c-series with 100 DACLs with 500 DACLs BlackDiamond 8900 series with 100 DACLs with 500 DACLs BlackDiamond 12800 series with MSM-6R with 100 DACLs with 500 DACLs Summit X450a, X480, X650 with 100 DACLs with 500 DACLs	 10 3 10 3 10 3 4 1
XNV authentication—maximum number of VMs that can be processed (combination of local and network VMs).	All platforms	2,048
XNV database entries—maximum number of VM database entries (combination of local and network VMs).	All platforms	2,048

Table 37: Supported Limits (Continued)

Metric	Product	Limit
XNV database entries—maximum number of VPP database entries (combination of local and network VPPs).	All platforms	2,048
XNV local VPPs—maximum number of XNV local VPPs.[e]	All platforms Ingress Egress	 2,048 512
XNV network VPPs—maximum number of XNV network VPPs.[e]	All platforms Ingress Egress	 2,048 512

a. The table shows the total available; see the note included in PD3-77983510.
b. Limit depends on setting configured for `configure forwarding external-tables`.
c. Applies only if all enabled BlackDiamond 8000 I/O modules are BlackDiamond 8000 c- or xl-series modules.
d. Effective capacity varies based on actual IP addresses and hash algorithm selected, but is higher for BlackDiamond 8000 c-series and xl-series modules and Summit X460, X480 and X650 switches compared to BlackDiamond 8800 a-series and 8000 e-series modules and Summit X250e, X450e, and X450a switches.
e. The number of XNV authentications supported based on system ACL limitations.

3 Open Issues, Known Behaviors, and Resolved Issues

CHAPTER

This chapter describes items needing further clarification and behaviors that might not be intuitive. It also includes the items that have been resolved.

This chapter contains the following sections:

Open Issues

Following are the open issues for supported features in ExtremeXOS 12.5.4.

Table 38: Open Issues, Platform-Specific and Feature PDs

PD Number	Description
General	
PD4-2119506258	Loading a configuration from a script, or pasting a configuration to a telnet session, is not working for a specific set of PIM commands. **Workaround:** Change the order of the configuration so that the `configure vlan <vlan> tag <tag value>` command is placed between the `configure vlan <vlan> ipa <ip address>` and `configure pim add vlan <vlan> sparse` commands.
PD4-2135369483	The extremeCurrentConfigInUse variable returns the wrong value of `factoryDefault(4)` regardless of the configuration used to boot the switch.
PD4-2136974279	Deleting the secondary IP address of a VLAN not only disables IP forwarding, you will not be able to disable IP multicast forwarding. **Workaround:** Disable IP multicast forwarding by unconfiguring the primary IP address of the VLAN.

Table 38: Open Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
PD4-723933144	After adding a sub-VLAN to a super-VLAN on a Summit X450 switch, the following message is displayed: `<Erro:HAL.IPv4ACL.Error> : ACL filter hardware full for unit 1`
PD4-2110742669	When using SCP to transfer files to an Extreme switch, the transfer fails with an "incomplete command" error.
PD4-2112303228	An ELRP loop occurs after rebooting a Summit X450e-48p stack because of a delay in EAPS convergence.
PD4-2011056021	After a reboot, I/O slots do not go into an operational state with identity management enabled (when I/O ports are part of identity manager). **Workaround:** Using the ExtremeXOS CLI, run the `configure identity-management delete ports all` command before the switch reboots. Once the switch has rebooted, run the `configure identity-management add ports all` command.
PD4-1933787334	The RtMgr process may encounter the assertion failure `ASSERTION FAILURE by rtmgr in rtMgrResolveEgressIf()@rtMgrTable.c:6892 REASON: IPGW_OUTIF_INDEX(tmpInfo) == ifIndex` when an IP address is configured on a VLAN.
PD4-1922513168	EPM process crashes with signal 6 when upgrading a switch from ExtremeXOS 12.2.2 to ExtremeXOS 12.3.5 when an SSH license file has 100 or more SSH licenses.
PD4-1885807081	A switch shows the following ACL error while detecting a kerberos identity and the switch is not synchronizing the kerberos identity with a backup slot. `<Erro:HAL.IPv4ACL.Error>`
PD4-1859776249	A switch resends SNMPv3 Inform Requests even after an SNMPv3 Inform Response is received from an Inform receiver.
PD4-1842342791, PD4-1291631579	When working in network login, after a dot1x client logs out, the port is not moved to a MAC-based VLAN.
PD4-1842342743, PD4-1300978095	After installing a legacy CLI module, the CLI command `load script` returns the following error message: `%% Unrecognized command: create vlan v$x`
PD4-1824530443	The following behavior differences were observed between a Summit X480 and a Summit X450a switch: • Configured a general query interval of 125 seconds but a Summit X480 switch sends general queries every 130 seconds. This issue is not seen on a Summit X450a switch. • A Summit X480 is sending both MLDv1 and MLDv2 reports even though only MLDv2 is enabled. This issue is not seen on a Summit X450a switch.
PD4-1799324137	Co-existence of untagged vMAN VPLS and VLAN VPLS on LAG ports is not supported.
PD4-1687877821	A switch hangs while adding 52 RIPng processes to a user VR with eight processes already in the default VR.
PD4-1620486150	A netTools configuration is lost after a graceful termination of the netTools process followed by an MSM failover.
PD4-1630086252	When unconfiguring an IP address on an egress VLAN, or re-configuring the IP address of the egress VLAN, all the MVR cache entries that are ingressing via other VLANs are also cleared from the hardware. Because of this, momentary CPU bursts are observed.
PD4-1659204361, PD4-772121565	A HAL crash with signal 11 occurs when running the `disable access-list refresh blackhole` command.
PD4-1663984367	Whenever a (*, G) join is received, all hardware entries installed on non upstream interfaces (*, G) are cleared. Therefore, every 60 seconds, the L2 switching is affected, traffic comes to the CPU, and entries are re-learned.

Table 38: Open Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
PD4-1883558321	When using IdMgr, the `configure identity-management add port all` command is not enabling IdMgr on any ports. **Workaround:** Use the `configure identity-management add port <portlist>` command to enable IdMgr on ports.
PD4-1687877872	A switch hangs while adding 49 RIPng processes to a user VR and is then rebooted with seven processes already in the default VR.
PD4-1688055111	A system crash occurs when the system is configured with 2,000 VPLS and 1,000 CFM instances while running the `restart ports`, or `save` and `reboot` commands.
PD4-1770890688, PD4-770508534	If the `configure ip-mtu` command is configured on VLANs that have only an IPv6 address, the `show configuration` command does not display the output for the `configure ip-mtu` command.
PD4-1844559626	After configuring a banner, if a configuration with no banner is used, the banner configured earlier is displayed.
PD4-1535268856	ISIS neighborship goes down when the hello interval is set to minimal.
PD4-1567053191	ISIS goes to Init state and provides a negative HoldTime when redistributing 40,000 OSPF routes into ISIS.
PD4-1636566851	ISIS crashes with signal 11 when performing an ISIS process restart after a MIBwalk with 255 adjacencies.
PD4-1630086161	Creating and additional 100 PIM VLANs when a system has 2,000 (S, G) entries with 100 egress VLANs causes a PIM process crash.
PD4-1540274936	An ISIS process crash with signal 6 may occur when disabling ISIS when ISISv6 and ISIS IP route compression are configured.
PD4-1624707485	In an IdMgr configuration, a DUT does not show unknown entries if a client or server port is configured with a static IP address and connected to an L2 network.
PD4-1584840651	The ethernet OAM half-link feature is not supported in ExtremeXOS 12.5.1.
PD4-1556309411	With multiple NSSA areas where there is more than one link between areas, OSPF default routes are not installed in the routing table.
PD4-1549189647	In ISIS, when route summarization is configured with authentication, the authentication is not effective and all the routes are advertised, regardless of the type of authentication configured.
PD4-1535268629	ISIS tx-only authentication also authenticates received LSPs. The received routes are not installed in the ISIS LSDB based on the authentication policy.
PD4-1620486143	When DHCP lease time is set to the maximum/infinity (4294967295), the DHCP client continuously sends renewal requests.
PD3-57182431	For the incoming traffic with alignment errors, the "RX Align" counter in the output of the `show ports <port number> rxerrors` command is not incremented. Instead, the "RX CRC" counter is incremented.
PD4-813961562	When a service VLAN is changed to include a dot1q tag on both sides in CFM VPLS, the RMEP entry is not learned on one side.
PD4-749060484	Errors are seen when a configuration having identifiers (SNMPv3 user name/EAPS domain name) with special characters are loaded through a script.
PD4-561358261	If you create a super VLAN and a sub-VLAN in different virtual routers you are able to bind the VLANs. Super VLANs and sub-VLANs should belong to the same virtual router.
PD4-460892051	Installing different versions of an ExtremeXOS image and an SSH image displays the following error message: `Failed to install image- cannot read spec file" in the log "upgrade failed installation:got error from installer DLL"`

Table 38: Open Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
PD3-132508261	When issuing the `enable jumbo-frame port all` command on a BlackDiamond 8800, the MTU size for the VLAN is not configured. Sending 5,000 byte traffic works correctly. However, if you disable jumbo-frames on the egress port the error message `Packet too big` is displayed.
PD3-104885349	When a shared link comes up, temporary traffic loss may occur until FDB entries are aged. Aging occurs by default every five minutes. **Workaround:** To reduce traffic loss, reduce the default age time.
PD3-132775269	Telnet sessions between two switches using two windows causes one session to hang if both sessions are edited but only one session is saved.
PD3-28378521	Enabling load sharing on a port that is being mirrored causes the mirroring to stop.
BlackDiamond 8800 Series Switch	
PD4-1941344101	IP multicast error messages occur on slot G8X after clearing IGMP snooping or stopping and restarting multicast streams.
PD4-1878642172	Pseudo wire counters for Tx and Rx are not working on BlackDiamond 8900 series switches after a transport LSP path is changed.
PD4-1680990961	Process etmon is terminated with signal 6 on MSM-B during local AAA feature regression.
PD4-1827550796, PD4-1147104931	A BlackDiamond 8800 series switch takes more than 30 minutes to boot up with VLAN aggregation configured.
PD4-1557200360	In ISIS, when the topology mode is changed from multi to single, not all routes are redistributed from OSPFv3.
PD4-1546542587	ISIS process crashes with signal 6 while trying to change the metric-style to `wide` under scaled conditions.
PD4-1637972971	Beginning with ExtremeXOS 12.5, the mirroring feature stops working after downgrading and then upgrading the switch software.
PD4-1567438997	When an ExtremeXOS switch receives an OSPF user group LSA advertisement with a router ID field as 0.0.0.0, the switch does not process the advertisement and reboots OSPF.
PD4-1674379381	When installing new PSU controller firmware, log messages starting with `<Crit:Kern.Critical>` or `<Erro:Kern.Error>` may be generated by the backup MSM and can be ignored.
PD4-1627772844	Due to the addition of new features in ExtremeXOS 12.5, BlackDiamond 8800 series switch configurations running older management modules (MSM-G8X and MSM-48) may run out of memory when a large number of VLANs are configured with multiple tagged ports added for each VLAN. For example, a configuration with 4,000 VLANs and 24 ports tagged on each VLAN is not supported. Newer BlackDiamond 8800 management modules (MSM-48c or 8900-MSM128) are recommended for larger configurations.
PD4-1530729359	An OSPF session goes down and stays in EX_START and continues flapping to EXCHANGE and EX_START states.
PD4-750014887	If a failover occurs during a “refresh policy” the HAL process dies on a new master MSM. **Workaround:** Avoid performing a policy refresh if switching from one MSM to another.
BlackDiamond 10800 Series Switch	
PD4-1659977270	A BlackDiamond 10800 switch does not forward L3 routed packets with MPLS PHP enabled. **Workaround:** Disable MPLS PHP.

Table 38: Open Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
PD4-1621694181	The following error is seen on a BlackDiamond 10800 series switch when it reboots with a DHCP client configuration. `<Erro:cm.sys.actionErr> MSM-A: Error while loading "ipBrForward":` **Workaround:** Run the `show log match error` command again.
PD4-1603284873	Route compression is not working properly when a system experiences a TCAM full condition.
PD3-121985381	You cannot configure an IP MTU that is greater than the configured jumbo frame size. However, when the jumbo frame size is configured using a smaller value than the IP MTU, the configuration is accepted and the traffic is forwarded using the larger packet sizes.
PD4-489592307	Switch is not sending an "icmp destination unreachable" message to the source when it receives a jumbo packet with a "dont fragment" bit message. This applies to BlackDiamond 10800 and BlackDiamond 20808 switches only.
PD3-28320363	In IPv6, the encapsulate value is “next header,” which is not currently a valid attribute.

PD3-124124316	The following error messages are shown in the log when running 50,000 unicast routes with ECMP enabled:
	`<Warn:HAL.Sys.Warning> MSM-A: hal: Reached maximum otp index allocation`
	`<Warn:HAL.Sys.Warning> MSM-A: Previous message repeated 999 additional times in the last 1 second(s)`

PD4-318846862	L3 multicast traffic in a VPLS vMAN is forwarded twice when the LSP is changed to port sharing and is then changed back.
PD3-54870537, PD3-45729158	Under the following circumstances, EAPS control packets received on the wrong VLAN may be treated and processed. **1** Create a EAPS ring with three or more switches with a BlackDiamond 10808 as one of the transit switches, directly connect to the master with load sharing enabled. **2** Enable load sharing on the primary port of the master switch (the master port should be higher than the group port so that the configuration master and current master are different in load sharing). **3** Disable load sharing on the BlackDiamond 10808. **4** Show EAPS on the master switch; the domain state will be complete. **5** The control packets are transmitted on the current master and the BlackDiamond 10808 will receive the packets on the port that is not part of the EAPS VLAN.
PD3-202184409	Adding/deleting a LAG sharing port changes the VLAN status, which is causing an OSPF/MPLS reconvergence.
PD3-133427241	When an OSPF external filter is configured to deny routes, not all routes are being filtered.
PD3-204793983	The egress rate-limit shown in the command output of the `show port utilization` command is not correct.
BlackDiamond 12800 Series Switch	
PD4-1576028451	Error messages are displayed on the console when an MSM failover is performed, and when a PBB configuration exists with a high number of service VLANs.
PD4-722565430	IPv6 ACL address masks are not working correctly after rebooting a switch.
PD4-737811617	Creating a blackhole FDB entry on a BlackDiamond 12800 series switch still forwards traffic from a BlackDiamond 20808 to a BlackDiamond 12800. **Workaround:** Create blackhole entries for the same MAC on each of the subscriber VLANs.

Table 38: Open Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
PD4-742951283	An I/O slot fails due to a Tx data memory overflow and generates the following error message: `<Erro:HAL.Card.Error> MSM-A: skylerHC-1184: skyler12 on slot 1 (4 errors):TX Data Memory Overflow: reg 0x32 value 0x01000001 wanted (0x00000000) got (0x01000000)`
PD4-740255437	Policy files are not refreshed when generating 30,000 rules.
PD4-285686375	After upgrading to the latest ExtremeXOS 12.1.2. image, the following EEPROM error message appears in the log: `MSM-A: MSM-B card eeprom checksum failed. 0xb97 != 0xb96`
PD3-125288233	MSTP fails to converge when a vMAN Ethernet type is set to 0x8100 on a BlackDiamond 12800 series switch.
PD3-192175421	The following error message is displayed when installing a policy file with more than 4,096 rules: `Error: Unable to bind traffic queue tq4095 to port 1:1.`
PD3-187808062	A BlackDiamond 12800 series switch does not show a warning message on the console for down revision MSM and I/O modules after initialization.
PD3-86738591	Traffic queue statistics are incorrect when a BlackDiamond 12800 series switch is configured to work in H-QoS mode. Statistics counters are accurate when the switch is configured in the PRI mode.
PD3-118914021	When an OSPF neighbor is configured between two LSRs and MPLS, and an LDP session is configured between them, the ABR router advertises a default route to the internal router. The default route is not mapped to a label in the internal router because the ABR does not advertise the label
BlackDiamond 20800 Series Switch	
PD4-1885738914	When using VPLS, pinging between service VLANs does not work after modifying the tag value of a service VLAN.
PD4-1881467874	After an MSM failover from MSM-A to MSM-B and back to MSM-A, ARP learning is not happening on some VLANs. This is causing upper layer protocols such as OSPF to go to the down state.
PD4-1625676037	Process HAL crashes when we have 2,000 (S, G) entries with 100 egress VLANs doing L3 multicast routing using PIM DM.
PD4-1630086359	BlackDiamond 20800 series switches displays critical error messages and becomes unstable when multicast traffic is received when there are 200 egress interfaces.
PD4-1691592222	A system crash occurs on a BlackDiamond 20800 series switch when more than 500 non-VPN VRF instances are created.
PD4-1728092932	Establishing 255 ISIS adjacencies in multi-topology mode on a BlackDiamond 20800 series switch causes a HAL crash.
PD4-1545944959	With 255 adjacencies, some of the adjacent OSPF peers are in different states, for example, one side shows OSPF neighbors are full, and the other side shows they are still in the exchange state.
PD4-1618725742	A BlackDiamond 20800 series switch with 100 egress VLANs crashes when multicast traffic for 1,000 (S,G) entries is received in a burst with varying packet sizes.
PD4-1369879610	Disabling a slot on a BlackDiamond 20800 series switch while booting the system removes the module type.
PD4-1593913298	When multiple VPLS instances are configured on a BlackDiamond 20800 series switch to one peer, and the VPLS instances use different RSVP-TE LSPs for pseudo wire transport, traffic for some VPLS instances may be dropped.
PD4-1564628282	High CPU utilization is seen when broadcast traffic is sent over a VPLS service VLAN or vMAN.

Table 38: Open Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
PD4-1586685991	Traffic is not shaped on a BlackDiamond 20800 series switch if ports are added to a vMAN after configuring an ACL.
PD4-1394425195	DUT allows you to create large traffic queues without displaying an error message. The system may reboot, or I/O modules could reboot and go into a failed state, when creating and binding traffic queues that exceed the limit.
PD4-1614019101	After running the `restart process vrrp` command on a BlackDiamond 20800 series switch VRRP master, the switch may initiate slowpath forwarding. **Workaround:** Run the `restart process vrrp` command again.
PD4-1594401361	ESRP flapping causes errors on a BlackDiamond 20800 series switch that is configured with 128 ESRP domains and 2,944 VLANs.
PD4-730221901	Refreshing an ACL on an MM-B while running an MSM failover on MM-A causes MSM-A to lose the ACL configuration on MSM-A.
PD4-646084932	An FDB entry for a non-isolated VLAN is not show in the output of the `show fdb` command after disabling and enabling an I/O module.
PD4-733230780	MAC security does not work on a PVLAN.
PD4-749280880	Installing firmware fails and displays the following message: `tftp: server says: Wrong TFTP State`
PD4-1356143799	BVLAN bandwidth that contains a 1G port is not shared evenly, but randomly when a port from SVLAN and a port from CVLAN (both are 1G) are sending the line rate traffic with same priority. Random traffic drop is also observed on one traffic stream when other is stopped.
PD4-1329832744	When VRRP is disabled on a switch the redundant VRRP switch becomes the master. In this event, IP packets that need to be routed back to the switch where VRRP is disabled are dropped.

PD4-973196600	The following error or warning messages are seen after installing firmware from CR 21 (ExtremeXOS 12.3.2.5) to CR 22 (ExtremeXOS 12.4.1):
	`* (debug) BD-20808.8 # show log sev err < Erro:Kern.Error > MM-A: ide0: unexpected interrupt, status=0xd0, count=1`
	`<Erro:Kern.Error> MM-B: ide0: unexpected interrupt, status=0xd0, count=1`
	`<Erro:HAL.Card.Error> MM-A: PHD EEPROM READ ERROR..SLOT=8, ADDR=167`
	`<Erro:HAL.Card.Error> MM-A: Previous message repeated 2 additional times in the last 60 second(s)`
	`< Crit:HAL.Fabric.Critical> MM-A: pioneerBringDownFE200 Bringing Down FE200 on XBAR 2 as the command EXTRUC_FE_MCAST_WRITE_CMD Failed, Reason: UCPIPE_TIMEOUT`
	`<Erro:HAL.Card.PowerStateError> MM-A: A request to power down slot 8 failed - returning a completion code of -1 .`
	`<Erro:HAL.Card.Error> MM-A: PHD EEPROM READ ERROR..SLOT=5, ADDR=167`
	`<Erro:HAL.Card.Error> MM-A: Previous message repeated 2 additional times in the last 59 second(s)`
	`<Crit:DM.Critical> MM-B: Slot-5 FAILED (6) IO Slot5 Micro controller was reset. Attempt to recover`
	`<Crit:DM.Critical> MM-A: Slot-4 FAILED (6) IO Slot4 Micro controller was reset. Attempt to recover`
	`<Crit:cm.file.openErr> MM-B: Failed to open file "/config/primary.cfg": No such file or directory`

PD4-1135195907	With 4,000 VPLS instances, L2 unicast traffic recovers 8 to 10 minutes after disabling and enabling VPLS or MPLS traffic in a three node configuration.
PD4-465744039	ACL counters are not hitting the IGMP packets.

Table 38: Open Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
PD4-506754505	When creating a dynamic egress ACL to deny all traffic, the traffic still hits the ARP reply counter but not denying the packets.
PD4-450852442	When configuring an ACL and using the keyword `denyAll` in the `create access-list` command, the action is not stopping the ARP reply packets.
PD4-614541490	VPLS traffic stops after configuring MAC limit-learning.
PD4-720906222	Performing a save and reboot on a DUT with 5,000 dynamic ACLs causes one module to go into a failed state while the remaining modules stay in ACL sync even after one hour.
PD4-690958111	After running the `unconfigure switch all` command, an I/O module may stick in the booting state, resulting in the switch continually rebooting.
PD4-631700490	When PIM and PIM snooping are enabled on the same VLAN, and if that VLAN happens to be a PIM egress VLAN, traffic forwarding does not happen on the VLAN.
PD4-854675001, PD4-860561781	A BlackDiamond 20808 switch with a single MM running ExtremeXOS 12.3.2 software fails to upgrade during a firmware upgrade process. It also fails during the firmware downgrade process. You may need to try and install the firmware multiple times.
PD4-552222911	DUT is hanging with a busy message (dots) after configuring 7,250 ingress dynamic ACLs with conduit errors.
PD4-757707981	Proxy ARP does not work in a PVLAN.
PD4-526514731	On a BlackDiamond 20800 series switch, the system experiences a random packet drop from the MM to the packet processor health check loopback interface.
PD4-730820249	If a route prefix in a BlackDiamond 20800 series switch is more than 24, only 100,000 routes are stored in the hardware. For the route prefixes less than 24, then 512,000 routes are stored in the hardware.
PD4-734160880, PD4-697230006	Extreme Networks does not support the same (S,G) stream entering a switch through multiple constituent VLANs of a private VLAN or VLAN aggregation. If a source moves from one constituent VLAN to another, run the `clear igmp snooping` command.
PD4-1048824150	Deleting meters reports an error after an access list is configured and unconfigured multiple times. **Workaround:** Configure another meter.
PD4-1066604251	In dual MM systems, whenever a meter deletion results in a timeout, the `show meter` command output still shows the meter, even though the error `meter could not be found` is displayed. **Workaround:** Create and use another meter.
PD4-1064653511	The error `.....***** Process hal pid: 474 died with signal:11` is displayed on an active MM when 1,000 policy files are configured on multiple egress ports. **Workaround:** Configurations exceeding the scaling limit are not supported.
PD4-1064653532	When configuring an access list with traffic queues, with a 10G port as one of the egress port, traffic is lost when the corresponding 10G I/O module is hot swapped. **Workaround:** Disable and re-enable the I/O module.
PD4-1056439342	I/O modules reboot when egress rate shaping is configured above 1,000 traffic queues with all egress ports. **Workaround:** Configure egress rate shaping with the proper scaling limits.
PD4-861903959	When the backup MM is not yet synced (because of running the `run msm-failover` command or running diagnostics) and an MM performs an MM-failover, the command is accepted, however, both MMs will then reboot. **Workaround:** Make sure that `run-time diagnostics` command checks that both MMs are in sync before running the diagnostics.

Table 38: Open Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
PD4-847978862	A monitor port does not come up after enabling a port after a DUT is rebooted with a disabled monitor port. The following error is displayed while rebooting: `MM-A: voyagerCardPowerEnabl e:1144:- Invalid System mode information returned from dm. dmGetSystemMode () = 33 08/15/2009 16:47:02.47 < Erro:HAL.Card.Error > MM-A: voyagerCardPowerEnabl e:1144:- Invalid System mode information returned from dm. dmGetSystemMode () = 33`
PD4-803757411	Configuring a meter on a BlackDiamond 20808 switch to limit broadcast or multicast traffic (rate-limit flood-traffic) is not possible without an HQoS license.
PD4-748388236	Egress rate shaping does not work after running the `save` and `reboot` commands if an egress port is not specified. Configured egress rate-shaping does not work on a newly inserted I/O module if an egress port is not specified. **Workaround:** Unconfigure the ACL and re-apply the same ACL.
PD4-715473099	The multicast traffic receive rate for 10,000 multicast groups takes an excessive amount of processing time.
PD4-756263261	The `show fabric` command in an ExtremeXOS environment shows the fabric information is XFM-2.
PD4-728354005	On a BlackDiamond 20808 switch, running the `show tech-support` command when I/O modules or fabric slots are in the process of booting, or are otherwise not operational, may cause `sys-health-check` output to display fabric link faults, when there are actually none. This is a transient state. Once the modules are operational, only actual fabric link faults are displayed in the command output.
PD4-603229266	A slot reboots when load sharing is disabled and MVR is disabled and re-enabled.
PD4-587169451	Running the `install firmware` command may generate numerous error messages in the Event Management System (EMS) logs. These messages do not impact system performance. `<Erro:HAL.Sys.BackupPFCFailed> MM-A: Backup Power Fan Controller (#2) has failed <Erro:EPM.Upgrade.Fail> MM-A: Upgrade failed, script: install bootrom failed <Erro:HAL.Sys.GetPFCMastershipFailed> MM-A: Failed to get Power Fan Controller Mastership for slot #17 <Erro:HAL.Sys.OtherPFCFailed> MM-B: Power Fan Controller in slot 17 has failed to communicate with EXOS <Erro:HAL.Sys.SetBackupPFCToMaster> MM-B: An error happened and is now setting the backup Power Fan Controller #2 to be the master Power Fan Controller <Erro:HAL.Sys.MasterPFCFailed> MM-B: Master Power and Fan Controller (#1) has failed <Crit:HAL.Fabric.Critical> MM-A: pioennerBringDownFE200 Bringing Down FE200 on XBAR 1 as the command EXTRUC_FE_READ_CMD Failed, Reason: UCPIPE_ERROR <Erro:HAL.Sys.Error> MM-A: Slot XBAR1: 23918 FE 0 read 0xb50`
Summit Family Switches	
PD4-2012749818, PD4-1437616911	When running the `configure ports medium <fiber/copper> auto <on/off> speed <speed> duplex <half/full>` command, the command is not retained when a switch reboots.
PD4-1914383901	Traffic for a multiport FDB entry sent from one port is not received on the other port.

Table 38: Open Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
PD4-1867670001	VM-tracking synchronization status is complete before all policy files are downloaded to a switch.
PD4-1857577536	A switch shows the SSH status as "Module not loaded" when upgrading the switch from ExtremeXOS 12.1.5.1 to v1252b0-br-ssh-license-1 with Extreme Networks SSH software module (ssh.xmod) license file. **Workaround:** After upgrading to ExtremeXOS 12.5 software, uninstall and reinstall the SSH software module (ssh.xmod) and enable the SSH license.
PD4-1583984848	On Summit X480 switches, IPv6 slowpath traffic is not forwarded across tunnels.
PD4-1656226261	A system crash occurs when regression testing SNTP and DNS.
PD4-1679504312	A Summit X460 switch crashes when MSTP is configured with 64 MSTIs and 1,000 VLANs.
PD4-1738392317	When downloading an image using the rescue procedure, the new download has a different name than the regular download.
PD4-1805624847	Process HAL is terminated with signal 11 when 4,000 VLANs are configured and a system reboots.
PD4-1436226210	With default ethertype (0x88a8) configured, Summit X460 and X480 switches do not display an error message when adding a port as tagged to a vMAN when the port is already part of a tagged VLAN. When the port is already part of an EAPS control VLAN, EAPS goes to a failed state.
PD4-1592270392	A Summit X480 stack may get stuck in the backup state after running the `show switch` command after a system reboot or failover.
PD4-1679652990	VPLS is not sending untagged vMAN traffic type 88A8 through Summit X460 switches.
PD4-1676631313	When disabling sharing on a load-shared port that is part of multiple VLANs, VLAN statistics shows a “-” for some VLANs. **Workaround:** Unconfigure and reconfigure VLAN statistics.
PD4-1659644826	VLAN statistics monitoring is unconfigured for a specific VLAN if the VLAN name is changed.
PD4-1648023331	A Summit family switch configured with MLAG does not reply to the first ARP request received on an ISC port.
PD4-1664831900	VLAN statistics are included in the output of the `show configuration` command for load-sharing member ports even after the `unconfigure ports monitor vlan` command is issued. **Workaround:** Disable sharing, remove the VLAN statistics configuration, and enable sharing.
PD4-1673106807	For certain match conditions involving SIPv6 and DIPv6, packets may not hit an ACL in a Summit X450a switch.
PD4-1637091230	With 4,000 VPWS sessions, traffic recovery takes approximately 8 minutes before a port flap occurs. **Workaround:** On a Summit X460, it is recommended that you only configure 1,000 VPWS instances.
PD4-1589959110	When adding ECMP routes using OSPF, a route flap occurs.
PD4-1603951551	On a Summit X460 stack, the following kernel warning is seen in the log during a failover. `<Warn:Kern.Card.Warning> Slot-1: select_mux:line 250:I2C I/O operation failed`
PD4-1591238321	VM tracking repository synchronization is not working properly when using a remote FTP server.
PD4-1590249340	Clearing FDB entries when a Summit X480 switch learns 512,000 MAC addresses from MLAG ports disrupts MLAG peer TCP sessions.

Table 38: Open Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
PD4-749682632	You cannot run the `configure port auto on` command on XGM2-2bt ports.
PD3-127401831	On a Summit X250e platform with 128 VRRP instances that are advertised for 100 milliseconds, the feature "don't preempt" is not working properly.
PD4-427423116	When a dot1x client is authenticated at multiple VLANs, the output of the `show netlogin port` command shows the client is sometimes authenticated at the local server and other times at a RADIUS server. **Note:** This occurs when dot1x and MAC authentication are enabled on the port.
PD4-1142692318	On Summit X480 switches, L3 multicast traffic sent from a service VLAN/vMAN to VPLS is not received at the VPLS peer. **Workaround:** When VPLS enabled VLANs exist on a port, all VLANs on that port must have IGMP snooping disabled. Also, the IP address cannot be configured on any other VLANs (including non-VPLS VLANs). Remove ports from the default VLAN.
PD4-448681226	The `show l2stats` command does not count ARP packets to the CPU, even though the packet goes to the CPU.
PD4-489142320	One Gigabit ports set to `auto on` flap twice during a switch reboot.
PD4-489359602	Conflicting Link Fault Signal (LFS) alarms are shown when disabling local ports.
PD4-274249122	If a Summit switch populated with an XGM2-2bt module is rebooted, a false link up is seen on 10G links connected to the XGM2-2bt ports approximately 30 to 50 seconds before the switch has fully booted.

PD3-43606168	If sFlow does not have a collector configured using the `configure sflow collector` command, the `show log` command generates the following messages:
	`08/23/2005 12:28:09.55 <Noti:sflow.debug.AddCntSmplFail> : Could not add the counter sample for port 0:1020, as receiver is not configured.`
	`08/23/2005 12:07:49.55 <Noti:sflow.debug.AddCntSmplFail> : Previous message repeated 61 additional times in the last 1200 second(s).`

PD3-40266236, PD3-40233121	Traffic on load share ports configured as redundant ports incorrectly moves to other ports in the load share group during link transition.
PD3-202013281	Learning is disabled by default on remote mirroring VLANs. Running the `enable learning` command on those VLANs may cause a loss of remote mirrored traffic.
SummitStack	
PD4-2137369837	Identity information between a switch and Ridgeline does not sync up when globally disabling and enabling IdMgr. Ridgeline shows some identities as active users, but the switch shows no identities.
PD4-1629045810	When booting up a SummitStack, the following error message is displayed: `<Erro:cm.sys.actionErr> Slot-1: Error while loading "ports": Speed change is not allowed on port 6:49 as it is a Trunk member port.`
PD4-1908119150	A SummitStack does not use the MAC address of the stack for ARP replies when communicating with other devices.
PD4-1467634651	The output for the `show version` command does not include VIM and PSU on the master node, and the PSU version of the backup node.
PD4-1678164933	After upgrading to ExtremeXOS 12.5.1.4, the following error is shown in the log: `<Erro:Kern.IPv4Mc.Error> Slot-1: Unable to Del IPmc vlan 924 for 1:15 s,G=a9e6f05,e1010028 IPMC 186, unit 0 Entry not found.`
PD4-1701480101	A system crash occurs at EPC c2bd6d94 _bcm_fb_cosq_config_set during a regression run of EPM.

Table 38: Open Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
PD4-1799417357	Process snmpMaster is terminated with signal 11 in a Summit X460 stack.
PD4-1561059387, PD4-697651413	Error messages are generated when trying to over-subscribe the bandwidth for an operationally up RSVP-TE LSP.
PD4-1645865216	The following error message is seen when operating a stack where the backup switch does not have the same feature pack licenses as the master switch. `Error: Backup execution timed out, command execution aborted!` **Workaround:** When using VRs, be sure that while forming the stack using mixed platforms, the master node and backup node have the same licenses feature pack.
PD4-1655280966	Using a SummitStack, a system crash may occur after running the unconfigure mpls command and then loading scripts to configure MPLS. **Workaround:** Use the CLI to configure MPLS line by line. Do not use scripts to load a large MPLS configuration.
PD4-1547539868	On a SummitStack switch, OSPF adjacency is established when a mismatched link-type is configured.
PD4-928567091	Running the `synchronize` command on a Summit X650 in a SummitStack causes the system to time out and the stack to not synchronize for an extended period of time This also results in the master node no longer being accessible.
PD4-787052219, PD4-416129282	When a backup slot reboots and comes up, the switch experiences multiple stack link flaps.
PD3-181304741	After inserting a XENPAK in a stack (XGM2-2xn, XGM-2xn) and performing an snmpwalk on the entityMib entPhysicalDescr variable, XGM- is always shown, not the complete module description.
PD3-136493921	If a switch is added to a stack whose master switch has a license level that is greater than the level of the switch, the switch will fail. The complete condition can be seen using the `show slot detail` command. In this state, the switch does not have AAA services available. You will only be able to log into the switch using the failsafe account that was last assigned to it. You must log into the switch to upgrade the license. If the switch is not using the failsafe account configured on the stack, you can use the `synchronize stacking` {`node-address` <node-address> | `slot` <slot-number>} command to copy the failsafe account information from the master switch to the failed switch NVRAM. You can also use the `configure stacking license-level` command to configure a license level restriction on the entire stack and then reboot the stack. Once the stack is restarted, there is no longer a license mismatch, enabling you to log into the switch and upgrade the license. From the master switch, run the `unconfigure stacking license-level` command to get the stack to operate at the desired license and then reboot the stack.
PD3-126650411	A stackable system with two or more nodes may experience random VRRP master/ backup flapping issues after an MSM failover when configured with the maximum 128 VRRP instances using the minimum advertisement interval of 100ms and maximum tracking entries.
PD3-209191768	After running the `disable port all` command on a SummitStack, some port LEDs may sometimes light green even though ports are not up.
PD3-204744742	IPv6 neighbor-discovery in a management VLAN in a SummitStack resolves to the node address of the stack master, instead of the stack MAC address.
ACL	
PD4-1650568655	An ACL process crash occurs when scaling ESRP for 128 domains.
BGP	
PD4-1891612811	BGP routes are not made inactive if IP forwarding is disabled.

Table 38: Open Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
PD4-1937523122	In ExtremeXOS 12.5, BGP with graceful restart enabled functions as graceful restart "aware-only" when operating with an ExtremeXOS 12.6 BGP with graceful restart configuration.
PD4-1639664566	With graceful restart enabled and import-policy set, BGP routes are withdrawn from the adjacent peer after restarting process BGP (routes are re-advertised to adj only after grace period expires).
PD4-1599215746	Ping fails for remote loopback addresses.
CLEAR-Flow	
PD4-278443631	CLEAR-Flow commands display on platforms that do not support this capability, including the Summit X150, X250, X350, and X450e series switches, as well as BlackDiamond 8800 non-c-series switches.
EAPS	
PD4-749215481	Disabling the EAPS master primary port when there are no other ports configured on a protected VLAN will cause a disruption of L2/L3 multicast traffic. **Workaround:** Enable loopback on all EAPS protected VLANs.

PD4-471892924	Restarting the EAPS process on a controller generates the following error messages on a console, but does not impact switch performance.
	`BD-8806.80 # restart process eaps`
	`Step 1: terminating process eaps gracefully ...`
	`Step 2: starting process eaps ...`
	`Restarted process eaps successfully`
	`BD-8806.81 # ERROR:VmgrProtocolIfRegister protoId:0 numIf:1`
	`ERROR:VmgrProtocolIfRegister protoId:0 numIf:3`
	`ERROR:VmgrProtocolIfRegister protoId:0 numIf:1`

IP Routing Protocols	
PD3-39411271	icmpInMsgs counter will display the incoming ICMP packets for VR-Default only.
PD3-128093864	MSDP Source-Active responses received from non-RPF peers are not processed.
PD3-192821161	For Summit X650, X450 a-series and e-series switches, and the BlackDiamond 8800 series of switches, the maximum number of supported IP interfaces is 512 (IPv4 and IPv6 combined). If there are more IP interfaces configured, the following log message is displayed: `<Info:HAL.VLAN.Info> Maximum # of IP interfaces (512) already configured. Could not add IP address 0x0A010101 mask 0xFFFFFF00`
PD3-202580681	Enabling IP route compression may cause temporary slow path forwarding for some of the L3 traffic.
PD4-718946965	Directed broadcast traffic is not being forwarded.
Mirroring	
PD3-79867211	If you create a load sharing group (trunk), then enable mirroring to a port, the software allows you to add the mirroring port to the load sharing group.
MPLS	
PD4-1592270405	The `run msm-failover` command shows the following warning message in the log. `<Warn:Kern.IPv4FIB.Warning> Slot-4: dest 0x0A9E6D7C / 30 nexthop 0x0A9E6D39: Unable to add route to unit 1, rc Entry exists. Shadow problem.`
PD4-464587012	All unicast traffic routed by MPLS is stopped when penultimate hop popping (PHP) is enabled on all MPLS VLANs. VPLS traffic is not impacted.

Table 38: Open Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
PD4-476351932	Performing a `restart process mpls` or `restart process ospf` on a spoke node in an HVPLS setup causes the Label Distribution Protocol (LDP) peer to go down with the core node. **Workaround:** Disable and enable MPLS.
PD4-475414370	The following warning message is seen numerous times after changing VLAN Virtual Private LAN Services (VPLS) mappings: `<Warn:MPLS.LDP.InternalProb>`
PD4-475414505	In more complex topologies, detour Label Switched Path (LSP) connections are not set up.
PD4-475414558	Changing a Label Switch Router (LSR) ID causes all Label Distribution Protocol (LDP) peers to go into a NonExistent state.
PD4-452308541	The secondary pseudo wire on an ESRP master switch does not take the secondary core node pseudo wire after the primary core is rebooted.
PD3-157687121	ExtremeXOS software uses Control Channel Type 2 to indicate router alert label mode. In MPLS Router Alert Label mode, VCCV packets are encapsulated in a label stack. However, the existing VCCV packets are sent like a stack without any PW label.
PD3-184989177	When an `LDP advertise static` setting is set to `all`, all static routes are treated as egress routes and egress LSPs are created. That is, a label is generated and advertised for the static route. If the router at the end of the static route advertises a label matching that static route, the LSP that was previously an egress LSP becomes a transit LSP. An ingress LSP should also be created whenever a label is received, however, the ingress LSP is never created. **Workaround:** Do not use the `LDP advertise static all` configuration in situations where an ingress LSP for a static route is required.
PD3-139423053	Running the `show mpls rsvp-te lsp summary` command on a system configured with 2,000 ingress LSPs takes an excessive amount of time to process.
PD3-92653036	The `show mpls label`, `show mpls rsvp-te label`, and `show mpls rsvp-te lsp` command output currently does not display egress LSPs using advertised implicit NULL labels.
PD3-111544904	When a router receives an explicit NULL label, it is incorrectly treated as an implicit NULL label, so rather than sending label 0, no label is sent.
PD3-93218551	If either an egress or a transit LSP traverses the system, and an MPLS labelled packet containing a router alert label is received, that packet is not forwarded.
PD3-93069318	Only VLANs configured as protocol *any* should be added to MPLS.
PD3-104731701	When a traceroute is performed by setting the MPLS TTL to the IP TTL, ExtremeXOS does not correctly send back an ICMP response. The result is "*" characters in the traceroute for the routers that timed out. If a route is available, ExtremeXOS should attempt to send back an ICMP response.
PD3-93630853	LDP should not advertise a label mapping for a direct VLAN that does not have IP forwarding enabled.
PD3-203917264	When an explicit route object (ERO) is changed for an LSP session that is up, the LSP that is already up is not torn down. LSP stays up based on the older values. The retry count continues to increment as LSP tries to come up with new values by querying routes every 30 seconds. This is done while the earlier LSP session is still active using the previously configured values. See the retry count in the command output for the `show mpls rsvp-te lsp <lsp_name> detail` command.
Multicast	
PD4-581950231	Multicast traffic is not received even though the rendezvous point (RP) tree and source information is shown in the PIM cache table

Table 38: Open Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
PD4-521915271	The Internet Group Management Protocol (IGMP) group reports may occasionally change from Version 2 to Version 3.
PD4-339945634	When a load-sharing group is a member of a mirrored VLAN, packets ingressing on the member of the load-sharing group in the mirrored VLAN should be mirrored. On the Summit family switches and BlackDiamond 8800 modules, packets ingressing on member ports other than the master port of the load-sharing group in the VLAN are not mirrored. **Workaround:** Packets ingressing non-master ports in the load sharing group on the mirrored VLAN can be mirrored by adding virtual port mirroring filters for each of the non-master member ports.
PD3-78144711	The `show ipstats` command does not increment IGMPv3 statistics.
PD3-79383551	IGMPv3 Report Record type "5" does not work as expected when sent after a type "2" or a type "4" message.
Network Login	
PD4-1842342791, PD4-1291631579	When working in network login, after a dot1x client logs out, the port is not moved to a MAC-based VLAN.
PD4-468366251	A network login client is not authenticated if the username is 32 characters. Only 31 character user names are supported, even if the user can create a 32-character username.
PD4-763062511	Hitless upgrade is not supported for network login in ExtremeXOS 12.3.1.
PD4-752731351	You should not be able to enable network login if a VLAN is a VLAN-aggregation subVLAN. The system should generate a syntax error.
Network Services	
PD3-93829391	Configurations using a VR-Mgmt interface as a RADIUS client IP may not load at boot-up. However, using an interface in VR-Default will load correctly.

PD3-67727590	Creating two sets of vMAN ACLs with 4000 entries each and performing a vMAN ID translation on each ACL may generate the following error:
	`.....03/15/2006 17:57:28.84 <Info:pm.config.openingFile> MSM-B: Loading policy RLL20k from file /config/RLL20k.pol`
	`...03/15/2006 17:57:32.46 <Info:pm.config.loaded> MSM-B: Loaded Policy: RLL20k number of entries 4002`
	`.........Error in alloc txmi txmi 0x9f2 txmdi 0xffffffff`
	`Error in alloc txmi txmi 0x9f4 txmdi 0xffffffff`
	`Error in alloc txmi txmi 0x1102 txmdi 0xffffffff`
	`Error in alloc txmi txmi 0x9f6 txmdi 0xffffffff`
	`Error in alloc txmi txmi 0x9f8 txmdi 0xffffffff`

OSPF	
PD4-2067574233	When an OSPFv3 intra-area route becomes unreachable, the corresponding inter-area prefix LSA may not be purged under certain conditions.
PD4-2087108135, PD4-1196732534	Receiving an OSPF LSA ACK message with an invalid LSA type value causes an assertion failure in the OSPF process.
PD4-1641495299	When 5,000 routes are received via the OSPF neighbor and advertised to 253 neighboring OSPF routers, all 253 sessions go down. It then takes nearly 20 minutes for the sessions to come back up.
PD4-1548969848	OSPF neighbors remain in the Exchange state after disabling and enabling an OSPF instance.

Table 38: Open Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
QoS	
PD3-67431351	Configuring an ingress traffic queue and an egress traffic queue association to multiple ports in sequential order generates the following error: `Egress queue already associated to this ingress queue Configuration failed on backup MSM, command execution aborted!`
RIP	
PD4-1650568630	A RIP/RIPng process crash occurs when scaling ESRP for 128 domains.
RMON	
PD3-12950492	Issuing the `clear counter` command might cause a high number to be displayed in variables such as etherHistoryOctets, etherHistoryPkts, and etherHistoryTable.
ScreenPlay	
PD3-111344472	ScreenPlay allows you to configure DHCP but you cannot enable DHCP.
Security	
PD3-205012219	The source IP lockdown dynamic deny ACL counter is not working properly and increments valid traffic from a trusted client.
PD3-186939931	Ingress mirroring is not working for DHCP snooping when snooping is enabled on BlackDiamond 12800 series switches. DHCP snooping works correctly when DHCP snooping is disabled.
PD3-75120608	The `unconfigure radius` and `unconfigure tacacs` commands do not reset the timeout value to the system default of 3 seconds.
SNMP	
PD4-1388191921	When changing an SNMP master configuration using SNMP set, the changes are not immediately reflected in the `show configuration snmp` command output. Run the `save configuration` command to see the changed configuration in the show configuration snmp output.
PD4-705730556	AES/3des users created using ExtremeXOS 12.3.1 software cannot be used for SNMP operations in ExtremeXOS 12.1 or earlier releases. This may cause the SNMP master to crash.
Spanning Tree Protocol	

PD4-2109797158, PD4-2049698903	An STP topology change notification may be sent when an edge-safeguard enabled port comes up.
	Workaround: Disable and enable edge-safeguard by running the following commands:
	`configure stpd <domain-name> ports edge-safeguard disable <port-list>`
	`configure stpd <domain-name> ports edge-safeguard enable <port-list>`

PD3-189927343	A temporary loop occurs when a root bridge is taken down by disabling all ports or powering down the switch.
UPM	
PD4-1664927541	UPM profiles for events identity-detect and identity-undetect are not executed when many unique kerberos users login simultaneously from two client PCs. This happens when 50 unique users login continuously from PC1, and another 50 unique users login continuously from PC2 at the same time.

Table 38: Open Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
WAN PHY	
PD3-101226461	When `show wan-phy` commands are run on non WAN PHY ports, the ports display the headers. It should only display the error `wan command is not supported on non-wanphy port 25`.

Known Behaviors

The following are limitations in ExtremeXOS system architecture that have yet to be resolved.

Table 39: Known Behaviors, Platform-Specific and Feature PDs

PD Number	Description
General	
PD4-1809333121	BFD sessions for static routes status is not hitless when run msm-failover is performed with minimal timers.
PD4-1842342695, PD4-1299398446	Performing a check-policy for a policy containing @description fails after upgrading from ExtremeXOS 12.1.3 software.
PD4-1876448855	BFD sessions are not stable when scaled to maximum limits for non-default timer values.
PD4-1837408331, PD4-1445926371	A link flap occurs on fiber links connected to a Summit family switch when a BlackDiamond 10800 series switch is rebooted with ports disabled.
PD4-1519936031	A kernel-error and reboot loop error occurs when upgrading a switch from ExtremeXOS 12.3.3.6 to ExtremeXOS 12.4 when an ACL is configured as a super VLAN.
BlackDiamond 8800 Series Switch	
PD4-1911293817, PD4-1858470951	CLI sessions hang when executing the `show port < port-num > transceiver information detail` command while snmpwalk is running.
BlackDiamond 20800 Series Switch	
PD4-1285717901	With 15 ports in a LAG, the maximum to minimum bandwidth utilization difference between ports is 21%. With 16 ports, bandwidth utilization is 8%.
PD4-1644777015	The internal QoS profile selected for a packet leaving the Provider Backbone Bridged Network (PBBN) is derived from the 802.1p bits of the B-tag in the packet.
PD4-1571801812	When a mirroring-to port is a LAG, load sharing is done only based on the mirror header and not on the configured LAG algorithm.
Summit Family Switches	
PD4-1642703687	The VLAN statistics transmit counter does not count the packets matching an egress ACL rule in a Summit X480 switch.

Table 39: Known Behaviors, Platform-Specific and Feature PDs (Continued)

PD Number	Description
ACL	
PD3-77983510	Summit X450a and Summit X450e series switches and BlackDiamond 8800 a-series and e-series modules provide more powerful ACL capabilities. Because of this, the amount and complexity of ACL rules will naturally impact the time needed to process and apply the ACL rules to the switch. This will also impact switch bootup time. Access Control List limitations fall into two areas: physical and virtual. Physical Limits—Summit X450a and Summit X450e series switches: The per-VLAN, wildcard (port any), and single-port access list installation limitations are 1,024 rules for the Summit X450e and 2048 rules for the Summit X450a. Physical Limits—BlackDiamond 8800 a-series and e-series modules: The per-VLAN, wildcard (port any), and single-port access list installation limitations are 1,024 rules for the e-series modules, and 2048 rules for the a-series modules. Extreme Networks recommends that you configure ACLs as per-VLAN, wildcard, or single-port. If either of the following is true, you will have to configure ACLs with multi-port lists: Your application requires that ports do not have a homogeneous ACL policy. When BlackDiamond 8800 original series modules are operational in the same chassis, it may be necessary to configure ACLs to specific port-lists instead of as wildcard or per-VLAN. This is because the original series modules have smaller physical limits. Virtual Limits—Summit X450a and Summit X450e series switches: When configuring a multi-port ACL, use the following guideline. The total ACL count (as calculated by ACL rules times ports applied to) should not exceed 48,000 total ACL rules. For example, applying a 1,000 rule policy file to a 48 port multi-port list is supported (1,000 rules * 48 ports in the list <= 48,000). Virtual Limits—BlackDiamond 8800 a-series and e-series modules: When configuring a multi-port ACL, use the following guideline. For any a-series or e-series blade in the system, its total ACL count (as calculated by ACL rules times ports applied to) should not exceed 48,000 total ACL rules. For example, applying a 1,000 rule policy file to a 48 port multi-port list on an a-series module on slot 1 and an e-series module in slot 2 is fine. Neither module exceeds the 48,000 total ACL rules. Excessive boot times and CPU resource starvation can be seen with larger total rule counts. If your application requires additional capacity, contact Extreme Networks.
Network Login	
PD4-1653484241	Network login cannot authenticate MAC addresses on more than 10 VLANs.

Resolved Issues In ExtremeXOS 12.5.4

The following issues were resolved in ExtremeXOS 12.5.4. ExtremeXOS 12.5 includes all fixes up to and including ExtremeXOS 11.1.4.4, ExtremeXOS 11.2.3.3, ExtremeXOS 11.3.4.5, ExtremeXOS 11.4.4.7, ExtremeXOS 11.5.2.10, ExtremeXOS 11.6.5.3, ExtremeXOS 12.0.5, ExtremeXOS 12.1.5, ExtremeXOS 12.2.2, ExtremeXOS 12.3.5, and ExtremeXOS 12.4.4. For information on those fixes, see the release notes for the specific release.

Table 40: Resolved Issues, Platform-Specific and Feature PDs

PD Number	Description
General	
PD4-1814536021, PD4-1741274969	A switch crashes with soc_dma_done_desc in the NVRAM dump.
PD4-1814422340	A static group still exists in an IGMP group after deleting the IGMP static member. **Workaround:** If a static IGMP group is configured on a VLAN it is recommended that you set the IGMP RA receive required off.
PD4-1947340095	DHCP/BOOTP relay does not work properly if iproute mpls-next-hops is enabled because they are unsupported features.
PD4-2044891026, PD4-1929587061	The OSPFv3 process crashes with signal 11 after disabling and enabling ports connected to neighbors.
PD4-2111130305, PD4-2012411531	BlackDiamond series and Summit family switches do not examine dot1p inner tags with a LAG.
PD4-2080394824, PD4-1961884891	A configuration created with UPM in non-persistent mode cannot be made persistent by issuing CLI configuration commands.
PD4-2034092086	I/O module memory depletion may be seen if UPM is used to install or delete a configuration whenever a user logs in to or out of a switch usng a network login port.
PD4-2034092051	A system crash may be seen in switches using UPM to trigger a set of configurations whenever a user is successfully authenticated by way of a network login port.
PD4-2087108257, PD4-1394637671	A switch updates DHCP clients with `dhcp-lease-timer` instead of `netlogin-lease-timer` if the `dhcp-lease-timer` value is changed.
PD4-2088325260, PD4-1679877595	UPM execution status is returned as Pass regardless of the status of other commands if the `show` command is in the UPM profile.
PD4-2036794013, PD4-1927210571	A supplicant attached to a network login port on an Extreme switch is not receiving EAPS FAIL messages if RADIUS is unavailable.
PD4-2028980679, PD4-1900406099	In a private VLAN, broadcast packets are not forwarded after a network VLAN port is changed to a shared port.
PD4-1995846206	Network login does not send a trigger to IdMgr in MAC-based re-authentication scenarios.
PD4-1856038101	A telnet access profile is not retained after running the `save` and `reboot` commands.
PD4-1751958424	In CLI scripting, $READ inside a loop is not working and displays the following error: `Incorrect READ syntax Error: Read syntax`
PD4-2077574992, PD4-1244836411	RIP advertises routes for a VLAN even though the VLAN does not have any active ports.
PD4-2033837849, PD4-1441107715	The FDB process dies with signal 11 when creating a blackhole entry for a MAC address authenticated by network login.
PD4-2027631773, PD4-1372389708	Running the `upload ip-security dhcp-bindings` command fails with the following error: `Object dhcpBindingsUpload does not support method set.`

Table 40: Resolved Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
BlackDiamond 8800 Series Switches	
PD4-1956113551	On a BlackDiamond 8800 series switch, CFM and STP packets generated by the switch are not sent out from the ports configured as PVLAN "translated" ports.
BlackDiamond 12800 Series Switches	
PD4-2068851867, PD4-2065239242	A port is removed from a load sharing group after an MSM failover after increasing the number of multicast data packets hitting a CPU because of an invalid rendezvous point (RP) or other failure.
Summit Family Switches	
PD4-2127396811	When deploying Summit X460 stacks at multiple locations, process HAL dies with signal 6 in approximately 4 days.
PD4-2113075930	The `synchronize` command is not working properly when run on a Summit X460 stack.
PD4-2000346573, PD4-1991128351	The following error message is seen when creating more than 256 static FDBs with multicast MAC addresses: `<Erro:HAL.FDB.Error> : Add mac 01:00:00:00:01:03 vlan 1: failed - no more L2MC resources`
PD4-2073092231, PD4-1864793871	A Summit X460 switch displays serial interrupt error messages when creating a VLAN using the `create vlan v1` CLI command but VLAN creation is fine.
PD4-1751144935	Changing the date and time on a switch is not persistent after running the `save` and `reboot` commands.
PD4-2037675153, PD4-1507934866	The file generated by the `show tech all logto file` command contains a broken configuration line.
SummitStack	
PD4-1578136357	During a stacking failover, ports on the PoE+ switch in the stack may go to a disabled state.
PD4-2000999456	Kerberos snooping does not work in some configurations on standalone and SummitStack switches.
ESRP	
PD4-2073557620, PD4-2053914004	Traffic on an ESRP master or member VLAN is forwarded in slowpath, which results in high CPU utilization when hardware ARP limits are exceeded.
IGMP	
PD4-2051283902, PD4-1374138231	The configured IGMP query interval timer does not take effect immediately. The timer takes effect only after the current interval expires.
Multicast	
PD4-1601466451	When a switch is an IGMP querier, a group specific query is sent to all the ports in the VLAN whenever an IGMP leave is received on one port.
OSPF	
PD4-1997097831	OSPF process crashes with an assertion failure when using a virtual link configuration.
PD4-2078865341, PD4-1493257018	The forwarding address in an external LSA should not be set for an interface that is configured as passive.
PD4-2065239181	A CLI command to enable OSPF related SNMP traps is not available at this time.

Table 40: Resolved Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
Spanning Tree Protocol	
PD4-2012749890, PD4-1780972901	Renaming a VLAN and deleting the STP domain to which it has an auto-bind relation, auto-binding it to a new STP domain displays the following error: `Error: Cannot enable auto-bind for vlan v2 to STP domain s2, it is the carrier vlan of STP domain s1`
PD4-2094536435, PD4-2093639778	After making STP configuration changes on a switch, RSTP root bridges send hello BPDUs every 4 seconds when the switch is configured for every 2 seconds.

Resolved Issues in ExtremeXOS 12.5.3

The following issues were resolved in ExtremeXOS 12.5.3. ExtremeXOS 12.5 includes all fixes up to and including ExtremeXOS 11.1.4.4, ExtremeXOS 11.2.3.3, ExtremeXOS 11.3.4.5, ExtremeXOS 11.4.4.7, ExtremeXOS 11.5.2.10, ExtremeXOS 11.6.5.3, ExtremeXOS 12.0.5, ExtremeXOS 12.1.6, ExtremeXOS 12.2.2-patch1-12, ExtremeXOS 12.3.5, and ExtremeXOS 12.4.3-patch1-8. For information on those fixes, see the release notes for the specific release.

Table 41: Resolved Issues, Platform-Specific and Feature PDs

PD Number	Description
General	
PD4-1981255904, PD4-1229634794	LACP packets are corrupted if the master port is mirrored on a SummitStack.
PD4-1971710345, PD4-1776441950	Software-controlled redundant ports may cause loops if a port is configured for redundancy after it is associated with an existing VLAN.
PD4-1963014357, PD4-1409846531	The `icmp-type` match condition for ICMPv6 is not supported on Summit family and BlackDiamond 8800 series switches.
PD4-1963014296, PD4-1688446379	FDB entries learned via LAG are not included in the output of the `show fdb stats ports all` command.
PD4-1981933655, PD4-1374774241	The SNMP OID extremeCurrentTemperature does not return the current temperature of a switch. This is also seen when accessing the switch using ScreenPlay.
PD4-1986104343, PD4-1933787279	The Node Manager process consumes excessive CPU usage on a backup MSM when the system uptime reaches 994 days.
PD4-1981365232, PD4-1870786111	Running the `disable netlogin port <slot:port>` command while the slot is down causes the switch to drop the packets received on that port in hardware if the ethernet-source-address is not learned. This affects EAPSv1 control packets because the ethernet-souce-address in the EAPSv1 control packets is a special MAC and will never be learned.
PD4-1924562736	Enabling SSH using a license file fails with a warning message but an SSH key is generated anyway.
PD4-1874010041	A switch does not generate a "Remidfrmport" UPM event when disabling IdMgr globally.
PD4-1937052478	Telnet access profiles are blocking all IPv6 telnet connections.
PD4-1953112031	An NVPP policy file in a switch is not in sync with the repository policy file whenever there is a change in the repository policy file. **Workaround:** Create a new policy file containing the information in the old policy file.
PD4-1686001001	Running RIPng on 6in4 tunnels generates the following error message: `<Erro:Kern.Error> async queue is growing`

Table 41: Resolved Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
PD4-1957143110, PD4-1034683284	You cannot load a script using a flow-redirect configuration when a VLAN is down. **Workaround:** Enable the VLAN and reconfigure the flow-redirect configuration.
PD4-1947222056, PD4-1937692011	Copying large configuration files through SCP fails.
PD4-1917632030, PD4-1857823251	A mismatch between a PIM multicast cache and a hardware binding results in traffic loss.
PD4-1923713613, PD4-1820757911	If remote mirroring is configured using an EAPS primary port, EAPS is disabled when the switch reboots.
PD4-1877910031	After changing the VPWS service VLAN tag, the change does not take effect. **Workaround:** Delete and re-add the VPWS.
PD4-1866206193, PD4-1299135401	Multicast traffic is dropped with an EAPS shared port configuration during an EAPS topology change.
PD4-1835754705, PD4-1177495965	XML API allows a user to create several VLANs using the same VLAN tag.
PD4-1813024595	The `show configuration ip-fix` command does not return a configured flow-key if you only configure `src-ip/dest-ip`. It also removes the non-IP flow-key.
PD4-1887144137, PD4-1155806118	When an unknown vendor ID is sent in a RADIUS accept packet, the log message does not print the unknown vendor ID.
PD4-1897494489, PD4-1887057001	Running the `configure flow-redirect <redirectname> no-active/health-check` command resets a configured VR to a VR-Default. **Workaround:** Run the `configure flow-redirect <redirectname> vr` command after `configuring the configure flow-redirect <redirectname> no-active/health-check` command.
PD4-1909443376, PD4-913229871	API queries for RADIUS and TACACS do not return any values. Set is working properly, but a get returns empty.
PD4-1933226667, PD4-1933225935	The ACL action "copy-cpu-and-drop" is not copying EAPS control packets to the CPU.
PD4-1867264398	Running the `save configuration` command on an ExtremeXOS switch with a dual MSM, or a stack with a backup node, causes a memory leak in the CfgMgr process.
PD4-1874010052, PD4-1601514286	A switch does not generate IdMgr XML notifications to a Web server when disabling IdMgr globally.
BlackDiamond 8800 Series Switch	
PD4-1806034261	Process snmpSubagent is terminated with signal 6 when clearing a counter after setting an SNMP session.
PD4-1921505342, PD4-1548261276	On a BlackDiamond 8800 series switch, traffic is not being redirected by the primary LACP port when the secondary MSM with secondary ports is rebooted on LACP during a process kill.
PD4-1899757948, PD4-1873304831	ECMP related error messages are seen on BlackDiamond 8800 series switches when `enable iproute sharing` and LAG are configured on the switch.
BlackDiamond 20800 Series Switch	
PD4-1905529131, PD4-1536990491	When a BlackDiamond 20800 series switch is an EAPS master, port QP1 increments instead of port QP8.
Summit Family Switches	
PD4-1879276738, PD4-1506829269	On Summit family switches, ethernet loopback tests fail when running extended diagnostics without an active management port.
PD4-1910625750	Leaving a setup running overnight on a Summit X480 switch causes memory depletion.

Table 41: Resolved Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
PD4-1967466724	When a port is added as untagged in a service vMAN and tagged in a service VLAN, traffic received on the service VLAN port may be sent using the untagged service vMAN tunnel.
PD4-1969098018	An interoperability issue with a VPLS L2 VPN includes a dot1q tag option on untagged service vMAN tunnels between ExtremeXOS 12.4.3 and ExtremeXOS 12.5.2 software.
PD4-1983309381	Summit X460 and X480 switches fail to display the switch serial number due to EEPROM corruption.
PD4-1962933707, PD4-1969811716	EMS takes approximately 1-minute to report power status on a a Summit switch with a redundant PSU.
PD4-1864793871	A Summit X460 switch displays serial interrupt error messages when creating a VLAN using the `create vlan v1` CLI command but VLAN creation is fine.
PD4-1948432784, PD4-1661214241	A Summit family switch does not send a PSU related SNMP trap when a secondary PSU fails.
PD4-1955257732, PD4-1419136822	On a Summit X450a-24x switch, disabling two or more ports causes a port that is inserted as a 10/100/1000BASE-T SFP module to flap.
PD4-1876508860	VPWS traffic does not flow if an LSP is changed from normal port to load-shared port and vice-versa.
PD4-1870140250	TX counters for VPLS and VPWS pseudo-wires are not supported on the Summit X460 switch.
PD4-1854155029, PD4-1578760166	Duplicate BOOTP OFFER and ACK packets are seen when `ip-security dhcp-snooping` is enabled on a port.
PD4-1926408384, PD4-1231665209	The output for the CLI command `show odometer` always shows values in the option card field even though there is no option card in the switch.
PD4-1926408231, PD4-1838754211	Power status is not displayed on a Summit X650 switch in ScreenPlay if both PSUs are present but only one is powered on.
PD4-1842342621, PD4-1254695518	When deleting a port from an ELRP configured VLAN, the switch displays errors after running the `save` and `reboot` commands.
PD4-1897744655, PD4-1488841268	Traffic destined for a known MAC address in a member VLAN is being flooded on the ports of the network VLAN.
DHCP	
PD4-1866206075, PD4-1813046514	DHCP snooping log messages display the incorrect port information when a LAG violation occurs.
IGMP	
PD4-1228049626	IGMPv2 join and membership requests do not have the router alert IP option in the IP header set.
OSPF	
PD4-1835364973, PD4-1394061328	ABR stops translating AS external routes (type 7) to another area (type 5) after OSPF is configured with graceful restart.
SNMP	
PD4-1842342841, PD4-1466022175	When an SNMP query is issued for non-existent IPv4 routes, the RtMgr process crashes with signal 11.

Resolved Issues in ExtremeXOS 12.5.2-patch1-1

The following issues were resolved in ExtremeXOS 12.5.2-patch1-1. ExtremeXOS 12.5 includes all fixes up to and including ExtremeXOS 11.1.4.4, ExtremeXOS 11.2.3.3, ExtremeXOS 11.3.4.5, ExtremeXOS 11.4.4.7, ExtremeXOS 11.5.2.10, ExtremeXOS 11.6.5.3, ExtremeXOS 12.0.5, ExtremeXOS 12.1.5, ExtremeXOS 12.2.2, ExtremeXOS 12.3.4, and ExtremeXOS 12.4.2. For information on those fixes, see the release notes for the specific release.

Table 42: Resolved Issues, Platform-Specific and Feature PDs

PD Number	Description
General	
PD4-1918575400	FDB process crashes with signal 6 when a superVLAN or subVLAN name contains 15 or more characters.
BlackDiamond 20800 Series Switch	
PD4-1646390158	When using an aggregate meter configuration on a BlackDiamond 20800 series switch, the system cannot use any unused reserved bandwidth.

Resolved Issues in ExtremeXOS 12.5.2.6

The following issues were resolved in ExtremeXOS 12.5.2.6. ExtremeXOS 12.5 includes all fixes up to and including ExtremeXOS 11.1.4.4, ExtremeXOS 11.2.3.3, ExtremeXOS 11.3.4.5, ExtremeXOS 11.4.4.7, ExtremeXOS 11.5.2.10, ExtremeXOS 11.6.5.3, ExtremeXOS 12.0.5, ExtremeXOS 12.1.5, ExtremeXOS 12.2.2, ExtremeXOS 12.3.4, and ExtremeXOS 12.4.2. For information on those fixes, see the release notes for the specific release.

Table 43: Resolved Issues, Platform-Specific and Feature PDs

PD Number	Description
General	
PD4-1884535449, PD4-1867797741	An LX mini-GBIC is incorrectly detected as an FX/LX mini-GBIC. This applies only to Summit family switches and BlackDiamond 20800 series switches.

Resolved Issues in ExtremeXOS 12.5.2.5

The following issues were resolved in ExtremeXOS 12.5.2.5. ExtremeXOS 12.5 includes all fixes up to and including ExtremeXOS 11.1.4.4, ExtremeXOS 11.2.3.3, ExtremeXOS 11.3.4.5, ExtremeXOS 11.4.4.7, ExtremeXOS 11.5.2.10, ExtremeXOS 11.6.5.3, ExtremeXOS 12.0.5, ExtremeXOS 12.1.5, ExtremeXOS 12.2.2, ExtremeXOS 12.3.4, and ExtremeXOS 12.4.2. For information on those fixes, see the release notes for the specific release.

Table 44: Resolved Issues, Platform-Specific and Feature PDs

PD Number	Description
General	
PD4-1828332204, PD4-1008390701	If a trunk port is configured with a PVLAN end-point, the port is not shown in the output of the `show vlan <non isolated> vlans` command. Therefore, traffic does not flow from a switch without a PVLAN end-point in the same VLAN.

Table 44: Resolved Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
PD4-1820555257, PD4-966386662	Local multicast packets (packets destined for a well known reserved multicast address such as 224.0.0.x) are flooded in hardware for BlackDiamond 8800 series and Summit family switches.
PD4-1771736843	The xmld process crashes with signal 6 when opening a SOAP session using a session ID larger than 64 characters.
PD4-1764118037	A switch continues to try to bind configured LDAP servers in a loop if the configured LDAP servers are not reachable in a network.
PD4-1859525697, PD4-1847511220	When running the SSH process (exsshd), CPU usage is excessive and some SSH sessions are not cleared.
PD4-1838462545	When ELSM detects a link down, ELSM does not deactivate the port.
PD4-1813267547, PD4-1239811496	Deleting a VLAN does not cleanup route entries learned by RIP through the VLAN.
PD4-1823016095, PD4-1090889907	High CPU utilization messages are not logged while SNMP traps are sent.
PD4-1819371657, PD4-896535258	When a banner configuration file stored in a Windows environment is loaded, the banner configuration is not restored properly. Note: After unconfiguring a switch, the system banner message cannot be restored using a saved configuration. **Workaround:** Reconfigure the banner message.
PD4-1851589182, PD4-1323337297	A switch will experience memory depletion due to HAL process when sending L2 traffic to a PVLAN with continuous SA increment.
PD4-1758919460, PD4-1517323275	The SSH process (exsshd) consumes 99% of CPU usage when running the `clear session` command after abruptly closing an SSH session (xterm client only).
PD4-1481490491	Using a dual MSM device, network policy files are not downloaded to a backup MSM because, in a failover scenario, VM tracking authentication does not work until completion of the repository synchronization.
PD4-1741718214, PD4-1107340401	When TACACS is used for user authentication, the log message shows the wrong IP address of the user being authenticated.
PD4-1679413117, PD4-1677893691	A telnet connection may be abruptly closed by a switch when multiple telnet connections are consecutively initiated in a short period of time.
PD4-1703399298, PD4-962149281	The output for the `show configuration etmon | detail` command does not show the disabled sFlow port.
PD4-1738654762, PD4-1738654681	ExtremeXOS software does not correctly recognize the following mini-GBIC modules: • 100FX/1000LX dual speed SFP, part number 4050-00020-02 • 100FX SFP, part number 4050-00030-03
PD4-1649655687, PD4-1417613295	The help text for the `configure fdb vpls agingtime` command displays the wrong possible values.
PD4-1675097007, PD4-1081411076	The CLI allows RIP configurations for L2 VLANs. After completing a RIP configuration, running the `show rip interface` command causes the RIP process to die with signal 11.
PD4-1758727670, PD4-1695304439	After configuring an EMS xml-notification target, the name of the target is not included in the output of the `show configuration` command.
PD4-1601514363	Using IdMgr, when running the `clear iparp` command or disabling IdMgr globally, an ACL/policy applied for a MAC-based identity is not correctly removed from the DUT, causing stale ACLs to remain in the DUT.
PD4-1575174331	With IdMgr enabled, an LDAP search fails for a dot1x client using EAP-TLS or EAP-PEAP-certificate authentication. This causes a dot1x identity to remain in the authenticated role even though the user configured role exists in the DUT for this identity.

Table 44: Resolved Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
BlackDiamond 8800 Series Switch	
PD4-1865375583, PD4-1854613879	On a BlackDiamond 8800 series switch, multicast packets are sent directly to the CPU instead of being forwarded in hardware.
PD4-1544795181	On a BlackDiamond 8800 series switch, the aggregate number of user created VRs and VRFs bound to ports of an I/O module are limited to the supported number of VRs for that module. Each newly created user VR or VRF is internally assigned an increasing identifier starting with 3. Ports bound to user VRs and VRFs must support the number of VRs equal to the internally generated identifier minus 1 for the VR/VRF or traffic is dropped. Create VRs and VRFs bound to ports of lesser scaling I/O modules first.
PD4-1678739937, PD4-1655256488	BlackDiamond 8800 series switches report "conduit failures" during bootup if the switch is configured with diffserv replacement enabled for more ports, as well as diffserv replacement mapping.
PD4-1584522573	When running the `run msm failover` command on a BlackDiamond 8800 series switch with an MPLS configuration, the following error may be displayed. `MPLS bcm_mpls_port_add failed`
PD4-1637395977	On a BlackDiamond 8800 series switch, the following error message may be logged when attempting to delete VPWS instances from a configuration. `Failed to locate a VPLS peer for label 0` **Workaround:** Delete the VPWS/VPLS and the VLANs separately, or introduce a small delay (1 second) between deleting the VPWS/VPLS and deleting the VLAN.
BlackDiamond 12800 Series Switch	
PD4-1820555211, PD4-1083288117	Disabling and re-enabling a port that is configured for 100 Mbps full duplex with an attached dual speed SFP (100FX/1000LX) results in connectivity issues.
PD4-1667994741	When terminating or starting process IdMgr gracefully, the process crashes with signal 11, the switch reboots, and IdMgr role configuration is corrupted.
BlackDiamond 20800 Series Switch	
PD4-1633907245	A primary MSM may fail and reboot because of a dual master MSM while downloading and installing a new image using a larger number of routes and traffic. This issue is not reproducible using ExtremeXOS 12.5.2 software.
PD4-1380031199, PD4-1199314951	After an I/O module hotswap, the `show fdb` command output does not show the FDB entries learned on particular slots.
PD4-1678739963, PD4-1440442939	A BlackDiamond 20800 series switch forwards traffic with the wrong MAC address after receiving a gratuitous ARP request.
PD4-1648440591	IPv6 traffic stops forwarding on a BlackDiamond 20800 series switch after load sharing is disabled and enabled.
PD4-1648470710	RIPng convergence is not working correctly on a BlackDiamond 20800 series switch if a trunk port is removed and a new port is added.
PD4-1571496939	Establishing 255 ISIS adjacencies in multi-topology mode on a BlackDiamond 20800 series switch causes a HAL crash.
Summit Family Switches	
PD4-1662849321	IdMgr and HAL crashes with signal 11 occur after running UPM profiles for identity_detect, identity_undetect, identity_role_associate, and identity_role_disassociate. This issue is not reproducible in ExtremeXOS 12.5.2 software.
PD4-1840662158	Clients are not able to reach each other through a tunnel after running the `clear fdb` command or a link flap occurs on an MPLS cloud (LSR).
PD4-1606154901	Process BFD crashes on a Summit X460 switch after running the `show bfd session` command when scaling higher than 100 sessions. **Workaround:** Do not configure more than 75 sessions with an MPLS client.

Table 44: Resolved Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
PD4-1588054183	Summit X480 switches are not using EXP bits to map VLAN traffic to the correct QoS profile.
PD4-1507160161	VPLS Tx and Rx counters are not incrementing on Summit X460 switches.
PD4-1820711421, PD4-1572169451	Power cycling a stack node causes a packet drop of 8 seconds in some rare scenarios even though LAG is configured across stack nodes.
PD4-1851065925	The `show fdb` command output does not show the pseudo-wire FDBs after a port is disabled and enabled.
PD4-1686001211	TX VLAN statistics are not correct. Some ports count double and others do not count at all.
PD4-1681984346	Traffic is not going over a tagged VPLS service VLAN if an untagged service vMAN is configured on the same port.
PD4-1676753297, PD4-1240910931	The `cfgmgr` crashes with signal 11 due to NULL pointer access.
PD4-1545813874	Process HAL consumes more than 90% CPU utilization when DUT tries to add or delete 500 ACLs for 25 MAC-based identities. Because of this, the console/telnet session response time is slow or it does not respond at all. **Workaround:** Configure only dynamic ACLs or policy files on the switch for identity manager. Using a combination of these on a switch, results in system instability.
SummitStack	
PD4-1877966227	When an MLAG peer node is rebooted, the following error message appears in the log and traffic loss is seen on the VPLS pseudo-wires connected to the MLAG nodes. `<Erro:HAL.FDB.Error> Slot-2: Add mac 00:00:a1:01:1c:e8 Entry failed : VPLS Instance for vlan 1600 not found`
PD4-1801215991, PD4-580973662	Unconfiguring a management IP address removes the default route configured using the `configure stacking alternate-ip-address [<ipaddress> <netmask> | <ipNetmask>] <gateway> automatic` command.
PD4-1820711478, PD4-1276532265	The stacking port LEDs on the front and rear panel of a SummitStack do not light if you remove and reconnect the stacking cable.
PD4-1686778851	ACL synchronization does not occur with a backup MSM or slot when running the `run failover` command, so no ACLs are applied for identity management identities.
ACL	
PD4-1828332349, PD4-1809345751	The HAL process dies with signal 11 if the refresh policy fails and the following error is displayed. `Unable to find the flow redirect used with the redirect-name keyword, policy not installed`
PD4-1757734372, PD4-1274429658	Configuring a dynamic ACL with flow-redirect does not work after a switch reboot. **Workaround:** After rebooting the switch, delete and add the ACL.
BGP	
PD4-1726059465, PD4-1701554204	BGP and MSDP may not establish a secure TCP connection to their peers when an encrypted password contains a special character such as `#`.
EAPS	
PD4-1673032272, PD4-1676753651	EAPSv2 segment health-check packets received on a ring port may be dropped if the EAPS node on a Summit family or BlackDiamond 8800 series switch has a different EAPS shared port on any other ring ports.

Table 44: Resolved Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
IGMP	
PD4-1757733744, PD4-1453474837	IGMP membership query packets are seen on a port when IGMP is disabled but IGMP snooping is enabled. To resolve this issue, run the `disable igmp proxy-query vlan <vlan-name>` command.
MPLS	

PD4-1704766794, PD4-1687280681	IP multicast packets received on a service vMAN/VLAN may not be flooded through a VPLS tunnel.
	Workaround: Add the service vMAN/VLAN port to any IGMP snooping enabled VLAN and delete the port from that VLAN. For example:
	`configure vlan default add port 21 tagged`
	`configure vlan default del port 21`

PD4-1660127877	When MPLS PHP is enabled on a label edge router, LSP does not go through if the BlackDiamond 8800 series switch is an LSR.
OSPF	
PD4-1841878451, PD4-1524171924	Not all of the AS external routes in OSPF are getting installed in the route table.
ScreenPlay	
PD4-1846363955, PD4-1821932411	The following directories are viewable in a browser window when Web HTTP is enabled: • /scripts • /images • /assets • /com
SNMP	
PD4-1660318270, PD4-1395832491	The SNMP query for the OID "extremePowerSupplySerialNumber" always returns an error.
PD4-1700317091, PD4-1598272292	The snmpMaster process crashes with signal 11 on NULL pointer access.
PD4-1700317212, PD4-1328651560	The CLI command `disable snmpv3 user default-user` does not disable default user access.
VRRP	
PD4-1675307605, PD4-1664819101	VRRP gateways may get stuck in a dual master state when VRRP is run on a secondary IP falling under the same address class as the primary, but in a different subnet.

Resolved Issues in ExtremeXOS 12.5.1

The following issues were resolved in ExtremeXOS 12.5.1. ExtremeXOS 12.5 includes all fixes up to and including ExtremeXOS 11.1.4.4, ExtremeXOS 11.2.3.3, ExtremeXOS 11.3.4.5, ExtremeXOS 11.4.4.7, ExtremeXOS 11.5.2.10, ExtremeXOS 11.6.5.3, ExtremeXOS 12.0.5, ExtremeXOS 12.1.5, ExtremeXOS 12.2.2, ExtremeXOS 12.3.4, and ExtremeXOS 12.4.2. For information on those fixes, see the release notes for the specific release.

Table 45: Resolved Issues, Platform-Specific and Feature PDs

PD Number	Description
General	
PD3-71725881	When configuring an optional name for the time zone/DST, the time zone name truncates at seven characters. The system default is six characters.
PD4-1578876668, PD4-1544849931	In some cases, the netTools process may die with signal 11 while processing DNS responses.
PD4-1571416791, PD4-1562364701	When the udp-profile is used to forward traffic to a destination-ipaddress, a memory leak is observed in ip_dst_cache. **Workaround:** Use udp-profile to forward packets to a VLAN instead of a destination IP address.
PD4-1571416791	When the udp-profile is used to forward traffic to a destination-ipaddress, a memory leak is observed in ip_dst_cache.
PD4-1554296001	When ISID is not added as an intermediate point, and is the ingress or egress port, LTMs are dropped. **Workaround:** Add ISID as a MIP.
PD4-1194741135	setDynamicAc.pl, which is used to create a dynamic ACL and bind it to a specific port, is not working. **Workaround:** The following SOAP element corrects this issue. SOAP::`Data->name("applicationName" => "Cli"));`
PD4-1676377057, PD4-1446804247	Multicast traffic is showing the incorrect dot1p replacement for CPU (slowpath) forwarded packets with TOS bits set at 7.
PD4-1636210325	The following error message is displayed after running the ping command and abruptly closing 10 or more Telnet/SSH sessions. `Error: Too many concurrent ping requests.`
PD4-1507616001, PD4-1301482701	ELSM is not responding after rebooting a switch, resulting in the links of neighboring devices staying down. **Workaround:** After rebooting the switch, run the `enable elsm ports <port-list>` command again.
PD4-1578876722, PD4-1491778548	snmpSubagent process crashes with signal 11 when creating a row in the pingCtlTable with a pingCtlTestName length greater than 32 bytes. **Workaround:** Use pingCtlTestName with a length less than 32 bytes.
PD4-1600819459, PD4-1323337281	When copying and pasting a CLI command that begins with a bullet, the cliMaster crashes with signal 11 when the bullet is included as part of the command.
PD4-1593572153, PD4-1374774272	When using ISIS, you cannot set a metric value as 0 for export routes.
PD4-1585125619, PD4-941257511	Slowpath traffic may cause SNTP packets to experience delayed processing on an ExtremeXOS switch and generates the following error message: `<Noti:DM.Notice> Slot-1: Setting hwclock time to system time, and broadcasting time`

Table 45: Resolved Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
PD4-1232976130, PD4-1221696686	ExtremeXOS software is unable to upgrade an ExtremeXOS software license to any switch that has a serial number beginning with 0953x-xxxx using the *enable license file <license-file.xlic>* command. **Workaround:** Enable the license by running the *enable license <key>* command.
PD4-1272137864, PD4-1023079871	Disabling learning on a VLAN results in LACP packets being dropped.
PD4-1272649277, PD4-828470206	The invalid syntax keyword *tag_name* is added when configuring a syslog target.
PD4-1202084300, PD4-1193582811	Traffic ingressing a G48T, G48P, G24X, G8X, or 10G4X module that egresses a load sharing member port on a different I/O module is dropped when a 8900-MSM128 module is in use. In the case of a stack that contains an original series Summit X450 and X650, traffic ingressing the Summit X450 that egresses a load sharing member port on a Summit X650 switch is also dropped. Only certain LAG groups are affected, most notably, the first LAG group is not affected.
PD4-1493262869, PD4-1350258611	Process exsshd consumes 99% of CPU capacity when executing the *clear session* command. **Workaround:** Restart the exsshd process to restore CPU utilization. You may also close the SSH session properly using the *logout* or *exit* commands instead of the *clear session*. command.
PD4-1435948378, PD4-1090154127	In PIM Dense Mode, IP multicast cache entries that do not have an egress interface are not refreshed in hardware. This may cause “out of sequence” packets, which can result in “pixilation” in IP TV environments every 210 seconds.
PD4-1439776955, PD4-1386102367	When running ExtremeXOS PIM-SM in a multi-access case (that is, an EAPS ring): • A downstream router should not send periodic (S,G) prunes. • Over-riding a PIM-JOIN message is delayed when multiple (S,G) prunes are received.
PD4-1524186073, PD4-1142795450	The ExtremeXOS CLI may allow load sharing groups to be formed using ports with different link speeds. **Workaround:** Do not change the speed settings before enabling LACP on the remote switch.
PD4-1526961975, PD4-334620931	During an MSM or MM failover, an MSDP peer incorrectly prints debug messages in the log as warning messages.
PD4-1247352371, PD4-1038555578	netTools crashes with signal 11 when a continuous ping is configured for more than 10 SSH or telnet sessions.
PD4-1546743303, PD4-1289183953	HAL process dies with signal 6 when issuing the `debug hal show ipv4mc gaddr` command with an invalid IP address.
BlackDiamond 8800 Series Switch	
PD4-1646744176, PD4-1646617211	When rebooting a BlackDiamond 8800 series switch, ports remain active for approximately 10 seconds.
PD4-1639563871, PD4-1633773021	There is a potential for a `smbus_xfer:1 smbus_wait_rdy` error with frequent SSH and telnet management login/logout sessions.
PD4-1633677741	On a BlackDiamond 8800 series switch, making link state changes during a large policy refresh can take more than 20 seconds and may cause duplicate packet forwarding in an MLAG configuration.
PD4-1626795210, PD4-1625916850	When using BlackDiamond 8800 series switches or Summit family switches that support user VRs, IP multicast packets are slowpath forwarded with the default VLAN using the default configuration. **Workaround:** Change the VLAN tag of the default VLAN.

Table 45: Resolved Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
PD4-1601047171, PD4-1598240578	STP crashes when making topology changes to a domain name containing more than 29 characters. **Workaround:** Use STP domain names that are less than 30 characters.
PD4-1530467581, PD4-1535593829	An untagged packet that is size 1,518 and ingressing an 8900-G48X-xl module is getting slowpath L3 forwarded.
PD4-1424690937, PD4-805462597	A slot fails on a BlackDiamond 8800 series switch when enabling dot1p examination inner-tag ports on more than 24 ports in a vMAN.
PD4-1518161071, PD4-1521499552	L2 traffic ingressing a 10G8X-xl I/O module for a MAC that is learned in another slot (G48Tc) is being dropped in some cases.
BlackDiamond 10800 Switch	
PD4-1641608989, PD4-1108500108	On a BlackDiamond 10800 switch with dual MSMs and a G20X module, CLEAR-Flow delta rules may be triggered on the backup MSM when not needed.
PD4-1586364429, PD4-1566158665	On a BlackDiamond 10800 series switch, an MSM failover results in too many SNMP traps (extremePortMauChangeTrap) being sent.
PD4-1272650041, PD4-804225168	ESMI related warning messages are seen in the output of the *show log* command whenever an SSL certificate with a key length of 4,096 is created or the HTTPD process is restarted.
PD4-1215941529, PD4-1035637713	Fans on a BlackDiamond 10800 switch may run at a higher RPM, causing unacceptable noise levels.
BlackDiamond 12800 Series Switch	
PD4-1598681891	When a BlackDiamond 12800 series switch is transmitting EAPS traffic, a dual master situation occurs and the backup MSM goes into a failed state causing the system to reboot with a higher number of routes and traffic. This issue is no longer reproducible.
BlackDiamond 20800 Series Switch	
PD4-1026932011	Hot swapping an XFM module may cause an odometer reading error. ExtremeXOS will not be able to read the odometer reading. FABRIC-2 information: State: Operational PartInfo: XFM-2 10076-80022 806019-00-05 Revision: 5.0 FailureCode: 0 Odometer: Temperature: 40.0 deg C Status: FABRIC Mode
PD4-1300795581	IP fragmentation is not happening with jumbo frame enabled.
PD4-1230894831	When installing the EXOS image, watchdog EPC (csd_flag_wait+0x18/0x28) will happen and may cause a crash. **Workaround:** Stop traffic when installing new ExtremeXOS image.
PD4-1527934161, PD4-1522821191	A BlackDiamond 20800 series switch crashes when a new VLAN translation member VLAN is added. The system appears to run out of multicast/flooding PSI resources.

PD4-1438460992, PD4-1402199417	While running diagnostics on a BlackDiamond 20800 series switch with an XM-8XB module in slot 2, and only one XFM-1 in slot 1, the output of the `run diagnostics` command shows the following error.
	`Diag Version=1.0.1.7. Exos Version=12.4.1.7 S/N=09366-80141`
	`System Test |`
	`FABRIC Connectivity: Device 3 Link 19 Failed`

PD4-1265032583, PD4-1235317131	Running the `show access-list counter` command on a BlackDiamond 20800 series switch causes a buffer leak, which results in a slot failure and conduit error.

Table 45: Resolved Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
PD4-1552576654, PD4-1508905375	A BlackDiamond 20800 series switch is unable to ping and learn ARP traffic in a vMAN and VLAN interconnected network setup.
PD4-1585599449, PD4-1409776545	When receiving a specific CFM packet, the switch displays the following error message: `Error: can't read xmlData.`
Summit Family Switches	
PD4-1102582531	In a PVLAN, network login MAC-based authentication does not work in ExtremeXOS 12.4.0.19.
PD4-1634882180, PD4-1634368131	When multiple FDB entries share a common set of egress ports spread across units, traffic to certain MAC addresses may not be forwarded on all the ports (ESP ports on alternate units).
PD4-1101069206	When configuring 2,000 VPWS instances, only 1,023 VPWS instances are created.
PD4-1368980540	Untagged vMAN VPLS service does not encapsulate all VLANS
PD4-1601466170	When configuring `configure mlag ports convergence-control fast`, no warning message appears when all the ACL slice resources have been used by the user ACL. This may lead to a major outage because if a user configures “fast” mode, traffic is not forwarded when the MLAG port goes down.
PD4-1629548130, PD4-1095983624	When applying an ACL on a Summit X450a switch, the following error is generated: `Error: ACL install operation failed - slice hardware full for port.`
PD4-1492692319, PD4-1477259761	A Summit X250-24P switch is unable to upgrade to ExtremeXOS 12.4.1 or later due to an unnecessary file in Compact Flash.
PD4-1373461534, PD4-1344772361	Reinstalling the "pktcapt.o" debug module causes a switch to crash in certain scenarios.
PD4-1476460791, PD4-1476492650	In a VPWS between a Summit X480 and a third-party switch that are directly attached, that is, no LSRs in the middle, if the third-party switch advertizing an implicit null next hop, the Summit X480 switch sends out the VPLS VPN traffic with only an explicit null label.
SummitStack	
PD4-1252408701, PD4-1249518348	A test port remains active while the port is disabled and a 10/100/1000BASE-T mini-GBIC and SFP I2C read/write failure 5557 occurs.
PD4-1585599632, PD4-1049718893	On a SummitStack, WAN-PHY error counters are not correct on the backup or standby node.
PD4-1584840513, PD4-1236337241	UPM becomes active before configuration check pointing is complete, causing the UPM script to fail.
PD4-1562370060, PD4-1544715651	On a Summit X480-24x switch with a 10/100/1000 BASE-T copper SFP, ports do not work properly if the speed is set to Auto Off.
PD4-1519888011, PD4-1354693709	In a SummitStack configuration, the switch sends the wrong SNMP traps when the link status of a stacking port changes.
ACL	
PD4-1370360717, PD4-902099498	A policy file created in a Windows environment using empty lines at the end of the policy file shows the error Incomplete entry in policy < policy-name > when applying or performing a "check policy." **Workaround:** Run the `edit policy <policy-name>` command and save the policy file. You do not need to change the contents of the policy file.
BGP	
PD4-1227697209, PD4-1088907253	BGP does not withdraw routes that are not preferred routes from neighbors to which the routes were previously advertised.

Table 45: Resolved Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
EAPS	
PD4-1566287981, PD4-1206057921	If EAPS ring ports are added to a VLAN before protecting the VLAN from EAPS, the EAPS secondary port may not be blocking the protected VLAN.
PD4-1482379577, PD4-1248684161	The ExtremeXOS CLI does not prevent a user from enabling BOOTP on an EAPS control VLAN.
IP Routing Protocols	
PD4-1459379065, PD4-1231117748	In RIP, an output route policy is applied to an input route policy internally after changing and refreshing the output route policy file.
MPLS	
PD4-1626964227, PD4-1633791881	On a Summit X480 switch, when a VPLS service VLAN port is changed to a load-shared port, traffic ingressing the load-shared port is dropped.
Network Login	
PD4-1395732773, PD4-1289042980	In web-based Netlogin, the Logout popup window is displayed momentarily then disappears, and the Logout page has the wrong information when logout privilege is disabled.
PD4-1530615777, PD3-2775691	RADIUS Access and Accounting requests should be sent using the NAS-Port attribute for 802.1x-based network login.
OSPFv3	
PD4-1386632055, PD4-1313201662	Receiving LS updates for an AS-External LSA with an invalid prefix length (a length of 128 or higher) causes the OSPFv3 process to die with signal 11.
PD4-1386632007, PD4-1313201611	OSPFv3 process crashes when an ASBR that was reachable through multiple areas goes down.
QoS	
PD4-1256063129, PD4-1142795366	Configuring a QoS profile for all ports using the *all* keyword fails if load-sharing is configured on the switch.
ScreenPlay	
PD4-1523522359, PD4-752945069	If the execCLI XML API is run with specific commands such as *top* or *edit* on an ExtremeXOS switch, the switch becomes unresponsive.
PD4-1502591187, PD4-1497877407	A switch may hang when running the `restart process thttpd` command when the CPU utilization for thttpd reaches 99.9%.
SNMP	
PD4-1459378929, PD4-1440591951	The extremePowerSupplyStatus SNMP variable values in the EXTREME-SYSTEM-MIB are not sufficient to represent the various states of a power supply.
PD4-1284317874	When configuring an SNMP target-addr table using a MIB, SNMPv3 incorrectly sets the VR option and traps are not sent.
Spanning Tree Protocol	
PD4-1696989802, PD4-863165251	When using a 32-character VLAN, the VLAN cannot be added to STP; the last character is removed.
PD4-1593308631, PD4-1531283743	After setting dot1dStp SNMP OIDs, the switch experiences an STP process crash with signal 11.
PD4-1272649117, PD4-1101544951	A "new root" trap is always generated when a link up or link down occurs on an edge safeguard port in an MSTP domain.

Table 45: Resolved Issues, Platform-Specific and Feature PDs (Continued)

PD Number	Description
PD4-1493262737, PD4-1197366638	Ports become active and start forwarding traffic before STP is operational when rebooting.
VPLS	
PD4-1517234959, PD4-1509628441	When sending VPLS traffic for approximately 100 E-LANs, traffic for one of the E-LANs may get lost.