



# Documentation Reference for VOSS

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# Chapter 1: Preface

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## Purpose

This document provides information on features in VSP Operating System Software (VOSS). VOSS runs on the following product families:

- Extreme Networks Virtual Services Platform 4000 Series
- Extreme Networks Virtual Services Platform 7200 Series
- Extreme Networks Virtual Services Platform 8000 Series (includes VSP 8200 and VSP 8400 Series)
- Extreme Networks Virtual Services Platform 8600

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## Training

Ongoing product training is available. For more information or to register, you can access the Web site at [www.extremenetworks.com/education/](http://www.extremenetworks.com/education/).

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## Providing Feedback to Us

Quality is our first concern at Extreme Networks, and we have made every effort to ensure the accuracy and completeness of this document. We are always striving to improve our documentation and help you work better, so we want to hear from you! We welcome all feedback but especially want to know about:

- Content errors or confusing or conflicting information.
- Ideas for improvements to our documentation so you can find the information you need faster.
- Broken links or usability issues.

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- Use our short online feedback form at <https://www.extremenetworks.com/documentation-feedback/>.

- Email us at [documentation@extremenetworks.com](mailto:documentation@extremenetworks.com).

Please provide the publication title, part number, and as much detail as possible, including the topic heading and page number if applicable, as well as your suggestions for improvement.

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- **GTAC (Global Technical Assistance Center) for Immediate Support**
  - **Phone:** 1-800-998-2408 (toll-free in U.S. and Canada) or +1 408-579-2826. For the support phone number in your country, visit: [www.extremenetworks.com/support/contact](http://www.extremenetworks.com/support/contact)
  - **Email:** [support@extremenetworks.com](mailto:support@extremenetworks.com). To expedite your message, enter the product name or model number in the subject line.
- **Extreme Portal** — Search the GTAC knowledge base, manage support cases and service contracts, download software, and obtain product licensing, training, and certifications.
- **The Hub** — A forum for Extreme Networks customers to connect with one another, answer questions, and share ideas and feedback. This community is monitored by Extreme Networks employees, but is not intended to replace specific guidance from GTAC.

Before contacting Extreme Networks for technical support, have the following information ready:

- Your Extreme Networks service contract number and/or serial numbers for all involved Extreme Networks products
- A description of the failure
- A description of any action(s) already taken to resolve the problem
- A description of your network environment (such as layout, cable type, other relevant environmental information)
- Network load at the time of trouble (if known)
- The device history (for example, if you have returned the device before, or if this is a recurring problem)
- Any related RMA (Return Material Authorization) numbers

### Subscribing to Service Notifications

You can subscribe to email notifications for product and software release announcements, Vulnerability Notices, and Service Notifications.

1. Go to [www.extremenetworks.com/support/service-notification-form](http://www.extremenetworks.com/support/service-notification-form).
2. Complete the form with your information (all fields are required).
3. Select the products for which you would like to receive notifications.

**\* Note:**

You can modify your product selections or unsubscribe at any time.

4. Click **Submit**.

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## Documentation and Training

To find Extreme Networks product guides, visit our documentation pages at:

Current Product Documentation	<a href="http://www.extremenetworks.com/documentation/">www.extremenetworks.com/documentation/</a>
Archived Documentation (for earlier versions and legacy products)	<a href="http://www.extremenetworks.com/support/documentation-archives/">www.extremenetworks.com/support/documentation-archives/</a>
Release Notes	<a href="http://www.extremenetworks.com/support/release-notes">www.extremenetworks.com/support/release-notes</a>
Hardware/Software Compatibility Matrices	<a href="https://www.extremenetworks.com/support/compatibility-matrices/">https://www.extremenetworks.com/support/compatibility-matrices/</a>
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### Training

Extreme Networks offers product training courses, both online and in person, as well as specialized certifications. For more information, visit [www.extremenetworks.com/education/](http://www.extremenetworks.com/education/).

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## Subscribing to Service Notifications

Subscribe to receive an email notification for product and software release announcements, Vulnerability Notices, and Service Notifications.

### About this task

You can modify your product selections at any time.

### Procedure

1. In an Internet browser, go to <http://www.extremenetworks.com/support/service-notification-form/>.
2. Type your first and last name.
3. Type the name of your company.
4. Type your email address.

5. Type your job title.
6. Select the industry in which your company operates.
7. Confirm your geographic information is correct.
8. Select the products for which you would like to receive notifications.
9. Click **Submit**.



## Chapter 2: New in this Document

The following section details what is new in *Documentation Reference*.

There are no changes to this document.

# Chapter 3: Technical documentation changes

This chapter describes the new, restructured, and retired documents for VSP Operating System Software (VOSS).

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## New documents

No new documents were introduced.

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## Restructured documents

No documents were restructured.

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## Retired documents

No documents were retired.

# Chapter 4: Roadmap

Use this section as a guide to find information to perform work involving the VSP Operating System Software (VOSS).

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## Product fundamentals

Product fundamentals documentation contains information that is relevant to multiple job functions, and overview and reference information about the product and the product documentation.

**Table 1: Product fundamentals documents**

Technical document	Description
<i>Documentation Reference</i>	This document contains an overview of the documentation suite and explains how to use task-based documentation.
<i>Quick Start Configuration</i>	This document provides instructions to perform initial provisioning of the software.
<i>Using CLI and EDM</i>	This document describes how to navigate the command line interface, and how to use Enterprise Device Manager.
<i>CLI Commands Reference</i>	This document provides default values and proper syntax of the command line interface commands.

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## Upgrades

Upgrades documentation enables you to upgrade hardware and software from one release to another for the product.

**Table 2: Upgrades documents**

Technical document	Description
<i>Release Notes</i>	This document describes new features and important information about the latest release. Release notes include a list of known issues (including workarounds)

Technical document	Description
	where appropriate) and a list of fixed issues. This document also describes known limitations and expected behaviors that may first appear to be issues.

## Installation and commissioning

Installation and commissioning documentation enables you to install the product hardware and software and perform the initial configuration.

**Table 3: Installation and commissioning documents**

Technical document	Description
<i>Installing the Virtual Services Platform 4850GTS Series</i>	This document provides procedures and conceptual information to install the VSP 4000 VSP4850GTS Series.
<i>Virtual Services Platform 4850GTS Series Quick Install Guide</i>	This document provides quick installation instructions to install the VSP 4000 VSP4850GTS Series switch.
<i>Virtual Services Platform 4450GSX Quick Install Guide</i>	This document provides quick installation instructions to install the VSP 4000 4450GSX-PWR+ switch.
<i>Installing the Virtual Services Platform 4450GTX-HT-PWR+</i>	This document provides procedures and conceptual information to install the VSP 4000 4450GTX-HTPWR+.
<i>Virtual Services Platform 4450GTX-HT-PWR+ Quick Install Guide</i>	This document provides quick installation instructions to install the VSP 4000 4450GTX-HTPWR+ switch.
<i>Installing the Virtual Services Platform 4450GSX-PWR+</i>	This document provides procedures and conceptual information to install the VSP 4000 4450GSX-PWR+.
<i>Installing the Virtual Services Platform 8000 Series</i>	This document provides procedures and conceptual information to install the Virtual Services Platform 8000 Series.
<i>Installing Transceivers and Optical Components on VSP Operating System Software</i>	This document provides conceptual information and procedures to install SFP, SFP+, and QSFP+ transceivers.
<i>Virtual Services Platform 8000 Series</i>	This document provides quick installation instructions to install the VSP 8000 Series hardware and software.

*Table continues...*

Technical document	Description
<i>Quick Install Guide for Virtual Services Platform 7200 Series</i>	This document provides quick installation instructions to install the Virtual Services Platform 7200 Series.
<i>Installing the Virtual Services Platform 7200 Series</i>	This document provides procedures and conceptual information to install the Virtual Services Platform 7200 Series.
<i>Installing the Virtual Services Platform 8600</i>	This document provides procedures and conceptual information to install the Extreme Networks Virtual Services Platform 8600.
<i>Chassis Quick Installation Guide for Virtual Services Platform 8600</i>	This document provides quick installation instructions and commissioning for the Virtual Services Platform 8600.
<i>Module Installation Poster for Virtual Services Platform 8600</i>	This document provides quick installation instructions for the Virtual Services Platform 8600 I/O and control (IOC) and switch fabric (SF) modules.

**Table 4: Installation and commissioning Job Aid documents**

Technical document	Description
<i>Installation Job Aid for Virtual Services Platform 8400</i>	This document provides job aids to install the VSP 4000 4450GTX-HT-PWR+.
<i>Installation Job Aid for the Virtual Services Platform 4850GTS</i>	This document provides job aids to install the VSP 4000 VSP4850GTS Series.
<i>Installation Job Aid for the Virtual Services Platform 4450GSX-PWR+</i>	This document provides job aids to install the VSP 4000 4450GSX-PWR+ .
<i>Installation Job Aid for Virtual Services Platform 7200 Series</i>	This document provides job aids to install the Virtual Services Platform 7200 Series.
<i>Installation Job Aid for Virtual Services Platform 8600</i>	This document provides job aids to install the Extreme Networks Virtual Services Platform 8600.

**Table 5: Installation and commissioning reference documents**

Technical document	Description
<i>Virtual Services Platform 4000 Series Regulatory Guide</i>	These documents provide information about regulatory conformities and compliance.
<i>Regulatory Reference for Virtual Services Platform 8000 Series</i>	
<i>Regulatory Reference for Virtual Services Platform 7200 Series</i>	
<i>Regulatory Reference for Virtual Services Platform 8600</i>	

*Table continues...*

Technical document	Description
<i>Locating the latest software and product release notes for Virtual Services Platform 4000 Series</i> <i>Locating Software and Release Notes for Virtual Services Platform 8000 Series</i> <i>Locating Software and Release Notes for Virtual Services Platform 7200 Series</i> <i>Locating Software and Release Notes for Virtual Services Platform 8600</i>	These documents ship with their respective VOSS components.
<i>Read Me First—Important Notes and Minimum Software Requirements for Virtual Services Platform 8600 Modules</i>	This document provides important read me first information and also provides the minimum software release for each IOC and SF module for Extreme Networks Virtual Services Platform 8600.

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## Administration and security

Administration and security documentation supports the configuration and management of systems data, resources, users, and security for the product.

**Table 6: Administration and security documents**

Technical document	Description
<i>Administering</i>	<p>This document provides procedures and conceptual information to administer base system-level topics such as Domain Name System, network clock synchronization, and network time protocol.</p> <p>It also describes important administration procedures to upgrade software, save configurations and shutdown, restart or reset the VOSS switches.</p>
<i>Configuring Security</i>	<p>This document provides procedures and conceptual information to administer and configure security features for the VOSS switches.</p>

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## Operations

Operations documentation provides information that enables you to configure services and applications, manage accounting and billing, and perform routine maintenance of hardware and software for the product.

**Table 7: Operations documents**

<b>Technical document</b>	<b>Description</b>
<i>Configuring VXLAN Gateway</i>	This document contains procedural and conceptual information to help you configure and manage VXLAN Gateway on supported platforms.
<i>Configuring VLANs, Spanning Tree, and NLB</i>	This document describes how to configure VLANs, Multiple Spanning Tree Protocol, and Rapid Spanning Tree Protocol.  This document also includes information about how to configure the switches with Network Load Balancer clusters.
<i>Configuring QoS and ACL-Based Traffic Filtering</i>	The QoS documents provide procedures and conceptual information to administer and configure Quality of Service. These documents describe filters (access control lists, access control entries), policing, shaping, and DiffServ.
<i>Configuring IP Multicast Routing Protocols</i>	This document describes conceptual and procedural information to administer and configure IP Multicast Routing protocols.
<i>Configuring IPv4 Routing</i>	This document provides instructions to configure general routing operations.
<i>Configuring OSPF and RIP</i>	This document provides procedures and conceptual information to administer and configure Open Shortest Path First and the Routing Information Protocol.
<i>Configuring Link Aggregation, MLT, SMLT, and vIST</i>	This document describes how to configure and manage link aggregation and MultiLink Trunking.
<i>Configuring IPv6 Routing</i>	This document provides instructions to configure IPv6 routing operations. Operations include TCP and UDP, DHCP Relay, VRRP, static routes, OSPFv3, and RSMLT.
<i>Configuring BGP Services</i>	This document describes the conceptual and procedural information to configure Border Gateway Protocol (BGP) services on VSP Operating System Software (VOSS). This includes the configuration of internal BGP (iBGP) and external BGP (eBGP).
<i>Configuring Fabric Basics and Layer 2 Services</i>	This document provides instructions to configure SPBM operations on VOSS. Operations include Shortest Path Bridging MAC (SPBM), Intermediate System to Intermediate System (IS-IS).
<i>Configuring Fabric Layer 3 Services</i>	This document describes the conceptual and procedural information to configure IPv4 and IPv6 shortcuts, routes, policies and redistribution.

*Table continues...*

Technical document	Description
	Operations include Unicast configuration of Layer 3 Virtual Services Network (VSN).
<i>Configuring Fabric Multicast Services</i>	This document describes the conceptual and procedural information to configure PIM Gateway to provide multicast interdomain communication between an SPB network and a Protocol Independent Multicast-Sparse Mode (PIM-SM) network.

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## Fault and performance management

Fault and performance management documentation enables you to manage faults, and measure and optimize the performance of the product.

**Table 8: Fault and performance management documents**

Technical documents	Description
<i>Troubleshooting</i>	<p>This document describes common problems and error messages with the techniques to resolve them as well as information about traps and command logging.</p> <p>This document also provides information about troubleshooting tools.</p>
<i>Monitoring Performance</i>	<p>This document provides information about switch management tools, the dynamic network applications feature, and graphing of port and chassis statistics.</p> <p>This document also provides information about how to prevent faults and improve the performance of the product, including configuration procedures for link state change, key health indicators, and logs and traps.</p>
<i>Configuring the SLA Mon Agent</i>	This document provides conceptual and procedural information to perform end-to-end network Quality of Service (QoS) validation and to distribute monitoring devices.



# Chapter 5: Text conventions

This section describes the text conventions used throughout the VSP Operating System Software (VOSS) documentation suite.

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## Plain Courier text

Plain Courier text indicates command names, options, and text that you must enter.

Example: Enter `show ip route`.

Plain Courier text also indicates command syntax and system output, for example, prompts and system messages.

Example: `Error: Invalid command syntax [Failed][2013-03-22 13:37:03.303-04:00]`

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## Bold text

**Bold** text indicates the GUI object name you must act upon.

Example: Click **OK**.

Example: On the **Tools** menu, choose **Options**.

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## Special messages

A special message identifies a risk associated with an action. A special message can also explain how to avoid or reduce the risk. The following are examples of the different types of special messages and the purposes they serve.

### **Important:**

This special message draws your attention to key information that does not carry with it the risk of personal injury, death, system failure, service interruption, loss of data, damage to equipment, or electrostatic discharge.

 **Voltage:**

**Risk of injury or death from high voltage or electric shock**

This special message indicates where an immediate hazard exists that, if not avoided, can result in serious personal injury or death through high voltage or electric shock.

 **Danger:**

**Risk of serious personal injury or death**

This special message signals where an immediate hazard exists that, if not avoided, can result in minor or moderate personal injury.

 **Warning:**

**Risk of equipment damage**

This special message warns that a potential hazard exists that, if not avoided, can result in harm to hardware or equipment.

 **Caution:**

**Risk of system failure, service interruption, loss of data, or harm to software**

This special message cautions against practices that are not safe or are potential hazards not covered by danger or warning messages.

 **Electrostatic alert:**

**Risk of service loss from electrostatic discharge**

This special message indicates the risk of electrostatic discharge from electrostatic-discharge sensitive (ESDS) devices. It cautions the user to observe precautions for handling ESDS devices.

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## Angle brackets

Angle brackets (< >) indicate that you choose the text to enter based on the description inside the brackets. Do not type the brackets when you enter the command.

Example: If the command syntax is `cfm maintenance-domain maintenance-level <0-7>`, you can enter `cfm maintenance-domain maintenance-level 4`.

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## Braces

Braces ({ }) indicate required elements in syntax descriptions. Do not type the braces when you enter the command.

Example: If the command syntax is `ip address {A.B.C.D}`, you must enter the IP address in dotted, decimal notation.

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## Brackets

Brackets ([ ]) indicate optional elements in syntax descriptions. Do not type the brackets when you enter the command.

Example: If the command syntax is `show ip interface [gigabitethernet]`, you can enter either `show ip interface` or `show ip interface gigabitethernet`.

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## Ellipses

An ellipsis (...) indicates that you repeat the last element of the command as needed.

Example: If the command syntax is `ethernet/2/1 [ <parameter> <value> ] . . .`, you enter `ethernet/2/1` and as many parameter-value pairs as you need.

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## Italic text

*Italic* text indicates book titles.

Example: *Release Notes*

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## Separator

A greater than sign ( > ) shows separation in menu paths.

Example: In the Navigation tree, open the following folders: **Configuration > Edit**.

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## Vertical line

A vertical line ( | ) separates choices for command keywords and arguments. Enter only one choice. Do not type the vertical line when you enter the command.

Example: If the command syntax is `access-policy by-mac action { allow | deny } ,` you enter either `access-policy by-mac action allow` or `access-policy by-mac action deny`, but not both.

# Chapter 6: Modular, task-based information

Modular, task-based information is organized by specific principles of structure, information type, and task focus. The documentation is based upon the tasks that the user must perform to fulfill their job function. The sequence and dependencies among the tasks is represented in work flows and task flows. The tasks are supported by conceptual and reference information.

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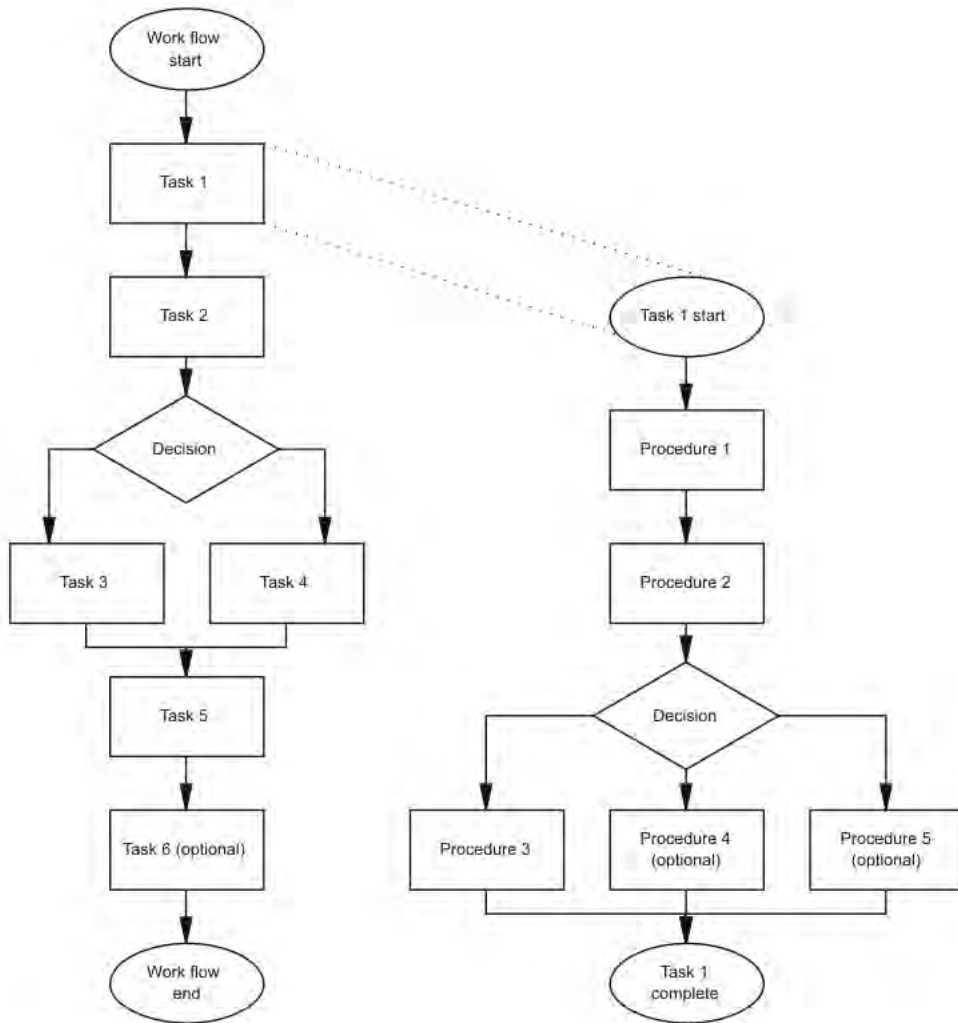
## Work flows and task flows

Task-based documentation emphasizes procedural information. Flowcharts provide the primary navigation to tasks and procedures whenever there is a required order and flow to the actions you must perform to complete a given job.

Work flows and task flows are flowcharts that illustrate which tasks or procedures and decisions occur in an activity. The flowcharts guide you through any type of activity on the product, whether it is initial installation, configuration, upgrades, routine maintenance, or troubleshooting.

Each flowchart provides the prerequisites and links to the tasks or procedures that you need to perform. Always follow the work flows and task flows so that you perform the required procedures in the correct order.

To understand the relationship between work flows, task flows, and procedures, see the following figure.



**Figure 1: Work flows, task flows, and procedures in task-based documentation**

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