Documentation Reference for Avaya Ethernet Routing Switch 5000 Series

Release 6.6
NN47200-103
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Chapter 1: Introduction

Purpose

This document explains the organization of the technical documentation for the Avaya Ethernet Routing Switch 5000 Series Release 6.6. Use this document to understand where you can find specific types of information in the customer documentation suite.

Related resources

Documentation

See the *Documentation Reference for Avaya Ethernet Routing Switch 5000 Series*, NN47200–103 for a list of the documentation for this product.

Training

Ongoing product training is available. For more information or to register, you can access the Web site at http://avaya-learning.com.

Avaya Mentor videos

Avaya Mentor videos provide technical content on how to install, configure, and troubleshoot Avaya products.

About this task

Videos are available on the Avaya Support website, listed under the video document type, and on the Avaya-run channel on YouTube.

- To find videos on the Avaya Support website, go to http://support.avaya.com, select the product name, and check the *videos* checkbox to see a list of available videos.
- To find the Avaya Mentor videos on YouTube, go to http://www.youtube.com/AvayaMentor and perform one of the following actions:
  - Enter a key word or key words in the Search Channel to search for a specific product or topic.
  - Scroll down Playlists, and click the name of a topic to see the available list of videos posted on the site.

Note:

Videos are not available for all products.

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Visit the Avaya Support website at http://support.avaya.com for the most up-to-date documentation, product notices, and knowledge articles. You can also search for release notes, downloads, and resolutions to issues. Use the online service request system to create a service request. Chat with live agents to get answers to questions, or request an agent to connect you to a support team if an issue requires additional expertise.

Chapter 2: New in this release

The following section details what's new in *Documentation Reference for Avaya Ethernet Routing Switch 5000 Series*, NN47200–103 for Release 6.6:

Features

See the following sections for information about feature changes.

802.1X-2004 support

With the 802.1x-2004 standard the switch can authenticate both EAPOL version 1 and EAPOL version 2 supplicants.

For more information on EAPOL, see:

- *Configuring Security on Avaya Ethernet Routing Switch 5000 Series*, NN47200-501

802.1X: Default all EAP settings

This feature allows you to default all EAP settings globally and on a port level.

For more information, see:

- *Configuring Security on Avaya Ethernet Routing Switch 5000 Series*, NN47200-501

802.1X: Fail Open VLAN Continuity mode

The Fail Open VLAN Continuity mode feature introduces a new mode of operation for EAP/NEAP clients when the RADIUS server(s) become unreachable.

For more information, see:

- *Configuring Security on Avaya Ethernet Routing Switch 5000 Series*, NN47200-501

802.1X: Maximum number of EAP and NEAP clients per port

You can define the maximum number of EAP and Non-EAP clients allowed per port, from one client up to 64, where 64 would be a maximum of 32 EAP clients and 32 NEAP clients. The default for the maximum number of clients is one. There is no priority of EAP or NEAP clients for authentication.

To configure the maximum clients parameter, see:

- *Configuring Security on Avaya Ethernet Routing Switch 5000 Series*, NN47200-501

802.1X: NEAP not member of VLAN

The NEAP not member of VLAN feature ensures that ports configured with RADIUS Non-EAP authentication are assigned to at least one VLAN to make authentication possible for Non-EAP clients.

For more information, see:

- *Configuring Security on Avaya Ethernet Routing Switch 5000 Series*, NN47200-501

802.1X: NEAP Phone (Avaya Support)

NEAP IP Phone support is enhanced to recognize Avaya Red handsets through two additional DHCP signatures: Nortel-SIP-Phone-A and ccp.avaya.com.

802.1X: NEAP support for freeform password

The ability to support complex passwords for NEAP switch authentication is extended with the use of a global freeform password. A CLI configurable key consisting of a string of up to 32 ASCII characters is added to the NEAP password format used to authenticate NEAP clients.

For more information, see:

- *Configuring Security on Avaya Ethernet Routing Switch 5000 Series*, NN47200-501

ACLI show flash history command

The `show flash history` command provides the current status of the Flash device. You can use the `show flash history` command to view the flash writes and erase history on a standalone unit or stack. The Flash History does not record programming done from the diagnostics or bootloader. Flash History information is stored in the Serial (PC) Electrically Erasable Programmable Read Only Memory (SEEPROM). The data does not get corrupted during an upgrade or downgrade. Flash History is automatically enabled and does not require any configuration.

For more information on the `show flash history` command, see:

- *Getting Started with Avaya Ethernet Routing Switch 5000 Series*, NN47200–303

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ARP scaling

In Release 6.6, the total number of ARP table entries is increased to 4,096.

For more information on ARP, see:

- *Configuring IP Routing and Multicast on Avaya Ethernet Routing Switch 5000 Series*, NN47200-503

Change RADIUS Password

If you have RADIUS servers in your network, you can allow users to change account passwords when they expire.

Note:

Change RADIUS password is available only in secure software builds.

You can enable or disable the Change RADIUS password feature. By default, this feature is disabled. When Change RADIUS password feature is enabled, the server reports the password expiry and system prompts you to create a new password.

For more information about the Change RADIUS password feature, see:

- *Configuring Security on Avaya Ethernet Routing Switch 5000 Series*, NN47200-501

CLI list command

This feature provides an enhancement to the CLI `help` command, by adding a complete list of the CLI tree available on the unit, regardless of the current unit configuration. You can also use the “verbose” option to list the syntax of every CLI command.

For more information, see:

- *Fundamentals of Avaya Ethernet Routing Switch 5000 Series*, NN47202-104

Default IP

The Ethernet Routing Switch 5600 Series sets an IP address of 192.168.1.1/24 by default if the switch does not obtain its IP from another source.

Note:

As this feature overrides the UI button functionality to set the default IP address, the UI button functionality has been removed.

For more information, see:

- *Getting Started with Avaya Ethernet Routing Switch 5000 Series*, NN47200–303

EDM improved download support

When downloading software to the switch, EDM provides a status bar on the progress and an indication when the download is complete.

For more information, see:

- *Getting Started with Avaya Ethernet Routing Switch 5000 Series*, NN47200–303

EDM inactivity timeout

You can configure the period of time that an EDM session remains idle before the session expires. The current default expiry for an idle EDM session is 15 minutes.

For more information, see:

- *Getting Started with Avaya Ethernet Routing Switch 5000 Series*, NN47200–303

Link-state tracking

The link-state tracking feature binds the link state of multiple interfaces, so that if a specified interface or its Virtual Link Aggregation Control Protocol (VLACP) state goes down, all the other interfaces in that group are placed in a temporary down state.

For more information, see:

- *Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 5000 Series*, NN47200–502

Out-of-band management

Out-of-band management allows switch or stack management through the dedicated out-of-band management port. This port can accept an IPv4 or IPv6 address different from the switch or stack IP address. With out-of-band management, you do not require an in-band management VLAN to carry switch or stack management traffic, including Telnet, Secure Shell (SSH) protocol, Simple Network Management Protocol (SNMP), HTTP, or HTTPS. You can also use out-of-band management to download a software image or access the Enterprise Device Manager (EDM) interface for a switch or stack.

For more information, see:

- *Getting Started with Avaya Ethernet Routing Switch 5000 Series*, NN47200–303

Remote Switch Port Analyzer (RSPAN)

Remote Switch Port Analyzer (RSPAN), also known as Remote Port Mirroring, enhances port mirroring by enabling mirrored traffic to be sent to one or more switches or stacks on the network.

For more information, see:

- *Configuring System Monitoring on Avaya Ethernet Routing Switch 5000 Series*, NN47200-505

RO User access to Telnet and SSH

Users logged in with read-only permission can now have access to Telnet and SSH commands. Previous software releases required the user to be logged in with read-write access.

For more information on using Telnet and SSH, see:

- *Configuring Security on Avaya Ethernet Routing Switch 5000 Series*, NN47200-501

Run Scripts

You can use the run scripts to automatically configure the parameters for an Avaya Stackable Ethernet switch according to Avaya's best practices for converged solutions. The scripts can be executed in a default or verbose mode.

In the default mode, the switch is configured using predetermined parameter values. In the verbose mode, you can modify the default values and settings when the script is executed.

In this release, run scripts are available for IP Office, Link Layer Discovery Protocol (LLDP), and Auto Detect Auto Configuration (ADAC).

For more information, see:

- *Getting Started with Avaya Ethernet Routing Switch 5000 Series*, NN47200–303

Secure File Transfer Protocol (SFTP) enhancements

For secure (SSH) software images, the SFTP client functionality is enhanced to include download support of agent and diagnostic files, ASCII configuration file download and upload, download of license files, and DHCP external save transfer to and from an SFTP server.

For more information, see:

- *Configuring Security on Avaya Ethernet Routing Switch 5000 Series*, NN47200-501

Show TCP Ports

You can view information about active IPv4 sockets similar to the output from the Unix netstat command.

For more information, see:

- *Configuring System Monitoring on Avaya Ethernet Routing Switch 5000 Series*, NN47200-505

Show UTC timestamp

The show UTC timestamp feature enables you to display the UTC timestamp after issuing any show command in ACLI. By default, the timestamp state is disabled.

For more information, see:

- *Getting Started with Avaya Ethernet Routing Switch 5000 Series*, NN47200–303

SLA Monitor

The Service Level Agreement (SLA) Monitor is an embedded monitoring device designed to identify and isolate performance issues in a network.

For more information, see:

- *Configuring System Monitoring on Avaya Ethernet Routing Switch 5000 Series*, NN47200-505

SSH Client

SSH Client is a secure shell protocol for connecting to an SSH server accepting remote connections, and is a secure alternative to telnet. The SSH Client uses SSH version 2 and is present only on secure (SSH) images.

For more information, see:

- *Configuring Security on Avaya Ethernet Routing Switch 5000 Series*, NN47200-501

VRF ping support

The ping command allows you to specify the VRF.

For more information, see:

- *Getting Started with Avaya Ethernet Routing Switch 5000 Series*, NN47200–303

VRF stacking and traceroute support

In Release 6.6, VRF is now available for stacked 5600 configurations. In addition, you can specify the VRF in the traceroute command.

For more information on VRF, see:

- *Configuring IP Routing and Multicast on Avaya Ethernet Routing Switch 5000 Series*, NN47200-503

Other changes

See the following sections for information about changes that are updates to previously existing information.

CLI interface change from FastEthernet to Ethernet

The CLI interface command `interface FastEthernet` is changed to `interface Ethernet`. The FastEthernet interface command remains available, but hidden so as to provide backward compatibility.

Removal of DAUR support

DAUR support has been removed for Avaya ERS 5600 Series in Release 6.6.

Removal of hybrid stack support

Release 6.6 supports pure stacks of 5600 switches only. Hybrid stacks of 5500 and 5600 switches are not supported.

Removal of NSNA support

NSNA support has been removed for Avaya ERS 5600 Series starting in Release 6.6.

Removal of QoS filter limiting

Since Release 6.6 is not supported on ERS 5510 units that require QoS filter limiting, Release 6.6 removes ACLI commands and EDM support for QoS filter limiting.

Chapter 3: Roadmap

This section is a roadmap for the Avaya Ethernet Routing Switch 5000 Series documentation. Use this section to find the correct document for the task you need to perform.

Avaya Ethernet Routing Switch 5000 Series technical documents are structured with an emphasis on the tasks you perform.

Customer documentation packaging

Avaya technical documents are organized according to job functions.

Product Fundamentals

Product Fundamentals documentation includes product overview and information that applies to all areas of the product.

Table 1: Avaya Ethernet Routing Switch 5600 Series product fundamentals documents

Document title	Description
Regulatory Information Reference for Avaya Ethernet Routing Switch 5600 Series, NN47201-101	This document provides regulatory and precautionary messages applicable to the Avaya Ethernet Routing Switch 5600 Series.
Documentation Reference for Avaya Ethernet Routing Switch 5000 Series, NN47200–103	This document contains an overview of the documentation suite and explains how to use task-based documentation.
Fundamentals of Avaya Ethernet Routing Switch 5000 Series, NN47202-104	This document provides instructions to use the Avaya Ethernet Routing Switch 5000 Series user interfaces, including Avaya command line interface (ACLI) and Enterprise Device Manager (EDM), and includes procedures to use configuration files.
ACLI Commands Reference for Avaya Ethernet Routing Switch 5000 Series, NN47200–512	Provides default values and proper syntax for the Avaya Command Line Interface (ACLI) commands.

Document title	Description
Avaya Ethernet Routing Switch 5000 Series — Terminology, NN47200-106	This document contains common terms and acronyms used in the Avaya Ethernet Routing Switch 5600 Series documentation suite.

Installation and Commissioning

Installation and Commissioning documentation includes information that supports initial installation and commissioning (initial configuration) activities, including preparation, processes, safety requirements, and instructions for rollback procedures.

The following table describes Avaya Ethernet Routing Switch 5600 Series installation and commissioning documents.

Table 2: Avaya Ethernet Routing Switch 5000 Series installation and commissioning documents

Document title	Description
Quick Installation of Avaya Ethernet Routing Switch 5000 Series, NN47200–105	This document provides instructions to install the Avaya Ethernet Routing Switch 5600 Series in an equipment rack or on a shelf and prepare for network connectivity.
Installing the Avaya Ethernet Routing Switch 5000 Series, NN47200-300	This document provides instructions to install the Avaya Ethernet Routing Switch 5000 Series in an equipment rack (individually or in a stack) or on a shelf. It also provides instructions to perform the initial IP configuration on the switch using the console menu, ACLI, or UI button. It also provides instructions to verify switch status using the front-panel LEDs. **Note:** The UI button is labeled Mode Select on Avaya branded equipment.
Installing Transceivers and Optical Components on Avaya Ethernet Routing Switch 5000 Series, NN47200–302	This document provides instructions to install small form factor pluggable transceivers, 10 Gigabit small form factor pluggable transceivers, and includes specifications for these hardware components.
Getting Started with Avaya Ethernet Routing Switch 5000 Series, NN47200–303	This document provides instructions to perform basic configuration of the Avaya Ethernet Routing Switch 5000 Series

Document title	Description
	including procedures to configure the switch IP address after hardware installation. It also provides instructions to configure system-level features such as stacking, feature licensing, Simple Network Time Protocol, BootP, Domain Name System, PoE, and LLDP.
Installation Job Aid (English) for Avaya Ethernet Routing Switch 5000 Series, NN47200–304	This document provides instructions to install the Avaya Ethernet Routing Switch 5000 Series. The document also includes safety messages and power connection instructions.

Upgrades and Patches

Upgrades and Patches documentation includes information to upgrade software and hardware components.

The following table describes Avaya Ethernet Routing Switch 5600 Series upgrades and patches documents.

Table 3: Avaya Ethernet Routing Switch 5000 Series upgrades and patches documents

Document title	Description
Release Notes for Avaya Ethernet Routing Switch 5000 Series, NN47200-400	This document describes new features and important information about the latest release. Release Notes includes a list of known issues (including workarounds where appropriate) and a list of fixed issues.

Operations

Operations documents include information that supports tasks related to configuration (post-commissioning) of services or applications, routine maintenance of hardware or software, and accounting or billing activities.

The following table describes Avaya Ethernet Routing Switch 5600 Series operations documents.

Table 4: Avaya Ethernet Routing Switch 5000 Series operations documents

Document title	Description
Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 5000 Series, NN47200–502	This document describes procedures and conceptual information to configure VLANs, Spanning Tree, Link Aggregation Control Protocol, and Multi-Link Trunking on the Avaya Ethernet Routing Switch 5000 Series.
Configuring IP Routing and Multicast on Avaya Ethernet Routing Switch 5000 Series, NN47200-503	This document provides procedures and conceptual information to configure IP routing features on the Avaya Ethernet Routing Switch 5000 Series, including static routes, RIP, OSPF, Proxy ARP, DHCP Relay, and UDP forwarding. It also provides procedures and conceptual information to manage multicast traffic using IGMP snooping and PIM-SM.
Configuring Quality of Service on Avaya Ethernet Routing Switch 5000 Series, NN47200-504	This document provides procedures and conceptual information to configure Quality of Service on the Avaya Ethernet Routing Switch 5000 Series.
Configuring BGP on Avaya Ethernet Routing Switch 5000 Series, NN47200–511	This document provides procedures and conceptual information to configure BGP on the Avaya Ethernet Routing Switch 5000 Series.

Administration and Security

Administration and Security documentation includes information that supports tasks that operations personnel perform that relate to network administration or product security, including the configuration and management of systems data and users. The documentation also includes the management and protection of resources from unauthorized or detrimental access and use.

The following table describes Avaya Ethernet Routing Switch 5600 Series administration and security documents.

Table 5: Avaya Ethernet Routing Switch 5000 Series administration and security documents

Document title	Description
Configuring Security on Avaya Ethernet Routing Switch 5000 Series, NN47200-501	This document provides procedures and conceptual information to administer and

Document title	Description
	configure security features for the Avaya Ethernet Routing Switch 5000 Series, including MAC-based security, RADIUS, EAPOL, IP Source Guard, DHCP Snooping, SSH, and NSNA.

Fault and Performance Management

Fault and Performance Management documents include information that supports the tasks that operations personnel perform that relate to managing or preventing faults, troubleshooting, and monitoring and improving the performance of the network or product

The following table describes Avaya Ethernet Routing Switch 5600 Series fault and performance management documents.

Table 6: Avaya Ethernet Routing Switch 5000 Series fault and performance management documents

Document title	Description
Configuring System Monitoring on Avaya Ethernet Routing Switch 5000 Series, NN47200-505	This document provides information about system diagnostics tools including syslog, Remote Monitoring, port mirroring, and displaying port and chassis statistics.
Troubleshooting the Avaya Ethernet Routing Switch 5000 Series, NN47200-700	This document describes common problems and error messages and the techniques to resolve them.

Documentation file formats

To locate the Avaya Ethernet Routing Switch 5000 Series software Release 6.6 documentation on the Avaya Web site, see www.avaya.com/support, or the documentation CD. The following documents are also available in print format:

- *Quick Installation of Avaya Ethernet Routing Switch 5000 Series*, NN47200–105, 325107-A
- *Regulatory Information Reference for Avaya Ethernet Routing Switch 5600 Series*, NN47201-101, 324219–A

Chapter 4: Information quality

Avaya technical documents are tested by subject matter experts (SMEs) throughout the product development lifecycle. SMEs from Design, Product Verification (PV), Product Line Management (PLM), Verification Office (VO), and Global Network Product Support (GNPS), all contribute to document quality.

Avaya releases technical documents in the early stages of development that have not completed all testing milestones, on a limited basis. Documents that have not completed testing bear a Draft watermark on every page to indicate that the content they contain may change as the product is refined and document testing is completed. Draft documents are not widely available.

Chapter 5: Text conventions

This chapter describes the text conventions used in the Avaya Ethernet Routing Switch 5000 Series documentation.

Angle brackets

Indicates that you choose the text to enter based on the description inside the brackets. Do not type the brackets when entering the command.

Example: If the command syntax is **`ping <ip_address>`**,

you enter:

```
ping 192.32.10.12
```

Bold or Bold Courier text

Bold or **`Bold Courier`** text indicates command names, options, and text that you must enter.

Example: Use the **`info`** command.

Example: Enter

```
show ip {alerts|routes}.
```

Example: **Protocols** , **IP** identifies the IP command on the Protocols menu.

Braces

Braces ({ }) indicate required elements in syntax descriptions where more than one option is available. You must choose only one option. Do not type the braces when you enter the command.

Example: If the command syntax is **`trace screen {disable | enable}`**,

you must enter:

`trace screen disable`

OR

`trace screen enable`, but not both.

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 interfaces [-alerts]`** ,

you can enter:

`show ip interfaces`

OR

`show ip interfaces -alerts.`

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.

Italic text

Italic text indicates book titles or new terms followed by a definition.

Example: *Release Notes for Avaya Ethernet Routing Switch 5000 Series*, NN47200-400.

Plain Courier text

`Plain Courier` text indicates system output, for example, prompts and system messages.

Example: `Set Trap Monitor Filters`

Separator

A separator (,) shows menu paths.

Example: **Protocols** , **IP** identifies the IP command on the Protocols menu.

Vertical bar

A vertical bar (|) 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 **`show ip {alerts|routes}`**,

you enter:

`show ip alerts`

OR

`show ip routes`

but not both.

cr convention

In ACLI procedures, when you see <cr> as an option for a command, you can press the **Enter** key on your keyboard to execute the command.

Chapter 6: Modular, task-based information

Modular, task-based information (MTBI) is a quick reference for using the Avaya Ethernet Routing Switch 5000 Series task-based documentation. MTBI describes the structure of task-based information and how it can be used most effectively.

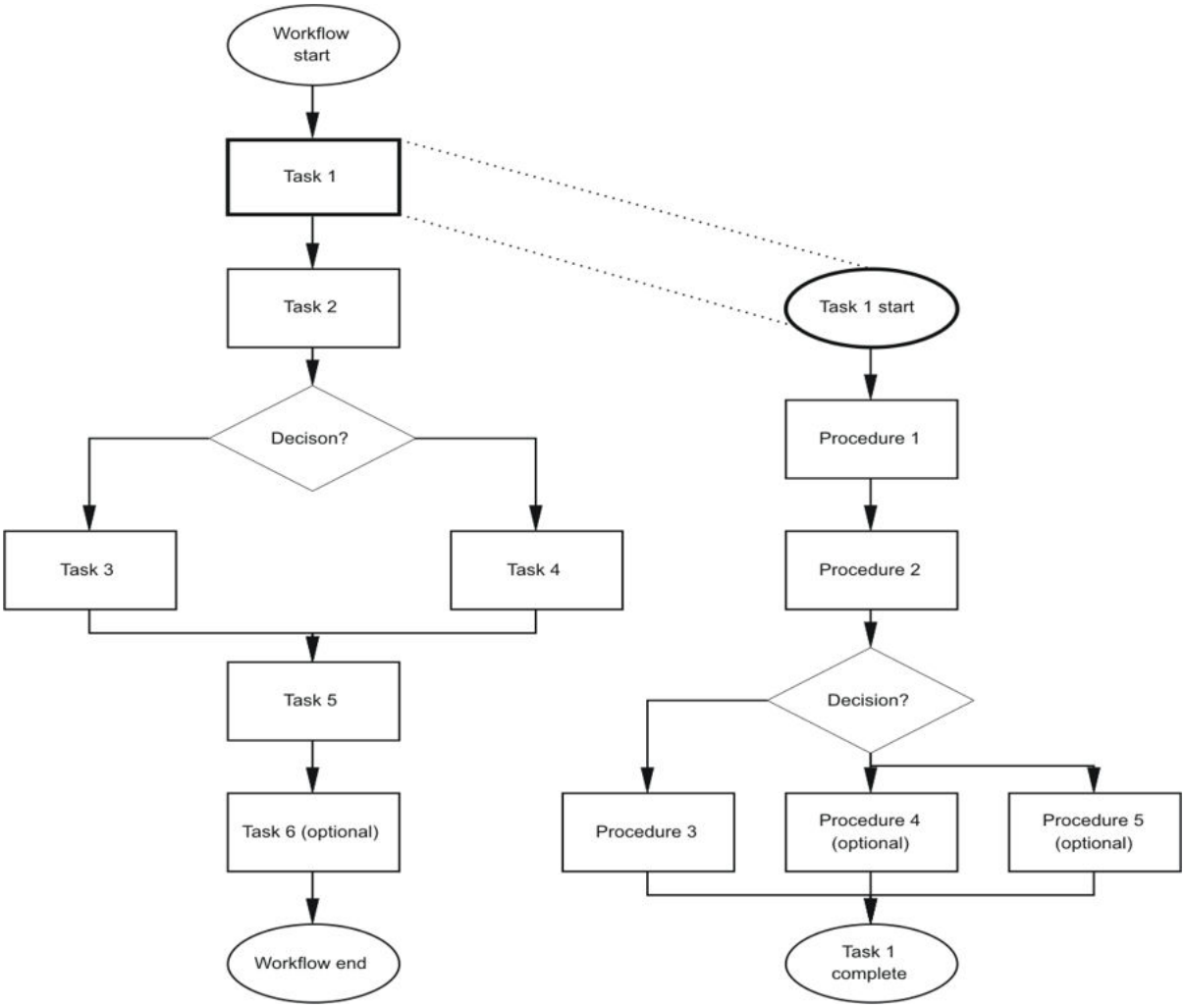
Task-based documentation

Task-based documentation is a new way of packaging customer information in a structured, modular, task-centric format.

Task-based documentation focuses on what the user must do and the sequence in which to perform tasks.

The goal is to make Avaya documentation easy to find, easy to use, timely, and accurate.

The following figure describes the relationship between work flows, task flows, and procedures.



How to use task-based documentation

In task-based documentation, procedural information is included in the document. Conceptual and reference information is provided, and the user is guided on how to use conceptual and reference material by identified prerequisites or direct links and references.

The user navigates the information by following the flows that are provided for tasks and procedures.

Task flow overview

Task flows are flowcharts that illustrate which procedures and decisions are involved to complete an activity.

The task flows guide you through activities to use the Avaya Ethernet Routing Switch 5000 Series, whether it is configuration, upgrading, installation, maintenance, or troubleshooting.

Each flow provides the prerequisites and links to the tasks or procedures.

To perform or refer to a procedure, always follow the task flow. Following the task flows ensures that you meet all the requirements for successful completion of the task.

Work flows, task flows, and procedures

Work flows, task flows, and procedures have similar elements to maintain consistency and usability. Each of the following sections have a specific function:

- Purpose statements on page 31
- Prerequisites on page 31
- Work flows or task flows on page 32
- Procedure steps on page 32
- Example procedures on page 32
- Variable definitions on page 32
- Job aid on page 32

Purpose statements

Purpose statements explain why or when you would perform a work flow, task, or procedure and impact.

Prerequisites

Prerequisites list everything you must do or understand before you start the workflow, task, or procedure. Prerequisites can include tasks that should already be completed, risks, confirmation of system status, required knowledge, time estimates or limitations, and links to supporting information.

The prerequisite section is omitted if no required prerequisites exist.

Work flows or task flows

This section is the flow chart diagram that represents the task flow with navigational links to the tasks or procedures in the flow.

Procedure steps

Procedures provide numerical steps that help you perform the procedure. Each step is a single action.

Example procedures

Some procedures use examples to show how to correctly perform the procedure with realistic settings.

Variable definitions

Variable definitions provide the possible values, ranges, or definitions of variables used in the procedure steps.

If variables are not used in the procedure, then the variables definition section is omitted.

Job aid

Job aids provide information help to successfully perform the procedure.

The job aid is only used when required.

Task-based documentation terms

The following table describes task-based documentation terms.

Term	Description
Work flow	A high or top-level group of tasks.

Term	Description
Task or task flow	A logical group of procedures represented as a single action in a flowchart diagram. Complex tasks can be divided into simpler tasks or subtasks.
Procedure	A logical group of single action steps in a task.
Step	A single action performed in a procedure.
Variable	A placeholder in procedure steps representing a value or definition.

Restructuring Avaya technical documents into a task-based format is an ongoing initiative. The documentation for some Avaya products is already converted to the new format.