



Release Notes for Avaya Ethernet Routing Switch 4900 and 5900 Series

Release 7.1
NN47211-400
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Chapter 1: Introduction

Purpose

This document describes new features and important information about the latest release. Release notes include a list of known issues (including workarounds where appropriate), known limitations and expected behaviors that may first appear to be issues.

This document describes new features, hardware, and known issues and limitations for the following products:

- Avaya Ethernet Routing Switch 4900 Series
- Avaya Ethernet Routing Switch 5900 Series

The information in this document supersedes applicable information in other documents in the suite.

Related resources

Documentation

For a list of the documentation for this product and more information about documents on how to configure other switch features, see *Documentation Reference for Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-103.

For more information on new features of the switch and important information about the latest release, see *Release Notes for Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-400.

For more information about how to configure security, see *Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-505.

For the current documentation, see the Avaya Support web site: www.avaya.com/support.

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Course code	Course title
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About this task

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Procedure

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 - In **Search**, type the product name. On the Search Results page, select **Video** in the **Content Type** column on the left.
- To find the Avaya Mentor videos on YouTube, go to 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 website.

 **Note:**

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Before you begin

- Download the documentation collection zip file to your local computer.
- You must have Adobe Acrobat or Adobe Reader installed on your computer.

Procedure

1. Extract the document collection zip file into a folder.
2. Navigate to the folder that contains the extracted files and open the file named `<product_name_release>.pdx`.
3. In the Search dialog box, select the option **In the index named `<product_name_release>.pdx`**.
4. Enter a search word or phrase.
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About this task

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Procedure

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5. In the GENERAL NOTIFICATIONS area, select the required documentation types, and then click **UPDATE**.

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Visual Vectors													
Visualization Performance and Fault Manager													
Voice Portal													
Voice over IP Monitoring													
W310 Wireless LAN Gateway													
WLAN 2200 Series													
WLAN Handset 2200 Series													

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Chapter 2: New in this release

The following sections detail what is new in *Release Notes for Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-400 for Release 7.1.

New hardware

Ethernet Routing Switch 4900 Series is a new platform and ERS 5928GTS-uPWR is a new switch in Ethernet Routing Switch 5900 Series.

Ethernet Routing Switch 4900 Series

The following Stackable switches are available in this series:

- ERS 4950GTS— 48 port non-Power over Ethernet (PoE) switch.
- ERS 4926GTS— 24 port non-PoE switch.
- ERS 4950GTS-PWR+— 48 port PoE switch.
- ERS 4926GTS-PWR+ — 24 port PoE switch.

For more information about the switch installation and regulatory information, see the following documents:

- *Locating the Latest Product Software and Release Notes for Avaya Ethernet Routing Switch 4900 Series*
- *Regulatory Information Reference for Avaya Ethernet Routing Switch 4900 Series*
- *Quick Install for Avaya Ethernet Routing Switch 4900 Series*
- *Installing Avaya Ethernet Routing Switch 4900 Series*
- *Installation Job Aid (English) for Avaya Ethernet Routing Switch 4900 Series*

For a list of the documentation for this product and more information about documents on how to configure other switch features, see *Documentation Reference for Avaya Ethernet Routing Switch 4900 and 5900 Series*.

ERS 5928GTS-uPWR

ERS 5928GTS-uPWR is a 24 port Power over Ethernet (uPOE) switch. It is used for emerging IoT deployments such as smart lighting, medical systems and high-end video surveillance. For more information about the switch and installation details, see *Installing Avaya Ethernet Routing Switch 5900 Series*.

Bi-directional SFP+ support

The following 10 Gbps bi-directional transceivers are supported in Ethernet Routing Switch 4900 Series and Ethernet Routing Switch 5900 Series:

- 10GBASE-BX10 SFP+ AA1403169-E6
- 10GBASE-BX10 SFP+ AA1403170-E6

For more information, see *Installing Transceivers and Optical Components on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-302.

Accounting Session ID format enhancement

EAP 802.1x Session Identifiers are used to track all clients across the network when the RADIUS accounting is enabled. These sessions are not always unique. The Accounting Session ID format enhancement extends the session ID with the IP address of the switch in order to prevent duplicate sessions.

For more information, see *Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-505

MHMOV auto configuration

Predefined settings on all ports can be applied using Multiple Hosts with Multiple VLANs for EAP-enabled ports (MHMOV) auto configuration command. The settings can then be modified manually on each port.

 **Note:**

If the Port Mirroring or MLT is active on a port, an error is displayed and no settings are applied on that port.

For more information, see *Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-505.

ACLI commands

This feature introduces the following ACLI command:

```
eapol multivlan auto-config port <port range> | all
```

Ability to manage device using IPv6 over SPB network

IPv6 management over SPB enables IPv6 management over Fabric Connect and this can be used by the network manager or management application to communicate with the switch —Ethernet Routing Switch 4900 Series or Ethernet Routing Switch 5900 Series.

For more information, see *Configuring Avaya Fabric Connect on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-507.

Booting with an ASCII configuration file from the local file system

This feature allows you to download an ASCII configuration file from a TFTP server or USB to the local file system and boot the system with the local ASCII configuration file. Two ASCII configuration files are supported, one in each block. When you download and save an ASCII configuration file to the local file system, the system deletes the old file in that block.

The maximum size of an ASCII configuration file is limited to 505 kilobytes. For more information, see *Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series*.

ACLI commands

This feature introduces the following ACLI commands:

- show script block
- copy tftp script
- copy usb script
- boot nvram block
- boot script block

CFM Integration with IP Shortcut

Connectivity Fault Management (CFM) operates at Layer 2 and provides an equivalent of ping and traceroute. For SPBM networks with IP Shortcut support enabled, ip-address parameter is added to I2 ping and I2 traceroute commands to support the functionality.

For more information about the CFM Integration with IP Shortcut feature, see *Configuring Avaya Fabric Connect on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-507.

ACLI commands

This feature introduces the following ACLI parameter for I2ping and I2traceroute commands:

- ip-address <ip>

Fail Open UBP

If Fail open UBP is configured, the UBP classifier gets installed with the source-mac for every new MAC address learned on the port when the port transitions to the Fail Open VLAN Mode.

For more information about the Fail Open UBP feature, see *Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-505.

ACLI commands

This feature introduces the following ACLI command:

- eapol multihost fail-open-vlan ubp

IGMPv3

Internet Group Management Protocol (IGMP) version 3 adds support for source filtering. IGMPv3 is mostly used in voice and video conferences where multiple people can be part of the same conference. The IGMPv3 packet format adds a v3 Report message type (0x22) and also includes Source-and-Group-specific Query messages.

For more information about the IGMPv3 feature, see *Configuring IP Routing and Multicast on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-506.

ACLI commands

The following ACLI commands are updated:

- ip igmp version
- ip igmp router-alert

IPv4 shortcuts

Shortest Path Bridging MAC (SPBM) model is extended to support routed SPBM, otherwise called as SPBM IP Shortcuts.

SPBM nodes propagate Layer 3 reachability information in the IS-IS Link State Packets (LSP) using Extended IP reachability TLVs (TLV 135). These TLVs contain routing information such as neighbors and locally configured subnets. SPBM nodes receiving the reachability information can use this information to populate the routes to the announcing nodes. All TLVs announced in the IS-IS LSPs are grafted onto the shortest path tree (SPT) as leaf nodes.

For more information, see *Configuring Avaya Fabric Connect on Avaya Ethernet Routing Switch 4900 and 5900 Series*.

ACLI commands

This feature introduces the following ACLI commands:

- ip-source-address <ip-address>
- [default] [no] ip-source-address
- spbm <spbm-instance> ip enable
- [default] [no] spbm <spbm-instance> ip enable
- redistribute direct
- redistribute direct enable
- [default] [no] redistribute direct enable
- redistribute static
- redistribute static enable
- [default] [no] redistribute static enable
- ip isis apply redistribute direct
- ip isis apply redistribute static
- ip isis apply redistribute

IPv6 Source Guard

IPv6 Source Guard is an extension to the IPv6 First Hop Security Feature which works in conjunction with Neighbor Discovery Inspection and DHCPv6 Guard to ensure that the traffic being forwarded is from valid hosts on the network. IPv6 Source Guard is a Layer 2 (L2), port-to-port basis feature that works similar to IPv4 Source Guard. IPv6 Source Guard can only be enabled on ports if ND Inspection is enabled.

For more information about the IPv6 Source Guard feature, see *Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-505.

ACLI commands

This feature introduces the following ACLI commands:

- ipv6 source-guard [max-allowed-addr <2-10>]
- ipv6 source-guard overflow-count clear
- show ipv6 source-guard interface
- show ipv6 source-guard binding [interface <port-num>]
- show ipv6 source-guard binding <ipv6 address>

IPv6 over IPv4 Data Tunneling

With IPv6 over IPv4 tunneling you can use the existing IPv4 routing infrastructure to carry IPv6 traffic. The IPv6 over IPv4 Data Tunneling enables support for wire speed tunneling of IPv6 data traffic across switch ports.

For more information about the IPv6 over IPv4 Data Tunneling feature, see *Configuring IP Routing and Multicast on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-506.

ACL I commands

This feature introduces the following ACL I parameters for the `ipv6 tunnel` command:

- mode {mgmt | data}
- type 6in4

IPv6 CLIP

Circuit-less IPv6 (CLIP) feature is a virtual interface that provides a way to assign one or more IP addresses to a routing switch, without the requirement of binding the IP address to a physical interface.

For more information about the Circuit-less IPv6 feature, see *Configuring IP Routing and Multicast on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-506.

ACL I commands

This feature introduces the following ACL I commands:

- ipv6 interface clip [enable]
- show ipv6 interface loopback <1-16>
- show ipv6 neighbor interface loopback <1-16>
- ipv6 interface clip address <address>

Multicast Listener Discovery Proxy

Multicast Listener Discovery (MLD) is the IPv6 equivalent to Internet Group Management Protocol (IGMP) in IPv4. Where MLD Proxy provides a function similar to IGMP Proxy.

With MLD snooping enabled, the switch can receive multiple reports for the same multicast group. By using the MLD proxy feature, the switch can consolidate these multiple reports rather than forward each report upstream.

For more information, see *Configuring IP Routing and Multicast on Avaya Ethernet Routing Switch 4900 and 5900 Series*.

ACLI commands

This feature introduces the following ACLI commands:

- ipv6 mld proxy
- [default] [no] ipv6 mld proxy
- show ipv6 mld-proxy-cache [vlan <1-4094> [group <ipv6>]]

Supported Standards

The following standards are supported:

- RFC2710 – MLD for IPv6
- RFC3810 – RFC 3810 MLDv2 for IPv6
- RFC4541 – Considerations for IGMP and MLD snooping switches

PIM-SSM

Source Specific Multicast (SSM) optimizes PIM-SM by simplifying the many-to-many model. When most multicast applications distribute content to a group in one direction, SSM uses a one to-many model that only uses a subset of the PIM-SM features. This model is more efficient and reduces the load on multicast routing devices.

For more information about PIM-SSM, see *Configuring IP Routing and Multicast on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-506.

ACLI commands

This feature introduces the following ACLI command:

- ip pim enable mode ssm

QoS Double Wide

QoS Double Wide introduces a new UBP allocation mode called double allocation mode, which increases the number of possible classifier combinations. You can use the double allocation mode to install complex classifiers that could not be installed in legacy single mode, such as classifiers based on source or destination MAC addresses used to identify EAP clients. A MAC address such as an IPv6 address is more restrictive with the other options possible in single allocation mode.

For more information, see *Configuring Quality of Service on Avaya Ethernet Routing Switch 4900 and 5900 Series*.

RFC 3576 Disconnect and CoA support for NEAP clients

This feature adds support for processing of RFC 3576 Disconnect and Change of Authorization RADIUS requests for Non-EAP clients.

For more information, see *Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-505.

Scaling enhancements and corrections

Following are the scaling enhancements and corrections in this release:

Scaling enhancements

- SPB backbone for single IS-IS region is increased from 500 to 1000 nodes for the ERS 5900 series, and is limited to 750 nodes for the ERS 4900 series.
- The number of UBP classifier elements increases from 75 to 128 per filter set.

Corrections

SSL POODLE Attack

Concerns with respect to vulnerability known as the SSL Poodle Attack is resolved through an update to the embedded software which provides security services.

SHA-2 support for SSH and SSL certificates

Support for SHA-1 is deprecated and SHA-2 is now supported for SSH and SSL certificate.

The reason is Microsoft Security Advisory 2880823. According to the announcement, on January 1, 2016, trusting Code Signing Certificates generated with a SHA-1 hashing algorithm will be stopped, and on January 1, 2017, trusting SHA-1 generated SSL certificates will be stopped.

Overview of features and hardware models by release

This section provides an overview of which release introduced feature support for a particular platform. Each new release for a platform includes all the features from previous releases unless specifically stated otherwise.

Features for Releases

For more information about features and their configuration, see the documents listed in the respective sections.

Features	Release by platform series	
	ERS 5900	ERS 4900
802.1AB (Link Layer Discovery Protocol) For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
802.1AB Avaya PoE Conservation Level Request TLV For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
802.1AB Avaya Call server TLV For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
802.1AB Avaya File server TLV For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
802.1AB Avaya 802.1Q Framing TLV For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
802.1AB Avaya Phone IP TLV For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
802.1AB customization For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
802.1AB integration For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
802.1AB (LLDP) MED Network Policy CLI For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
802.1AB MED support For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501 and <i>Configuring Quality of Service on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-504.	7.0	7.1
802.1AB location TLV For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
802.1AB new default parameters	7.0	7.1

Table continues...

Features	Release by platform series	
	ERS 5900	ERS 4900
For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.		
802.1D Compliancy Support For more information, see <i>Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-502.	7.0	7.1
802.1X-2004 support For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
802.1X non-EAP Accounting For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
802.1X non-EAP re-authentication For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
802.1X or Non-EAP and Guest VLAN on same port For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
802.1X or Non-EAP with Fail_Open VLAN For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
802.1X or Non-EAP with VLAN name For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
802.1X or Non-EAP use with Wake on LAN For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
802.1X RFC3576 For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
802.1x multiple host single authentication For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
802.1x NEAP support (MAC authentication) For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
802.3at LLDP based discovery	7.0	7.1

Table continues...

Features	Release by platform series	
	ERS 5900	ERS 4900
For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.		
ADAC (including 802.1ab support) For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
ADAC and Auto QoS Interoperability	7.0	7.1
ADAC Uplink over SPBM For more information, see <i>Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-502.	7.0	7.1
ASCII configuration file generator For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501 and <i>Using ACLI and EDM on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-104.	7.0	7.1
ASCII Download Enhancements For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501 and <i>Troubleshooting Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-700.	7.0	7.1
ASCII script config support	7.0	7.1
Automatic Unit Replacement For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501, <i>Logs Reference for Avaya Ethernet Routing Switch 2000, 3000, 4000, 5000, 5900 Series and Virtual Services Platform 7000 Series</i> , NN47216-600 and <i>Troubleshooting Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-700.	7.0	7.1
AUR enhancement For more information, see <i>Troubleshooting Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-700.	7.0	7.1
Automatic QoS and 802.1AB MED Interoperability For more information, see <i>Configuring Quality of Service on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-504.	7.0	7.1
Autosave configuration enhancement For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501 and <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
Autotopology (802.1ab, SONMP) For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1

Table continues...

Features	Release by platform series	
	ERS 5900	ERS 4900
Boot/DHCP address assignment (RFC 1542)	7.0	7.1
Avaya Identity Engines Ignition Server For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
Backup CONFIG file For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501, <i>Troubleshooting Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-700 and <i>Logs Reference for Avaya Ethernet Routing Switch 2000, 3000, 4000, 5000, 5900 Series and Virtual Services Platform 7000 Series</i> , NN47216-600.	7.0	7.1
boot partial-default command For more information about the configuration, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
BOOTP and DHCP RELAY For more information, see <i>Configuring IP Routing and Multicast on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-506.	7.0	7.1
Boot/DHCP address assignment (RFC 1542)	7.0	7.1
BPDU filter For more information, see <i>Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-502 and <i>Avaya Ethernet Routing Switch 2000, 3000, 4000, 5000 Series and Virtual Services Platform 7000 Series Logs Reference</i> , NN47216-600.	7.0	7.1
Broadcast rate limiting	7.0	7.1
Change RADIUS Password For more information about the configuration, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501 and <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
Circuitless IP For more information, see <i>Configuring IP Routing and Multicast on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-506.	7.0	7.1
Avaya Command Line Interface (CLI) For more information, see <i>Using ACLI and EDM on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-104.	7.0	7.1
CLI list command For more information, see <i>Using ACLI and EDM on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-104.	7.0	7.1
Configure asset ID	7.0	7.1

Table continues...

Features	Release by platform series	
	ERS 5900	ERS 4900
For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.		
CPU utilization For more information, see <i>Configuring System Monitoring on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-503	7.0	7.1
Custom Autonegotiation Advertisement (CANA) * Note: ERS 5900 and ERS 4900 support only full duplex. For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
Default all EAP settings For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
Default IP For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
DHCP Client For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501, <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505 and <i>Troubleshooting Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-700.	7.0	7.1
DHCP Option 82 Support For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
DHCP Snooping For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
DHCP snooping external save For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
Distributed MultiLink Trunking (DMLT) For more information, see <i>Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-502 and <i>Troubleshooting Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-700.	7.0	7.1
Dual Syslog Server Support	7.0	7.1

Table continues...

Features	Release by platform series	
	ERS 5900	ERS 4900
For more information, see <i>Configuring System Monitoring on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-503.		
Dynamic ARP inspection For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505 and <i>Troubleshooting Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-700.	7.0	7.1
Dynamic Route Table Allocation For more information, see <i>Configuring IP Routing and Multicast on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-506.	7.0	7.1
EAP Fail Open with multi-VLAN For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
EAP and NEAP separation For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
EAP and non-EAP MultiVLAN capability For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
EAP-MD5 authentication For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
EAPoL Multihost MAC-max For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
EAPoL (802.1x) MHSA/MHVM and Guest VLAN For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
Energy Saver For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501 and <i>Avaya Ethernet Routing Switch 2000, 3000, 4000, 5000 Series and Virtual Services Platform 7000 Series Logs Reference</i> , NN47216-600.	7.0	7.1
Disable CLI audit log command For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
Equal Cost MultiPath (ECMP)	7.0	7.1

Table continues...

Features	Release by platform series	
	ERS 5900	ERS 4900
For more information, see <i>Configuring IP Routing and Multicast on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-506		
Enterprise Device Manager For more information, see <i>Using ACLI and EDM on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-104.	7.0	7.1
EDM improved download support For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
Extended IP Manager For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505 and <i>Troubleshooting Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-700.	7.0	7.1
Extended password history For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
Fabric Attach For more information, see <i>Configuring Avaya Fabric Connect on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-507.	7.0	7.1
Fabric Attach updates: FA Server and FA Proxy functionality, FA Auto Provision For more information, see <i>Configuring Avaya Fabric Connect on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-507.	7.0.1	7.1
Factory default command	7.0	7.1
Fail Open VLAN Continuity mode For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
Show FLASH History For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
Flow Control on gigabit Ethernet ports (802.3x) For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
Inactivity time out For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
Improved syslog capabilities For more information, see <i>Configuring System Monitoring on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-503.	7.0	7.1

Table continues...

Features	Release by platform series	
	ERS 5900	ERS 4900
Independent VLAN Learning (IVL) support For more information, see <i>Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-502 .	7.0	7.1
Internet Group Management Protocol version 2 (IGMPv2, RFC 2236) For more information, see <i>Configuring IP Routing and Multicast on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-506.	7.0	7.1
Internet Group Management Protocol (IGMP) Querier For more information, see <i>Configuring IP Routing and Multicast on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-506.	7.0	7.1
Internet Group Management Protocol (IGMP v1/v2) Snooping and Proxy For more information, see <i>Configuring IP Routing and Multicast on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-506.	7.0	7.1
IP.CFG enhancements For more information, see <i>Installing Avaya Ethernet Routing Switch 5900 Series</i> , NN47211-300 and <i>Avaya Ethernet Routing Switch 2000, 3000, 4000, 5000 Series and Virtual Services Platform 7000 Series Logs Reference</i> , NN47216–600.	7.0	7.1
IPFIX For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501 and <i>Avaya Ethernet Routing Switch 2000, 3000, 4000, 5000 Series and Virtual Services Platform 7000 Series Logs Reference</i> , NN47216–600.	7.0	7.1
IP local and static routes For more information, see <i>Configuring IP Routing and Multicast on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-506.	7.0	7.1
IP Phone Automatic PoE Changes For more information, see <i>ACLI Commands Reference for Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-105.	7.0	7.1
IP Source Guard For more information, see <i>Troubleshooting Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-700.	7.0	7.1
IPv6 Automatic Address Assignment For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
IPv6 First Hop Security For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1

Table continues...

Features	Release by platform series	
	ERS 5900	ERS 4900
IPv6 management For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501 and <i>Troubleshooting Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-700.	7.0	7.1
IPv6 static routes For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
IPv6 tunneling For more information, see <i>Configuring IP Routing and Multicast on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-506.	7.0	7.1
Jumbo frames For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
Layer 3 Brouter Port For more information, see <i>Configuring IP Routing and Multicast on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-506.	7.0	7.1
Layer 3 Virtual Router Redundancy Protocol For more information, see <i>Configuring IP Routing and Multicast on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-506.	7.0	7.1
Link Aggregation (802.3ad) For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
Link Layer Discovery Protocol (802.1AB) For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
Link-state tracking For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
Lockout for failed logon attempts For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
Logout CLI enhancement	7.0	7.1
Disable MAC Learning For more information, see <i>Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-502.	7.0	7.1
MAC Flush	7.0	7.1

Table continues...


Features	Release by platform series	
	ERS 5900	ERS 4900
For more information, see <i>Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-502 and <i>Troubleshooting Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-700.		
MAC security port lockout For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
Many to Many Port Mirroring For more information, see <i>Configuring System Monitoring on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-503.	7.0	7.1
Multi-Link Trunking For more information, see <i>Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-502.	7.0	7.1
MLT/DMLT/LAG Dynamic VLAN Changes For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
MLT and LAG Scaling For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
MLT enable/disable whole trunk (MLT shutdown ports on disable) For more information, see <i>Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-502.	7.0	7.1
Multicast over SPB For more information, see <i>Configuring Avaya Fabric Connect on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-507.	7.0	7.1
Multicast Listener Discovery (MLD) snooping For more information, see <i>Configuring IP Routing and Multicast on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-506.	7.0	7.1
Multiple local RW and RO user accounts For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
Multiple Spanning Tree groups (802.1s)  Note: MSTP is the default spanning tree mode.	7.0	7.1

Table continues...

Features	Release by platform series	
	ERS 5900	ERS 4900
For more information, see <i>Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-502.		
NEAP IP Phone support	7.0	7.1
NEAP not member of VLAN For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
Network Time Protocol (NTP) For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501 and <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
New unit quick to config For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
Non-Local Static Routes For more information, see <i>Configuring IP Routing and Multicast on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-506.	7.0	7.1
Non-unicast hashing over MLT/DMLT/LAG For more information, see <i>Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-502.	7.0	7.1
Open Shortest Path First For more information, see <i>Configuring IP Routing and Multicast on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-506.	7.0	7.1
Out-of-band management For more information, see <i>Quick Start Configuration for Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-500.	7.0	7.1
Password change via EDM For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
Ping command For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
Ping Source Address For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
Port-based VLAN support	7.0	7.1

Table continues...

Features	Release by platform series	
	ERS 5900	ERS 4900
For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501 and <i>Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-502.		
Port mirroring (including ingress and egress) For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501 and <i>Configuring System Monitoring on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-503.	7.0	7.1
Port operational status enhancements For more information, see <i>Configuring System Monitoring on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-503.	7.0	7.1
Protocol-based VLAN support (including IPv6 protocol VLANs) For more information, see <i>Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-502.	7.0	7.1
Protocol Independent Multicast-Sparse Mode (PIM-SM) For more information, see <i>Configuring IP Routing and Multicast on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-506.	7.0	7.1
QoS - Diffserv Code Points (DSCP RFC2998) marking and classification For more information, see <i>Configuring Quality of Service on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-504.	7.0	7.1
Quality of Service (QoS) - 802.1q For more information, see <i>Configuring Quality of Service on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-504.	7.0	7.1
Quality of Service (QoS) - Layer 2 to Layer 4 filtering and policies For more information, see <i>Configuring Quality of Service on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-504.	7.0	7.1
Quality of Service (QoS) - Offset filtering (first 80 bytes) For more information, see <i>Configuring Quality of Service on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-504.	7.0	7.1
QoS IP/L2 Filter Options For more information, see <i>Configuring Quality of Service on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-504.	7.0	7.1
QoS Queue Set Support For more information, see <i>Configuring Quality of Service on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-504.	7.0	7.1
QoS queue statistics	7.0	7.1

Table continues...

Features	Release by platform series	
	ERS 5900	ERS 4900
For more information, see <i>Configuring Quality of Service on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-504.		
Quick start command and Web interface For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
Remote Authentication Dial-In User Server (RADIUS) For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505 and <i>Troubleshooting Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-700.	7.0	7.1
RADIUS Accounting Enhancements (RFC2866) For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
RADIUS Assigned VLAN update for 802.1x - use most recent RADIUS VLAN enhancement For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
RADIUS Server Reachability For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
RADIUS EAP or non-EAP requests from different servers For more information, see <i>Configuring IP Routing and Multicast on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-506.	7.0	7.1
RADIUS Management Accounting with TACACS+ support For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
RADIUS Request use Management IP For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
RADIUS NEAP password configurable key For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
RADIUS attributes for EAP and NEAP authentications: Called-Station-Id and Calling-Station-Id For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0.1	7.1
Rapid Spanning Tree Protocol (802.1w)	7.0	7.1

Table continues...

Features	Release by platform series	
	ERS 5900	ERS 4900
For more information, see <i>Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-502.		
Reload command For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
Remote Monitoring (RMON) For more information, see <i>Configuring System Monitoring on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-503	7.0	7.1
Remote Switch Port ANalyzer For more information, see <i>Configuring System Monitoring on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-503.	7.0	7.1
Resilient stacking	7.0	7.1
RMON scaling For more information, see <i>Configuring System Monitoring on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-503.	7.0	7.1
RO user access to telnet and SSH For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501 and <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
Routing Information Protocol For more information, see <i>Configuring IP Routing and Multicast on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-506.	7.0	7.1
Routing Policies For more information, see <i>Configuring IP Routing and Multicast on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-506.	7.0	7.1
RSTP traps For more information, see <i>Troubleshooting Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-700.	7.0	7.1
RSTP SNMP traps For more information, see <i>Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-502 and <i>Troubleshooting Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-700.	7.0	7.1
Run IP Office Script For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1

Table continues...

Features	Release by platform series	
	ERS 5900	ERS 4900
<p>Run Scripts</p> <p>For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i>, NN47211-501.</p>	7.0	7.1
<p>Running Configuration ACLI Display Commands</p> <p>For more information, see <i>ACLI Commands Reference for Avaya Ethernet Routing Switch 4900 and 5900 Series</i>, NN47211-105.</p>	7.0	7.1
<p>Secure File Transfer Protocol (SFTP)</p> <p>For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i>, NN47211-501 and <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i>, NN47211-505.</p>	7.0	7.1
<p>Secure Shell (SSH, SSHv2)</p> <p>For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i>, NN47211-505.</p>	7.0	7.1
<p>SFTP License and DHCP external support</p> <p>For more information, see <i>Using ACLI and EDM on Avaya Ethernet Routing Switch 4900 and 5900 Series</i>, NN47211-104 and <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i>, NN47211-505.</p>	7.0	7.1
<p>Show Environmental</p> <p>For more information, see <i>Configuring System Monitoring on Avaya Ethernet Routing Switch 4900 and 5900 Series</i>, NN47211-503.</p>	7.0	7.1
<p>Show flash function</p> <p>For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i>, NN47211-501.</p>	7.0	7.1
<p>show ip netstat</p> <p>For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i>, NN47211-501.</p>	7.0	7.1
<p>Show Port enhancement</p> <p>For more information, see <i>Configuring System Monitoring on Avaya Ethernet Routing Switch 4900 and 5900 Series</i>, NN47211-503 and <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i>, NN47211-501.</p>	7.0	7.1
<p>Show Software Status</p> <p>For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i>, NN47211-501.</p>	7.0	7.1
<p>Show VLAN interface verbose command</p> <p>For more information, see <i>Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 4900 and 5900 Series</i>, NN47211-502.</p>	7.0	7.1

Table continues...

Features	Release by platform series	
	ERS 5900	ERS 4900
Shutdown command For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
SLAMon Agent For more information, see <i>Configuring System Monitoring on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-503.	7.0	7.1
SLA Monitor For more information, see <i>Configuring System Monitoring on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-503.	7.0	7.1
SLPP Guard For more information, see <i>Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-502.	7.0	7.1
Simple Network Management Protocol (SNMP, SNMPv3) For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
Configurable SNMP trap port For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
SNMP Trap enhancements For more information, see <i>Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-502 and <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
SNMP traps for DHCP snooping/DAI/IPSG For more information, see <i>Troubleshooting Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-700.	7.0	7.1
Simple Network Time Protocol (SNTP) For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
Software Licensing For more information, see <i>Using ACLI and EDM on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-104.	7.0	7.1
Spanning Tree Protocol Group (802.1D, 802.1t) For more information, see <i>Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-502.	7.0	7.1

Table continues...

Features	Release by platform series	
	ERS 5900	ERS 4900
<p>SPBM</p> <p>For more information, see <i>Configuring Avaya Fabric Connect on Avaya Ethernet Routing Switch 4900 and 5900 Series</i>, NN47211-507.</p>	7.0	7.1
<p>SSH banner</p> <p>For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i>, NN47211-505.</p>	7.0	7.1
<p>SSH Client</p> <p>For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i>, NN47211-505.</p>	7.0	7.1
<p>SSH RSA Authentication</p> <p>For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i>, NN47211-505.</p>	7.0	7.1
<p>SSH retries</p> <p>For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i>, NN47211-505.</p>	7.0	7.1
<p>Stack counters</p> <p>For more information, see <i>Configuring System Monitoring on Avaya Ethernet Routing Switch 4900 and 5900 Series</i>, NN47211-503.</p>	7.0	7.1
<p>Stack monitor</p> <p>For more information, see <i>Configuring System Monitoring on Avaya Ethernet Routing Switch 4900 and 5900 Series</i>, NN47211-503 and <i>Logs Reference for Avaya Ethernet Routing Switch 2000, 3000, 4000, 5000, 5900 Series and Virtual Services Platform 7000 Series</i>, NN47216-600.</p>	7.0	7.1
<p>Stack Forced Mode</p> <p>For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i>, NN47211-501 and <i>Troubleshooting Avaya Ethernet Routing Switch 4900 and 5900 Series</i>, NN47211-700.</p>	7.0	7.1
<p>Stack health check</p> <p>For more information, see <i>Configuring System Monitoring on Avaya Ethernet Routing Switch 4900 and 5900 Series</i>, NN47211-503 and <i>Troubleshooting Avaya Ethernet Routing Switch 4900 and 5900 Series</i>, NN47211-700.</p>	7.0	7.1
<p>Stack Health Monitoring and Recovery</p> <p>For more information, see <i>Configuring System Monitoring on Avaya Ethernet Routing Switch 4900 and 5900 Series</i>, NN47211-503.</p>	7.0	7.1
<p>Stack loopback tests</p>	7.0	7.1

Table continues...

Features	Release by platform series	
	ERS 5900	ERS 4900
For more information, see <i>Configuring System Monitoring on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-503 and <i>Troubleshooting Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-700.		
Static FDB MAC Entry For more information, see <i>Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-502.	7.0	7.1
Sticky MAC Address For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
Storm control For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
STP BPDU filtering ignore-self For more information, see <i>Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-502.	7.0	7.1
Syslog Support for 802.1X/EAP/NEAP/UBP For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
TACACS+ For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
Telnet server and client For more information, see <i>Avaya Ethernet Routing Switch 2000, 3000, 4000, 5000 Series and Virtual Services Platform 7000 Series Logs Reference</i> , NN47216–600.	7.0	7.1
Terminal Mode Permanent Setting	7.0	7.1
Time Domain Reflectometer For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
Trace Functions For more information, see <i>Configuring System Monitoring on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-503 and <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
Trace Support for 802.1X For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1

Table continues...

Features	Release by platform series	
	ERS 5900	ERS 4900
Traffic Profile Filter Set Support For more information, see <i>Configuring Quality of Service on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-504.	7.0	7.1
Trivial File Transfer Protocol (TFTP) For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501.	7.0	7.1
Disable USB and console For more information, see <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
User Based Policies For more information, see <i>Configuring Quality of Service on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-504 and <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
Username password enhancement For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501 and <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505.	7.0	7.1
Virtual LACP For more information, see <i>Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-502.	7.0	7.1
VLAN Scaling	7.0	7.1
Voice VLAN Integration For more information, see <i>Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-502.	7.0	7.1
Web User Interface (http and https)	7.0	7.1
WebUI MIB Web Page	7.0	7.1
WebUI Trap Web Page	7.0	7.1
Write memory and save config command For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501 and <i>Using ACLI and EDM on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-104	7.0	7.1
Ability to set password, username and type of security for any switch in stack For more information, see <i>Using ACLI and EDM on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-104 and <i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-505	7.0	7.1

Table continues...

Features	Release by platform series	
	ERS 5900	ERS 4900
Auto Detection Auto Configuration (ADAC) - modify the 802.1AB detection mechanism used in ADAC to work correctly with the Avaya IP handsets	7.0	7.1
Increase PoE power For more information, see <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-501 and <i>Troubleshooting Avaya Ethernet Routing Switch 4900 and 5900 Series</i> , NN47211-700.	7.0	7.1

Hardware models

The following tables provides list of hardware models in ERS 5900 and ERS 4900 Series.

Table 1: Ethernet Routing Switch 5900 Series

Switch model	Part number	Description	Initial Release
ERS 5928GTS-uPWR	AL590007X-E6	ERS 5928GTS-uPWR with base software license, no fans, no power supply unit (PSU), no power cord	7.1
	AL5900A7B-E6	ERS 5928GTS-uPWR with base software license, two fan tray modules, back to front 1400 Watt PSU, no power cord	7.1
	AL5900A7F-E6	ERS 5928GTS-uPWR with base software license, two fan tray modules, front to back 1400 Watt PSU, no power cord	7.1
ERS 5928GTS	AL590001X-E6	ERS 5928GTS with base software license, no fans, no power supply unit (PSU), no power cord	7.0
	AL5900A1B-E6	ERS 5928GTS with base software license, two fan tray modules, back to front 450 Watt PSU, no power cord	7.0
	AL5900A1F-E6	ERS 5928GTS with base software license, two fan tray modules, front to back 450 Watt PSU, no power cord	7.0
ERS 5928GTS-PWR+	AL590002X-E6	ERS 5928GTS-PWR+ with base software license, no fans, no PSU, no power cord	7.0
	AL5900A2B-E6	ERS 5928GTS-PWR+ with base software license, two fan tray modules, back to front 1400 Watt PSU, no power cord	7.0
	AL5900A2F-E6	ERS 5928GTS-PWR+ with base software license, two fan tray modules, front to back 1400 Watt PSU, no power cord	7.0
ERS 5952GTS	AL590003X-E6	ERS 5952GTS with base software license, no fans, no PSU, no power cord	7.0

Table continues...

Switch model	Part number	Description	Initial Release
	AL5900A3B-E6	ERS 5952GTS with base software license, two fan tray modules, back to front 450 Watt PSU, no power cord	7.0
	AL5900A3F-E6	ERS 5952GTS with base software license, two fan tray modules, front to back 450 Watt PSU, no power cord	7.0
ERS 5952GTS-PWR+	AL590004X-E6	ERS 5952GTS-PWR+ with base software license, no fans, no PSU, no power cord	7.0
	AL5900A4B-E6	ERS 5952GTS-PWR+ with base software license, two fan tray modules, back to front 1400 Watt PSU, no power cord	7.0
	AL5900A4F-E6	ERS 5952GTS-PWR+ with base software license, two fan tray modules, front to back 1400 Watt PSU, no power cord	7.0

For more information about ERS 5900 Series, see *Installing Avaya Ethernet Routing Switch 5900 Series*, NN47211-300.

Table 2: Ethernet Routing Switch 4900 Series





Switch model	Part number	Description	Initial Release
ERS4926GTS	AL4900x01-E6  Note: Replace the “x” with a country specific power cord code. See the footnote for details.	ERS 4926GTS with base software license, one 250 Watt PSU, .5 M stack cable, power cord	7.1
ERS 4926GTS-PWR+	AL4900x02-E6  Note: Replace the “x” with a country specific power cord code. See the footnote for details.	ERS 4926GTS-PWR+ with base software license, one 250 Watt PSU, .5 M stack cable, power cord	7.1
ERS 4950GTS	AL4900x03-E61  Note: Replace the “x” with a country specific power cord code. See the footnote for details.	ERS 4950GTS with base software license, one 1025 Watt PSU, .5 M stack cable, power cord	7.1

Table continues...

Switch model	Part number	Description	Initial Release
ERS 4950GTS-PWR+	AL4900x04-E6  Note: Replace the “x” with a country specific power cord code. See the footnote for details.	ERS 4950GTS-PWR+ with base software license, one 1025 Watt PSU, .5 M stack cable, power cord	7.1
<p>*Note: The character (x) in the order number indicates the power cord code. Replace the “x” with the proper letter to indicate desired product nationalization. See the following for details:</p> <p>“A”: No power cord included.</p> <p>“B”: Includes European “Schuko” power cord common in Austria, Belgium, Finland, France, Germany, The Netherlands, Norway, and Sweden.</p> <p>“C”: Includes power cord commonly used in the United Kingdom and Ireland.</p> <p>“D”: Includes power cord commonly used in Japan.</p> <p>“E”: Includes North American power cord.</p> <p>“F”: Includes Australian power cord.</p>			

For more information about ERS 4900 Series, see *Installing Avaya Ethernet Routing Switch 4900 Series*.

Chapter 3: Important notices and new features


This section describes important software and hardware related notices.

The warranty includes access to software updates for features and maintenance releases.

Feature document location

The following table contains a list of key software features and their location in the documentation suite.

Table 3: Where to find information about key software features

Feature	Document
Custom Autonegotiation Advertisements (CANA)	 Note: ERS 5900 and ERS 4900 support only full duplex. <i>Configuring Systems on Avaya Ethernet Routing Switch 4900 and 5900 Series, NN47211-501</i>
EAPoL Multiple Hosts with Multiple VLANs (EAP MHMV)	<i>Configuring Security on Avaya Ethernet Routing Switch 4900 and 5900 Series, NN47211-505</i>
Fabric Attach	<i>Configuring Avaya Fabric Connect on Avaya Ethernet Routing Switch 4900 and 5900 Series, NN47211-507</i>
Multicast over SPB	<i>Configuring Avaya Fabric Connect on Avaya Ethernet Routing Switch 4900 and 5900 Series, NN47211-507</i>
SPBM with EAP MHMV	<i>Configuring Avaya Fabric Connect on Avaya Ethernet Routing Switch 4900 and 5900 Series, NN47211-507</i>
Non-unicast traffic over MLT	<i>Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 4900 and 5900 Series, NN47211-502</i>
IGMP	<i>Configuring IP Routing and Multicast on Avaya Ethernet Routing Switch 4900 and 5900 Series, NN47211-506</i>

Release file names

This section lists the software files for the following platforms:

- Ethernet Routing Switch 4900 Series
- Ethernet Routing Switch 5900 Series

Table 4: Software components

File Type	ERS 4900 Series		ERS 5900 Series	
	File Name	File Size (bytes)	File Name	File Size (bytes)
Secure runtime image	4900_710007s.img	16,759,764	5900_710007s.img	17,374,660
Diagnostic software version 7.1.0.5	5900_71005_diags.bin	6,331,972	5900_71005_diags.bin	6,331,972
Enterprise Device Manager Help Files	ers5000v710_HELP_EDM.zip	1,839,917	ers5000v710_HELP_EDM.zip	1,839,917
MIB Definition File	Ethernet_Routing_Switch_4900_MIBs_7.1.0.zip	1,489,258	Ethernet_Routing_Switch_5900_MIBs_7.1.0.zip	1,526,961
COM Plug in	ers5900v7.1.0.0.zip	3,351,952	ers5900v7.1.0.0.zip	3,351,952

Software upgrade

This section provides procedures to upgrade the software — diagnostic and agent software, and PoE+ firmware.

*** Note:**

VLAN ID 4060 cannot be created on ERS 5900 and ERS 4900.

Before upgrading ERS 5900 from Release 7.0 to 7.1, if VLAN ID 4060 exists, then migrate it to a different VLAN ID.

Upgrading diagnostic software

Use the following procedure for upgrading the diagnostic software image.

1. Access the ACLI through a Telnet or Console connection.
2. Enter Privileged EXEC mode using the `enable` command.
3. Use the command `download address [usb] <ip_address> diag <image_name> [no reset]` to transfer the diagnostic image to the device.

The following table describes the parameters for the `download diag` command.

Parameter	Description
address <ip_address>	The IPv4 or IPv6 address of the TFTP server on which the diagnostic image is hosted.
diag <image_name>	The name of the diagnostic image file on the TFTP server.
no-reset	This parameter specifies that the device will not reset after the upgrade is complete.
usb	This parameter specifies that the software download will occur from a USB device instead of the network.

The upgrade process occurs automatically without user intervention. This process deletes the contents of the flash memory and replaces it with the desired software image. Do not interrupt the download process.

When the process is complete, the device automatically resets unless the **no-reset** parameter was used. The software image initiates a self-test and returns a message when the process is complete.

During the download process the switch is not operational.

Upgrading agent software

Use this procedure to upgrade agent software.

1. Access the ACLI through a Telnet or Console connection.
2. Enter Privileged EXEC mode using the **enable** command.
3. Use the command **download address [usb] <ip_address> {primary | secondary} {image <image_name> | image-if-newer <image_name> | poe_module_image <image_name>} [no-reset]** to transfer the agent image to the device.

The following table describes the parameters for this command.

Parameter	Description
address <ip_address>	The IPv4 or IPv6 address of the TFTP server on which the agent image is hosted.
primary secondary	Designates whether the image is stored in the primary or secondary image location. The default is primary.
image <image_name> image-if-newer <image_name> poe_module_image <image_name>	The name of the agent image file on the TFTP server. Each option is mutually exclusive. Use the option described with the following situation: <ul style="list-style-type: none"> • To load the agent image under normal circumstances, use the image option. • To load the agent image only if it is newer than the current image, use the image-if-newer option.

Table continues...

Parameter	Description
	<ul style="list-style-type: none"> To load the agent image if it is a PoE module image, use the <code>poe_module_image</code> option.
<code>no-reset</code>	Specifies that the device will not reset after the upgrade is complete.
<code>usb</code>	Specifies that the software download will occur from a USB device instead of the network.

The upgrade process occurs automatically without user intervention. This process deletes the contents of the flash memory and replaces it with the desired software image. Do not interrupt the download process.

When the process is complete, the device automatically resets unless the `no-reset` parameter was used. The software image initiates a self-test and returns a message when the process is complete.

During the download process the switch is not operational.

Upgrading the PoE+ firmware

About this task

Upgrade the PoE+ firmware to the latest version on all PoE+ units.

Before you begin

Verify the PoE+ firmware version using command `show sys-info`. In the command output, check `PoE Module FW`. In a stack, to view this information for a specific unit, connect to the serial console of that unit.

Procedure

- Do any one of the following to upgrade the POE+ firmware:

- To upgrade the PoE+ firmware from TFTP, enter the following command:

```
download [ address <TFTP server address> ] poe_module_image
5900_poe_v15010.bin
```

OR

- To upgrade the PoE+ firmware from an USB storage device, enter the following command:

```
download usb poe_module_image 5900_poe_v15010.bin [ unit <unit
number> ]
```

- The switch or stack reboots after the firmware is successfully downloaded and saved to the PoE+ board.

How to get EDM online help files for embedded EDM

Help files are not included with the embedded EDM software files on the switch. A network administrator must copy the software-release-specific help files onto a TFTP server. After the help files are downloaded to the TFTP server, the network administrator must configure the switch with the path to the help files on the TFTP server. You can use ACLI or EDM to configure a path from your switch to the help files. After the path to the help file is configured, whenever an EDM user clicks the help button on the toolbar, the switch downloads and displays help information in the Web browser.

If you are using Configuration and Orchestration Manager (COM) to manage your switch, help resides with COM and you do not need to use these procedures.

For more information about EDM, see *Using ACLI and EDM on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-104.

Downloading help files

Before you begin

- An available TFTP server

About this task

Use this procedure to download EDM online help files.

Procedure

1. To obtain EDM help files for the embedded element manager, do one of the following:
 - Go to the Avaya Web site at <http://www.avaya.com/support> and locate the help files for the appropriate product.
 - Select the help files from the software CD ROM.
2. Download the help files to a TFTP server.

How to configure the path to the embedded EDM help files

If you are using embedded EDM, use the procedures in this section to configure the path to the help files. You can configure the help file path with ACLI or EDM.

Configuring the path to the help files using ACLI

About this task

Use the following procedure to configure the path to the help files using ACLI.

Procedure

In ACLI, go to the Global Configuration mode and use the following command:

```
edm help-file-path <path name> tftp address <tftp address>
```

The following table describes the parameters for the edm-help-file-path command.

Parameter	Description
path name	Specifies the path name you created for EDM help files. The path name is stored in NVRAM.
TFTP address	Specifies EDM TFTP server IP address. Use this address only for EDM help files. If you do not specify a TFTP server address, the system uses the address specified most recently. WARNING: Because the TFTP server address is stored in NVRAM, each time the system returns to the default configuration, you must reconfigure the path to EDM online help.

Example

Following is an example of an ACLI EDM help file path:

```
edm help-file-path ERS5900_xx_Help tftp address 100.100.100.15
```

In the preceding example, xx is the software release version and ERS5900_xx_Help is a folder that contains help files. The folder is located on a TFTP server at the 100.100.100.15 address.

Configuring the path to the help files using EDM

Use the following procedure to configure the path to the help files.

Procedure steps

1. From the navigation tree, click **Edit**.
2. From the Edit tree, click **File System**.
3. Select the **Help File Path** tab.
4. In the Path dialog box, enter the path to the help file storage location.

Example

```
tftp://xxx.xxx.xxx.xxx/file_name
```

Supported software and hardware capabilities

This section lists software scaling capabilities of the following products:

- Ethernet Routing Switch 4900 Series

- Ethernet Routing Switch 5900 Series

Table 5: Supported software and hardware scaling capabilities

Unless stated otherwise, the capabilities are listed per stack, where a stack consists of one to eight units.

Feature	ERS 5900 Series	ERS 4900 Series
SPB:		
SPB nodes for each region	1000	750
IS-IS adjacencies	4	4
BEBs for each region	512 ¹	512 ¹
CVLANs	1000	500
SPB Switched UNI	500	500
SPB ISIDs (Maximum L2 VSN)	1000	500
Maximum Multicast Streams	512	512
Max L2 VSN without Multicast enabled	256	256
Operational modes	Standalone or stacked 8 high	Standalone or stacked 8 high
B-VLANs	2	2
IS-IS interfaces	4	4
IPv6:		
Maximum IPv6 in IPv4 data tunnels	16	8
IPv6 DHCP relay forwarding paths for each unit or stack	256	256
IPv6 Static Routes	512	256
IPv6 interfaces	256	256
QoS:		
Per port egress queues	8	8
QoS precedence for each ASIC	16	16
QoS rules for each precedence	256	256
Total QoS rules	4096	4096
Performance:		
MAC address capacity	32768	32768
Stacking port bandwidth, FDX	42 Gbps	26 Gbps
Maximum ports for each stack	416	416
Miscellaneous:		
Maximum port mirroring instances	4	4
Maximum admin accounts	10	10

Table continues...

Feature	ERS 5900 Series	ERS 4900 Series
RSPAN VLANs	4	4
RSPAN destinations for each unit or stack	4	4
802.1X (EAP) clients for each port, MHMV	32	32
802.1X (EAP) clients for each MHSA	1 authenticated / balance unlimited	1 authenticated / balance unlimited
802.1X MAC Auth (NEAP) clients for each switch or stack	384	384
802.1x (EAP and NEAP) clients for each switch or stack	768	768
Maximum RADIUS servers	2	2
Maximum 802.1X EAP servers	2	2
Maximum 802.1X NEAP servers	2	2
Maximum RADIUS/EAP/NEAP servers	6	6
IPFix number of sampled flows	100000	100000
RMON alarms	800	800
RMON events	800	800
RMON Ethernet history	249	249
RMON Ethernet statistics	110	110
Link State Tracking instances	2	2
Layer 2:		
Concurrent VLANs	1024	1024
Supported VLAN IDs	1 – 4094 (0 and 4095 reserved. 4001 reserved by STP. 4002 to 4008 reserved by multiple STP)	1 – 4094 (0 and 4095 reserved. 4001 reserved by STP. 4002 to 4008 reserved by multiple STP)
	<p>* Note: VLAN ID 4060 cannot be created on ERS 5900 and ERS 4900. Before upgrading ERS 5900 from Release 7.0 to 7.1, if VLAN ID 4060 exists, then migrate it to a different VLAN ID.</p>	
Protocol VLAN types	7	7
Multi-Link Trunking (MLT), Distributed Multi-Link Trunking (DMLT), and Link Aggregation (LAG) groups	32	32
Links or ports for MLT, DMLT or LAG	8	8

Table continues...

Important notices and new features

Feature	ERS 5900 Series	ERS 4900 Series
Static MAC addresses	1024	1024
Spanning Tree Group instances (802.1s)	8	8
Avaya Spanning Tree Groups	8	8
DHCP Snooping table entries for each unit	1024	1024
LLDP Neighbors for each port	16	16
LLDP Neighbors for each switch or stack	800	800
Layer 3:		
IP Interfaces (VLANs or Brouter ports)	256	256
ARP Entries total (local, static and dynamic)	4096	1792
ARP Entries — local (IP interfaces for each switch or stack)	256	256
ARP Entries — static	256	256
ARP Entries — dynamic	3584	1280
IPv4 Routes total (local, static and dynamic)	4096	2048
IPv4 Static routes	512	512
IPv4 Local routes	256	256
IPv4 Dynamic routes (RIP and OSPF)	4096	2048
Dynamic Routing interfaces (RIP and OSPF)	64	64
OSPF areas	4	4
OSPF adjacencies (devices for each OSPF areas)	32	32
OSPF Link State Advertisements (LSA)	10000	10000
OSPF virtual links	4	4
OSPF host routes	32	32
ECMP (Maximum concurrent equal cost paths)	4	4
ECMP (Max next hop entries)	256	128
VRRP instances	256	256
Management routes	4	4
UDP forwarding entries	128	128

Table continues...

Feature	ERS 5900 Series	ERS 4900 Series
DHCP relay entries	256	256
DHCP relay forward paths	512	512
Multicast:		
IGMP v1, v2 and v3 multicast groups	1024	1024
IGMP enabled VLANs	256	256
MLD snooping enabled VLANs	256	256
PIM-SM forward entries for each stack	1024	512
PIM-SM interfaces (active and passive)	64 (4 active and 60 passive)	32 (4 active and 28 passive)
¹ Maximum number of BEBs for each region can be reduced when SPB Multicast is enabled or when connecting to IST switches.		

Licensing support

Avaya Product Licensing and Delivery System (PLDS) provides self-service license activations, upgrades and moves/changes.

You must obtain appropriate license for the following features:

- Open Shortest Path First (OSPF)
- Virtual Router Redundancy Protocol (VRRP)
- Equal Cost Multi Path (ECMP)
- Protocol Independent Multicast-Sparse mode (PIM-SM)
- IPv6 Forwarding
- IP Shortcuts

All other features in Release 7.1 are included with the base license.

You can obtain a trial license to try out advanced license features for 60 days. Trial licenses are available from Avaya at no charge. Trial licenses need to be ordered from Avaya and can be obtained using the PLDS license delivery system. After the trial period expires, the licensed feature is disabled.

The PLDS Advanced trial license is generated using the system MAC address of a switch and can only be generated and used once for a given MAC address. After the expiry of the 60 day trial period, you will see messages on the console and in the alarms database that the license has expired. If you restart the system after the license expiration, the Advanced features will not be loaded even if they are in the saved configuration. If you purchase an Advanced license, you must obtain and install a license file. For more information about how to generate a license file, see *Getting Started with Avaya PLDS for Avaya Networking Products*, NN46199-300.

For more information about PLDS and installing a license file, see *Using ACLI and EDM on Avaya Ethernet Routing Switch 4900 and 5900 Series*, NN47211-104.

Supported standards, MIBs, and RFCs

This section lists the supported standards, MIBs, and RFCs.

Standards

The following IEEE Standards contain information that applies to this switch:

IEEE 802.1D	Spanning Tree Protocol
IEEE 802.1w	Rapid Spanning Tree
IEEE 802.1s	Multiple Spanning Tree
IEEE 802.1t 802.1D	Maintenance
IEEE 802.1p	Prioritizing
IEEE 802.1Q	VLAN Tagging
IEEE 802.1X	Ethernet Authentication Protocol
IEEE 802.1AB	Link Layer Discovery Protocol
IEEE 802.1AX	Link Aggregation Control Protocol (LACP)
IEEE 802.1ag	Connectivity and Fault Management
IEEE 802.1aq	Shortest Path Bridging MAC
IEEE 802.3	Ethernet
IEEE 802.3af	Power over Ethernet
IEEE 802.3at	Power over Ethernet Plus
IEEE 802.3ad / 802.1AX	Link Aggregation Control Protocol
IEEE 802.3ab	Gigabit Ethernet over Copper
IEEE 802.3ae	10 Gbps Ethernet
IEEE 802.3ak	10GBase-CX4
IEEE 802.3i	10Base-T
IEEE 802.3u	Fast Ethernet
IEEE 802.3x	Flow Control
IEEE 802.3z	Gigabit Ethernet

RFCs

For more information about networking concepts, protocols, and topologies, consult the following RFCs:

Table 6: Supported RFCs

RFC	Release by platform Series	
	ERS 5900	ERS 4900
RFC 768 UDP	7.0	7.1
RFC 783 TFTP	7.0	7.1
RFC 792 ICMP	7.0	7.1
RFC 793 TCP	7.0	7.1
RFC 826 ARP	7.0	7.1
RFC 854 Telnet	7.0	7.1
RFC 894 IP over Ethernet	7.0	7.1
RFC 903 Reverse ARP	7.0	7.1
RFC 950 / RFC 791 IP	7.0	7.1
RFC 951 BootP	7.0	7.1
RFC 958 NTP	7.0	7.1
RFC 1058 RIPv1	7.0	7.1
RFC 1112 IGMPv1	7.0	7.1
RFC 1122 Requirements for Internet hosts	7.0	7.1
RFC 1155 SMI	7.0	7.1
RFC 1156 MIB for management of TCP/IP	7.0	7.1
RFC 1157 SNMP	7.0	7.1
RFC 1212 Concise MIB definitions	7.0	7.1
RFC 1213 MIB-II	7.0	7.1
RFC 1215 SNMP Traps Definition	7.0	7.1
RFC 1340 Assigned Numbers	7.0	7.1
RFC 1350 TFTP	7.0	7.1
RFC 1354 IP Forwarding Table MIB	7.0	7.1
RFC 1398 Ethernet MIB	7.0	7.1
RFC 1442 SMI for SNMPv2	7.0	7.1
RFC 1450 MIB for SNMPv2	7.0	7.1
RFC 1493 Bridge MIB	7.0	7.1
RFC 1591 DNS Client	7.0	7.1

Table continues...

RFC	Release by platform Series	
	ERS 5900	ERS 4900
RFC 1650 Definitions of Managed Objects for Ethernet-like Interfaces	7.0	7.1
RFC 1724 / RFC 1389 RIPv2 MIB extensions	7.0	7.1
RFC 1769 / RFC 1361 SNMP	7.0	7.1
RFC 1886 DNS extensions to support IPv6	7.0	7.1
RFC 1908 Coexistence between SNMPv1 & v2	7.0	7.1
RFC 1945 HTTP v1.0	7.0	7.1
RFC 1981 Path MTU Discovery for IPv6	7.0	7.1
RFC 2011 SNMP v2 MIB for IP	7.0	7.1
RFC 2012 SNMP v2 MIB for TDP	7.0	7.1
RFC 2013 SNMP v2 MIB for UDP	7.0	7.1
RFC 2096 IP Forwarding Table MIB	7.0	7.1
RFC 2131 / RFC 1541 Dynamic Host Configuration Protocol (DHCP)	7.0	7.1
RFC 2138 RADIUS Authentication	7.0	7.1
RFC 2139 RADIUS Accounting	7.0	7.1
RFC 2236 IGMPv2	7.0	7.1
RFC 2328 / RFC 2178 / RFC 1583 OSPFv2	7.0	7.1
RFC 2453 RIPv2	7.0	7.1
RFC 2454 IPv6 UDP MIB	7.0	7.1
RFC 2460 IPv6 Specification	7.0	7.1
RFC 2461 IPv6 Neighbor Discovery	7.0	7.1
RFC 2464 Transmission of IPv6 packets over Ethernet	7.0	7.1
RFC 2474 Differentiated Services (DiffServ)	7.0	7.1
RFC 2541 Secure Shell protocol architecture	7.0	7.1
RFC 2597 Assured Forwarding PHB Group	7.0	7.1
RFC 2598 Expedited Forwarding PHB Group	7.0	7.1
RFC 2616 / RFC 2068 HTTP 1.1	7.0	7.1
RFC 2660 HTTPS - Secure Web	7.0	7.1
RFC 2665 / RFC 1643 Ethernet MIB	7.0	7.1
RFC 2674 Q-BRIDGE-MIB	7.0	7.1
RFC 2710 Multicast Listener Discovery version 1 (MLDv1)	7.0	7.1
RFC 2715 Interoperability Rules for Multicast Routing Protocols	7.0	7.1
RFC 2787 Definitions of Managed Objects for VRRP	7.0	7.1
RFC 2819 / RFC 1757 / RFC 1271 RMON	7.0	7.1

Table continues...

RFC	Release by platform Series	
	ERS 5900	ERS 4900
RFC 2851 Textual Conventions for Internet network addresses	7.0	7.1
RFC 2863 / RFC 2233 / RFC 1573 Interfaces Group MIB	7.0	7.1
RFC 2865 RADIUS	7.0	7.1
RFC 2866 / RFC 2138 RADIUS Accounting	7.0	7.1
RFC 2869 RADIUS Extensions - Interim updates	7.0	7.1
RFC 2933 IGMP MIB	7.0	7.1
RFC 3058 RADIUS Authentication	7.0	7.1
RFC 3140 / RFC 2836 Per-Hop Behavior Identification codes	7.0	7.1
RFC 3162 RADIUS and IPv6	7.0	7.1
RFC 3246 Expedited Forwarding Per-Hop Behavior	7.0	7.1
RFC 3260 / RFC 2475 Architecture for Differentiated Services	7.0	7.1
RFC 3289 DiffServ MIBs	7.0	7.1
RFC 3410 / RFC 2570 SNMPv3	7.0	7.1
RFC 3411 / RFC 2571 SNMP Frameworks	7.0	7.1
RFC 3412 / RFC 2572 SNMP Message Processing	7.0	7.1
RFC 3413 / RFC 2573 SNMPv3 Applications	7.0	7.1
RFC 3414 / RFC 2574 SNMPv3 USM	7.0	7.1
RFC 3415 / RFC 2575 SNMPv3 VACM	7.0	7.1
RFC 3416 / RFC 1905 SNMP	7.0	7.1
RFC 3417 / RFC 1906 SNMP Transport Mappings	7.0	7.1
RFC 3418 / RFC 1907 SNMPv2 MIB	7.0	7.1
RFC 3484 Default Address Selection for IPv6	7.0	7.1
RFC 3513 IPv6 Addressing Architecture	7.0	7.1
RFC 3569 Overview of Source Specific Multicast (SSM)	7.0	7.1
RFC 3579 RADIUS support for EAP	7.0	7.1
RFC 3584 / RFC 2576 Co-existence of SNMP v1/v2/v3	7.0	7.1
RFC 3587 IPv6 Global Unicast Format	7.0	7.1
RFC 3596 DNS extensions to support IPv6	7.0	7.1
RFC 3621 Power over Ethernet MIB	7.0	7.1
RFC 3635 Definitions of Managed Objects for the Ethernet-like Interface Types	7.0	7.1
RFC 3768 / RFC 2338 VRRP	7.0	7.1
RFC 3810 MLDv2 for IPv6	7.0	7.1
RFC 3826 AES for the SNMP User-based Security Model	7.0	7.1
RFC 3917 Requirements for IPFIX	7.0	7.1

Table continues...

Important notices and new features

RFC	Release by platform Series	
	ERS 5900	ERS 4900
RFC 3954 Netflow Services Export v9	7.0	7.1
RFC 3993 DHCP Subscriber-ID sub-option	7.0	7.1
RFC 4007 Scoped Address Architecture	7.0	7.1
RFC 4022 / RFC 2452 TCP MIB	7.0	7.1
RFC 4113 UDP MIB	7.0	7.1
RFC 4133 / RFC 2737 / RFC 2037 Entity MIB	7.0	7.1
RFC 4193 Unique Local IPv6 Unicast Addresses	7.0	7.1
RFC 4213 Transition Mechanisms for IPv6 Hosts & Routers	7.0	7.1
RFC 4250 SSH Protocol Assigned Numbers	7.0	7.1
RFC 4251 SSH Protocol Architecture	7.0	7.1
RFC 4252 SSH Authentication Protocol	7.0	7.1
RFC 4253 SSH Transport Layer Protocol	7.0	7.1
RFC 4254 SSH Connection Protocol	7.0	7.1
RFC 4291 IPv6 Addressing Architecture	7.0	7.1
RFC 4293 IPv6 MIB	7.0	7.1
RFC 4344 SSH Transport layer Encryption Modes	7.0	7.1
RFC 4345 Improved Arcfour Modes for SSH	7.0	7.1
RFC 4429 Optimistic Duplicate Address Detection (DAD) for IPv6	7.0	7.1
RFC 4432 SSHv2 RSA	7.0	7.1
RFC 4443 / RFC 2463 ICMPv6 for IPv6	7.0	7.1
RFC 4541 Considerations for IGMP and MLD snooping switches	7.0	7.1
RFC 4601 Protocol Independent Multicast – Sparse Mode (PIM-SM) Protocol Specification	7.0	7.1
RFC 4604 / RFC 3376 IGMPv3	7.0	7.1
RFC 4632 Classless Inter-domain Routing (CIDR)	7.1	7.1
RFC 4673 RADIUS Dynamic Authorization Server MIB	7.0	7.1
RFC 4675 RADIUS Attributes for VLAN and Priority Support	7.0	7.1
RFC 4716 SSH Public Key File Format	7.0	7.1
RFC 4750 / RFC 1850 / RFC 1253 OSPF v2 MIB	7.0	7.1
RFC 4789 SNMP over IEEE 802 Networks	7.0	7.1
RFC 4861 Neighbor Discovery for IPv6	7.0	7.1
RFC 4862 / RFC 2462 IPv6 Stateless Address Auto-Configuration	7.0	7.1
RFC 5010 / RFC 3046 DHCP Relay Agent Information Option 82	7.0	7.1
RFC 5095 Deprecation of Type 0 Routing Headers in IPv6	7.0	7.1

Table continues...

RFC	Release by platform Series	
	ERS 5900	ERS 4900
RFC 5101 Specification of the IP Flow Information Export (IPFIX) Protocol for Exchange of IP Traffic	7.0	7.1
RFC 5176 / RFC 3576 Dynamic Authorization Extensions to RADIUS	7.0	7.1
RFC 5186 IGMPv3/MLDv2 and Multicast Routing Interaction	7.0	7.1
RFC 5905 / RFC 4330 / RFC 1305 NTPv4	7.0	7.1
RFC 6329 IS-IS Extensions Supporting Shortest Path Bridging	7.0	7.1

Table 7: Obsolete RFCs

RFC	Obsolete Release
RFC 1519 Classless Inter-Domain Routing (CIDR)	7.1

The following table lists IPv6 specific RFCs.

Table 8: IPv6 specific RFCs

Standard	Description	Compliance
RFC 1886	DNS Extensions to support IPv6	Supported
RFC 1981	Path MTU Discovery for IPv6	Supported
RFC 2460	Internet Protocol v6 (IPv6) Specification	Supported
RFC 2461	Neighbor Discovery for IPv6	Supported
RFC 2462	IPv6 Stateless Address Auto-configuration	Auto-configuration of link local addresses only
RFC 2464	Transmission of IPv6 Packets over Ethernet Networks	Supported
RFC 3162	RADIUS and IPv6	Supported
RFC 3315	DHCPv6	Support for IPv6 DHCP Relay
RFC 4007	Scoped Address Architecture	Supported
RFC 4022	Management Information Base for TCP	Mostly supported
RFC 4113	Management Information Base for UDP	Mostly supported
RFC 4193	Unique Local IPv6 Unicast Addresses	Supported
RFC 4213	Transition Mechanisms for IPv6 Hosts and Routers	Supports dual stack and configured tunnels
RFC 4291	IPv6 Addressing Architecture	Support earlier version of RFC (3513)

Table continues...

Important notices and new features

Standard	Description	Compliance
RFC 4293	Management Information Base for IP	Mostly supported
RFC 4301	Security Architecture for the Internet Protocol	Not supported
RFC 4443	Internet Control Message Protocol (ICMPv6)	Support earlier version of RFC (2463)

Chapter 4: Resolved issues

The following table lists the issues resolved in this software release.

Table 9: Issues resolved in Release 7.1 and earlier

Change Request number	Description
ERS495900-430	SPBM Multicast: Multicast traffic does not recover after one NNI fails when high number of nodes and I-SIDs are injected into the network.
ERS495900-629	On Fabric Attach (FA) Server in Multiple Host Single Authentication (MHSA) mode, standard VLAN attribute is not processed for the authenticated client when multiple (VLAN:ISID) bindings are returned from RADIUS server.
wi01220686	DHCP Snooping binding table is not populated in an SPBM environment where DHCP server and DHCP client are connected to different C-VLANs with the same I-SID (DHCP server is reached over SPBM cloud). To avoid this issue, configure the same VLAN I-SID on both server and client.
ERS495900-1079	The configuration setting is not lost when either the stack or only the Base Unit is reset on a stack running FA in FA Standalone Proxy mode.
wi01226049	When a Distributed Multiple Link Trunk (DMLT) is used as an SPB User to Network Interface (UNI), after a switch in stack with port member of the DMLT leave and rejoin the stack, broadcast and multicast traffic are forwarded on the DMLT ports of that unit.
wi01202444	SLAMon tests are supported on a switch configured with SPBM with NNI ports where the probes are sent over these types of ports.
wi01207041	QoS Queue Stats can be cleared using EDM.
wi01218663, wi01210784	EDM: The values for Clear Time and Clear Counter are displayed correctly.
wi01218663	Using EDM, you can clear the stats from SNMP for a collector configured when using rclpfixExporterStatsClear MIB object.
wi01222331	Using EDM, SLAMon NTR test can be performed.
wi01222483	The index used in the failed request is available even if an entry fails to be created in ntnQosIfShapingTable,
wi01222880	Cable diagnosis is performed for multiple ports on different units.
wi01223102	In ACLI, in the quick install script, when entering an invalid VLAN identifier for the Quick Start VLAN, the error message does not change if an invalid value is reentered.
wi01223298	SPBM MHMV: NEAP client is not removed from NEAP authenticated list when the ACLI command clear mac-address-table address <address> is used on NBU ports.

Table continues...

Change Request number	Description
wi01223348	In ACLI, in MHSA mode, the port priority is displayed even if the EAP client has no valid RADIUS Assigned VLAN configured on the RADIUS server.
wi01223751	Link State Tracking: bsLstGroupOperStateChanged traps are generated when the last upstream interface goes up or down and the events are recorded in the System Log.
wi01223929	Error message does not appear when trying to restore DHCP Snooping binding table and no DHCP Snooping external device is configured.
wi01224032	When displaying port mirroring in EDM, port number is displayed correctly for mirror ports that are not used.
wi01224162	Autotopology: 0.0.0.0 entry is displayed in the autotopology table when the device does not have the IP address.
wi01224293	EDM Help: When you select Help for the Fabric Attach Agent tab, the information for Agent tab appears correctly.
wi01190566	The bar at the bottom of the page does not shift to the right when selecting a cell in the VLAN tab.
wi01204174	When L3 is enabled on the device, the loopback port can be reserved for SPBM.
wi01213020	Multicast traffic is received with no errors.
wi01213087	Cable diagnosis can be performed for multiple ports on different units.
wi01219332	Using I2 ping from the EDM offbox works and result appears.
wi01222023	User cannot assign I-SID to an RSPAN VLAN.
wi01222188	The Default Gateway is displayed as 'In Use' when issuing a show ip command from a non-base unit console on a stack running in TBU mode
wi01223891	etherStatsOwner mib displays 'no value' when rmon stats is created without a owner.
wi01209290	QoS support over SPBM gives results as expected.
wi01199982	The MAC addresses are not learned when MAC address learning is disabled and traffic enters through non-base unit (NBU) ports.
wi01203459	SPBM, Port Mirroring: When mirroring SPBM egress traffic, the mirrored traffic contains MAC-in-MAC encapsulation or 802.1ah header
wi01216173	SPBM, Port Mirroring: MAC-in-MAC 802.1ah header appears correctly when you mirror a port with IS-IS enabled.
wi01220839	After a base unit reset, NEAP clients connected to non-base units in a stack are re-authenticated even if QoS UBP Support Level is High Security Local Data.
wi01220991	Non-unicast traffic hashing over MLT: Error message appears when the destination IP is used as a parameter in the non-unicast traffic hashing formula.
wi01221098	The last settings are not lost or overwritten when AES schedules are created one minute after another (activate and deactivate).
wi01222303	User can reserve SPBM port while unknown-mcast-no-flood is enabled.
wi01222747	On EDM, non-default community strings can be configured using the Quick Start.

Table continues...

Change Request number	Description
wi01223151	The description for the <code>no ipv6 mgmt interface process-redirect</code> command is 'Disable processing IPv6 redirect-msg'.
wi01223154	IPv6 default gateway can be configured from EDM.
wi01223243	The value range for the <code>ipv6 nd hoplimit</code> command in ACLI setting and <code>Ipv6RouterAdvertCurHopLimit</code> MIB object appears 1 to 255.
wi01223263	Error message does not appear when the STP mode is changed and the stack is rebooted, using <code>show ipv6 mld interface</code> command.
wi01223755	Correct error message appears when an IPv4 interface is created after 256 IPv6 interfaces are added.
wi01223987	IPFIX table shows IP flow information even if the observation port is set on NNI interface which is on an SPBM enabled interface.
wi01224135	The NEAP clients are not lost when <code>mac-max</code> is changed to a higher value when EAP and NEAP clients are authenticated on the same port.
wi01224319	The ACLI command <code>lldp tx-tlv dot1 protocol-identity EAP LLDP STP</code> applies the specified protocol identity.
wi01223623	Error message only when Voice VLANs (6) reaches maximum number and a VLAN is added with <code>VoiceEnabled</code> option. If <code>VoiceEnabled</code> option is not selected, error does not appear.
wi01224979	STPG multicast MAC address can be configured from EDM.

Chapter 5: Known issues and limitations

Use the information in this section to learn more about known issues and limitations. Where appropriate, use the workarounds provided.

Known issues

This section identifies the known issues for the following products:

- Ethernet Routing Switch 4900 Series
- Ethernet Routing Switch 5900 Series

 **Note:**

Known issues listed as previous release is applicable for ERS 4900 although this is first release.

Table 10: Known issues

Change Request number	Description
Issues found in Release 7.1:	
ERS495900-1972	SPBM MHMV: Port mirroring on EAPOL enabled port does not work correctly. The packets transmitted by authenticated client are mirrored unexpectedly and two types of packets are received on monitor port (tagged into initial VLAN and untagged) instead of receiving only the untagged packets.
ERS495900-1709	SPBM+MHMV: Client from NBU does not update priority when re-authentication process is triggered manually.
ERS495900-1554	RSPAN: Changing eapol port state to auto on RSPAN destination port drops the mirrored traffic.
ERS495900-904	USB: "no USB device inserted" error message appears in some configuration scenarios when trying to show the content of the USB device.
ERS495900-738	ADAC: Error message appears when adac op-mode untagged-frames-advanced is issued first time after boot default. WORKAROUND: Issuing the command for the second time applies the settings.
ERS495900-802	Auto SPBM: Incorrect error message is displayed when trying to enable SPBM while spanning-tree mode is set to RSTP.

Table continues...

Change Request number	Description
ERS495900-1061	UBP GRIP 15329 and re-architecture: When UBP clients with 128 classifiers are added or removed, the following log message is generated even if the filter is removed from the port. "Unable to delete UBP filter set on interface."
ERS495900-1207	IGMP: Remote streams learned over NNI are displayed with port 0/0 in igmp sender table.
ERS495900-299	If Global RADIUS server is the same with the EAP and NEAP RADIUS, only the Global RADIUS server should be configured. However, an overload of network traffic is created when GLOBAL, EAP, and NEAP servers have the same ip address.
ERS495900-227	In a eight unit stack, stack temporarily breaks after trying to perform AUR on base unit.
ERS495900-829	SPBM Multicast scaling: Bouncing redundant links causes stack to be unstable and traffic loss. It recovers after 15 minutes.
ERS495900-1268	IP Shortcut Multicast: Traffic gets filtered when stack on the receiving side runs on TBU.
ERS495900-625	Multiple bindings are not supported in MHSA on FA Server.
Issues found in previous release which is applicable for Release 7.1:	
wi01187211	If IS-IS adjacency is established over an MLT/LACP trunk, the information about IS-IS interfaces is displayed for both the trunk and its members in EDM and only for the trunk itself in ACLI.
wi01198235	The L2 TraceMroute tab in EDM is empty. WORKAROUND: Use the ACLI command: I2 tracemroute .
wi01206409	SNMP users cannot be created from the EDM Offbox. WORKAROUND: Create SNMP users from EDM or ACLI.
wi01207480	After the password aging time expires, the user cannot change the password using EDM and connect to EDM. WORKAROUND: Use ACLI command username password to change the user's password.
wi01208072	When a non-SPBM switch is connected to an SPBM switch and the Multiple Spanning Tree Protocol (MSTP) instances do not match, the in-band port from management VLAN is set to discarding mode instead of forwarding mode. WORKAROUND: Ensure all VLANs are in the Common and Internal Spanning Tree (CIST) for this scenario. <i>See Configuring VLANs, Spanning Tree, and Multi-Link Trunking on Avaya Ethernet Routing Switch 4900 and 5900 Series, NN47211-502 for more information regarding MSTP.</i>
wi01209636	SPBM Multicast: Multicast stream is not removed when access ports are disabled. Multicast streams will be aged out.

Table continues...

Known issues and limitations

Change Request number	Description
wi01219325	The information displayed in the Interface SPBM tab in EDM is doubled. The ACLI command works as expected.
wi01220242	Message indicating the SPBM reserved ports are 'bad port numbers' is misleading. The error message should state these ports are unavailable for general use.
wi01221033	Changing the RADIUS user password is not working when out-of-band management IP is in use.
wi01222045	Telnet session is disconnected when IP routing is disabled from an EDM console session.
wi01222464	SSHC DSA/RSA key cannot be uploaded to USB from the non-base unit using NetSNMP. WORKAROUND: Set each MIB separately to ensure key file uploads successfully.
wi01222640	When mapping a VLAN to a non-existent STG using EDM, the error message displays an incorrect STG number.
wi01222711	MHNV clients are lost after transitioning from stack to standalone or standalone to stack due to spanning tree recalculation and connectivity loss with the RADIUS server for approximately 10 to 30 seconds. WORKAROUNDS: 1. Increase the timeout and retries for the RADIUS server (for example, 5 retries and 10 second timeout). 2. Use Fail Open VLAN to address the RADIUS connectivity issues. 3. Enable reauthentication.
wi01223354	In a scaled environment, with the maximum number of NEAP clients per port, it could be 30 seconds or more before the prompt returns after issuing the ACLI command clear eapol non-eap .
wi01223662	EDM: In the Ascii Config Script Files screen in EDM, not all applications are available for selection for entries at the bottom of the screen due to the size of the pop-up window. WORKAROUND: Scroll the screen so that the entry is in the upper part of the EDM screen, or use ACLI to configure.
wi01223817	In an SPBM environment, remote MAC addresses are not learned on the destination device after NNI ports are bounced on the source device. WORKAROUND: Bounce IS-IS on the source SPBM switch.
wi01224130	When enabling link aggregation on a group of ports with inconsistent settings, an error is issued ('% Ports have different IPSPG configurations') as expected. However, link aggregation is enabled partially on the list of ports, up to the first port with different settings.
wi01224296	Critical logs associated with exceptions are not sent to remote system log.
wi01224441	SPBM Multicast: no error message is generated if SPBM Multicast is enabled when all precedences on all ports are occupied.

Table continues...

Change Request number	Description
	The switch has a total of 16 precedences available. Applications including DHCP Snooping, Dynamic ARP Inspection, IP Source Guard, SPB, QoS, and EAP use these precedences. Use the CLI command show qos diag to display the current use of precedence resources.
wi01224917	In a stack in TBU mode, when using the serial console on the former base unit which left and rejoined the stack, some QoS UBP statistics (show qos ubp statistics) may be displayed as 0. WORKAROUND: Use the serial console on the temporary base unit or use telnet/SSH to view the correct QoS UBP statistics.

Limitations and considerations

The following table lists known limitations and considerations:

Item	Applicable Product	Description
1	ERS 5900 Series ERS 4900 Series	Some terminal programs can cause the Console Interface to crash if you enter a RADIUS secret containing the character "k". The issue has been reproduced using Tera Term Pro (version 2.3), as well as Minicom (version 2.1) on a Linux system.
2	ERS 5900 Series ERS 4900 Series	Avoid using MAC security on a trunk (MLT).
3	ERS 5900 Series ERS 4900 Series	Failed attempts to log in (using TACACS+ authentication and accounting) are not stored in the accounting file.
4	ERS 5900 Series ERS 4900 Series	When switches are in Multiple Spanning Tree Protocol (MSTP) mode and connected using a trunk (MLT), and at least one MSTI is configured, the switch can return an incorrect STPG root if you change the mode to STPG and reset the switches. MSTP is the default spanning tree mode. When using the switch with SPB enabled, MSTP will not converge if used in the same MSTP region with switches that are not running SPB. This is not an issue if all VLANs are in the common and internal spanning tree (CIST).
5	ERS 5900 Series	When you use the EDM/Web to configure and add VLAN ports to an STG other than the default STG, STG membership of the port may change. In that case, the new STG participation of that port will be disabled.

Table continues...

Known issues and limitations

Item	Applicable Product	Description
	ERS 4900 Series	WORKAROUND: Enable participation of the ports in the new STG after you enable the STG.
6	ERS 5900 Series ERS 4900 Series	While downloading the image file, you may receive the following error message: "Error reading image file." WORKAROUND: Typically, this issue can be resolved by simply restarting the image download. If this does not resolve the issue, Avaya recommends that you try an alternate method to download the image to the switch (that is, the Web Interface).
7	ERS 5900 Series ERS 4900 Series	The IPFIX sampling data rate cannot be changed because of a related hardware limitation.
8	ERS 5900 Series ERS 4900 Series	Demo License to enable OSPF, ECMP, VRRP, and IPFIX is for a period of 60 days. The trial license expires at the end of the 60 day period and the features are disabled. The system sends traps advising of license expiration. Demo license expiry traps: <ul style="list-style-type: none"> • Five days prior to demo license expiry: bsnTrialLicenseExpiration: Trial license 1 will expire in 5 day(s). • One day prior to demo license expiry: bsnTrialLicenseExpiration: Trial license 1 will expire in 1 day(s). • At termination of demo license: bsnTrialLicenseExpiration: Trial license 1 has expired.
9	ERS 5900 Series ERS 4900 Series	Do not enable IP Source Guard on trunk ports.
10	ERS 5900 Series ERS 4900 Series	Non-existent VLAN Mapping for MSTI: EDM/SNMP support for VLAN Mapping for MSTI is not available.
11	ERS 5900 Series ERS 4900 Series	You cannot enable MAC Security on LACP enabled ports. The following message displays: %Cannot modify settings %MAC Security status cannot be modified. Disable LACP first.
12	ERS 5900 Series ERS 4900 Series	Rate Limiting: When you have the following scenario: 1. rate-limiting is performed at 10% (or by setting any percent value threshold)

Table continues...

Item	Applicable Product	Description
		<p>2. the speed ratio between the inbound port and the client port is 10:1 (for example 10Gbps inbound link and 1Gbps client port link)</p> <p>3. inbound broadcast or multicast traffic throughput on the inbound link is more than 10% link-rate speed</p> <p>then the client port will receive $0.1 * [\text{inbound traffic rate}]$ and not the expected 1Gbps broadcast or multicast traffic.</p> <p>Example:</p> <ul style="list-style-type: none"> inbound port link rate = 10Gbps , client outbound link rate = 1Gbps , rate limiting set to both at 10% inbound traffic rate = 3Gbps broadcast traffic <p>The actual client traffic received rate = 333Mbps and not the expected 1Gbps</p>
13	ERS 5900 Series ERS 4900 Series	In a stack configuration, SSHC configuration options are only available from the base unit
14	ERS 5900 Series ERS 4900 Series	<p>When you manually create an LLDP MED network policy, LLDP checks that the specified VLAN ID corresponds to a voice VLAN created inside the VLAN application. If the VLAN is not a voice VLAN or the VLAN does not exist, the switch displays a warning message. The switch creates the policy even if the VLAN is not voice enabled or does not exist. The switch may display one of the following messages:</p> <pre>% Policy will be set on port x with vlan-id of a non-existent vlan y</pre> <pre>% Policy will be set on port x member of the non-voice vlan y</pre>
15	ERS 5900 Series ERS 4900 Series	If you configure a stack of three or more units in Both Directions, (the stack is cabled in a non-ring configuration and the missing cable is between two non-base units) there will be no temporary base unit election in case the base unit fails. In this scenario, the stack will break and the base unit cannot be replaced and its CFG image will not be mirrored. In addition, the base unit is not present in the AUR cache, so the base unit will not be ready for replacement, and its MAC address cannot be displayed or removed.
16	ERS 5900 Series ERS 4900 Series	In a ring stack, of four or more units, if rebooting or powering off a unit that is not directly connected to the base unit, the stack will be configured in Both Directions configuration (the stack is cabled in a non-ring configuration and the missing cable is between two non base units). In this scenario there will be no temporary base unit election in case the base unit fails. If the base unit fails, the stack will break, so the base unit cannot be replaced, and its CFG image will not be mirrored. In this case the base unit is not present in the AUR cache, so the base unit will not be ready for replacement, and its MAC address cannot be displayed or removed, as long as the stack remains in this state.

Table continues...

Item	Applicable Product	Description
17	ERS 5900 Series ERS 4900 Series	SPBM, Port Mirroring: With SPBM Multicast enabled, if you mirror a port with IS-IS enabled, multicast streams that ingress on the local stack and egress on the mirror port will have the MAC-in-MAC 802.1ah header stripped and the customer VLAN ID replaced with 0xFFF (4095).
18	ERS 5900 Series ERS 4900 Series	The area ID 0.0.0.0 is created by default and it is reserved for the backbone area. Error message is displayed when you create area ID 0.0.0.0 on the switch using ACLI or EDM. For example, the following error message is displayed on ACLI when the command area 0.0.0.0 is entered: % Cannot modify settings% Can't delete or modify backbone area
19	ERS 5900 Series ERS 4900 Series	In order for EAP to work with SPBM configurations, all VLANs used by EAP should be SPB VLANs (C-VLANs), including initial VLANs, Guest VLAN, Fail Open VLAN, VoIP VLANs, RADIUS Assigned VLANs, and ADAC Voice VLANs (in the case where ADAC authentication is used).
20	ERS 4900 Series	The ACLI command, show stack-cable-info is not available in ERS 4900 Series. Information about the stack cables cannot be viewed.

VLACP issue

In some situations, when you use VLACP the switches remove a link from service due to variations in the arrival time of VLACP messages (VLACP PDUs) from the far end. The issue can exist between the ERS 5900 or ERS 4900 models and ERS 8300 and ERS 8600 models when the system runs short timers with a default timeout interval of 3 time-outs or less. The switches maintain a rolling history of the last 3 received VLACP PDUs (by default) and calculate the time variance across and between these VLACP messages.

SOLUTION: Increase the VLACP timeout-scale value to 3 or more.

Filter resource consumption

Applications consume filter resources, which are a combination of masks and filters, also known as rules.

A filter specifies the bit pattern to match.

A mask specifies the bit position to match and the evaluation precedence of the filters.

To enable some applications, for example Port Mirroring and IGMP, a set number of masks and filters are required.

The following table summarizes the applications that require mask and filter resources.

Table 11: Application mask and filter resource requirements

Application	Category	Masks required	Filters required
Broadcast ARP and ARP Inspection	Non QoS	1	1 ^a
DHCP Relay or DHCP Snooping	Non QoS	1	4 ^a
QoS (default untrusted policy)	QoS	2	2 ^a
QoS (DAPP with status tracking)	QoS	1	1 ^a
QoS (Auto QoS)	QoS	1	4 ^a
Port Mirroring (MAC-based)	Non QoS	1	2 ^a
EAP Authentication (EAPoL packet filter)	Non QoS	1	2 ^a
IPFIX	Non QoS	1	1 ^a
ADAC	Non QoS	1	1 ^a
RIP	Non QoS	1	1 ^a
UDP Broadcast	Non QoS	1	1 ^a
VRRP	Non QoS	1	1 ^a
OSPF	Non QoS	1	1 ^a
Content Based Forwarding	Non QoS	1	up to 16 ^a
IP Source Guard	Non QoS	1	11 ^a
PIM	Non QoS	1	2 ^a
SPB	Non QoS	1	1 ^a
SPB - DHCP	Non QoS	1	6 ^b
SPB - CFM	Non QoS	2	2 ^a
IGMP	Non QoS	up to 2	1 ^c
MLD	Non QoS	up to 2	1 ^c
FHS	Non QoS	1	24 ^b
IPv6	Non QoS	1	1 ^a
IPv6 over SPBM (when IPv6 Forwarding is enabled)	Non QoS	up to 3	1 ^a
Notes:			
a: number of filters required per port			

Table continues...

Application	Category	Masks required	Filters required
b: number of total filters			
c: number of filters required per VLAN enabled plus one common filter per mask (i.e. 256 VLANs enabled require two masks with 256 filters on first mask and two filters on second mask)			

On the switch, the resources are shared across groups of ports. For each group of ports, 16 masks are available, with 256 filters available for each mask. By default, the system consumes one mask and two filters per port for ARP filtering, and one mask and two filters per port for DHCP relay. This leaves 14 masks available, each with 254 filters for QoS and other non QoS applications to configure dynamically.

You can use the `show qos diag` command to assess the current filter resource usage for each port on the switches.

The `show qos diag` command displays the number of QoS masks and filters and non QoS masks and filters consumed on each port. You can determine whether an application that requires filter resources can be enabled on a port by verifying that the number of available masks and filters meets the mask and filter requirements of the application.

On the switch, you can count the unused masks to determine the number of available masks for a port by using the output of the `show qos diag` command. The switches share resources across a group of ports. The filters used by QoS or non QoS applications on a port for a specific mask determine the available filters for that mask for all ports from that group.

On the switch, you can determine the number of filters available for a mask from a group of ports by adding the total number of QoS and non QoS filters in use and subtracting that number from 256. If the number of filters in use for a mask equals 256, you cannot use that mask on other ports from the same group.

Example - IP Source Guard on an switch port

On the switch, you need 1 mask and 11 filters to enable IP Source Guard on a port. When you view the `show qos diag` command output you see that port 5 is currently using a total of 4 masks. IP Source Guard uses the next available mask and, from the command output, you can see that there are 256 filters available for mask 14. So you can enable IP Source Guard.

Flow Control

The default value for flow control is asymmetric/asymm-pause-frame (forced settings / auto-negotiation advertisement).

Note:

The switch supports only full-duplex operation.

Example**Disabling flow control when auto-negotiation is enabled:**

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#interface ethernet 7-8
Switch(config-if)#auto-negotiation-advertisements port 7 1000-full
Switch(config-if)#show auto-negotiation-advertisements port 7-8
Port Autonegotiation Advertised Capabilities
-----
7                               1000Full
8   10Full           100Full       1000Full           AsymmPause
Switch(config-if)#show interfaces 7-8
      Status                Auto                Flow
Port Trunk  Admin  Oper  Link  LinkTrap  Negotiation  Speed  Duplex  Control
-----
7                               Custom
8   Enable  Down  Down  Enabled  Enabled
```

Enabling asymmetric flow control when auto-negotiation is enabled:

```
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#interface ethernet 7-8
Switch(config-if)#$iation-advertisements port 7 1000-full asymm-pause-frame
Switch(config-if)#show auto-negotiation-advertisements port 7-8
Port Autonegotiation Advertised Capabilities
-----
7                               1000Full           AsymmPause
8   10Full           100Full       1000Full           AsymmPause
Switch(config-if)#show interfaces 7-8
      Status                Auto                Flow
Port Trunk  Admin  Oper  Link  LinkTrap  Negotiation  Speed  Duplex  Control
-----
7                               Custom
8   Enable  Down  Down  Enabled  Enabled
```

Disabling flow control when auto-negotiation is disabled:

```
Switch>enable
Switch#configure terminal
Switch(config)#interface ethernet 7-8
Switch(config-if)#duplex port 7-8 full
Switch(config-if)#flowcontrol port 7-8 disable
Switch(config-if)#show interfaces 7-8
      Status                Auto                Flow
Port Trunk  Admin  Oper  Link  Negotiation  Speed  Duplex  Control
-----
7                               1000Mbps Full Disable
8   Enable  Up     Up    Disabled  1000Mbps Full Disable
```

Enabling asymmetric flow control when auto-negotiation is disabled:

```
Switch>enable
Switch#configure terminal
Switch(config)#interface ethernet 7-8
Switch(config-if)#flowcontrol port 7-8 asymmetric
Switch(config-if)#show interfaces 7-8
      Status                Auto                Flow
Port Trunk  Admin  Oper  Link  Negotiation  Speed  Duplex  Control
-----
7                               1000Mbps Full Asymm
8   Enable  Up     Up    Disabled  1000Mbps Full Asymm
```