



Release Notes for Avaya Ethernet Routing Switch 4800 Series

Release 5.9.2
NN47205-400
Issue 13.07
August 2016

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Chapter 1: Introduction

Purpose

This document describes new features, hardware, upgrade alerts, known and resolved issues, and limitations for Avaya Ethernet Routing Switch 4800 Series, Software Release 5.9.2.

 **Note:**

Release 5.9.2 is supported only on ERS 4800 series.

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 4800 Series*, NN47205–101.

For more information on new features of the switch and important information about the latest release, see *Release Notes for Avaya Ethernet Routing Switch 4800 Series*, NN47205-400.

For more information about how to configure security, see *Configuring Security on Avaya Ethernet Routing Switch 4800 Series*, NN47205-505.

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

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| Course code | Course title |
|-------------|--|
| 8D00020E | Stackable ERS and VSP Products Virtual Campus Offering |

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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.

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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.
5. Select any of the following to narrow your search:
 - Whole Words Only
 - Case-Sensitive
 - Include Bookmarks
 - Include Comments
6. Click **Search**.

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About this task

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Procedure

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3. Under **My Information**, select **SSO login Profile**.
4. Click **E-NOTIFICATIONS**.
5. In the GENERAL NOTIFICATIONS area, select the required documentation types, and then click **UPDATE**.

GENERAL NOTIFICATIONS
1/5 Notifications Selected

| | |
|---|-------------------------------------|
| End of Sale and/or Manufacturer Support Notices | <input type="checkbox"/> |
| Product Correction Notices (PCN) | <input checked="" type="checkbox"/> |
| Product Support Notices | <input type="checkbox"/> |
| Security Advisories | <input type="checkbox"/> |
| Services Support Notices | <input type="checkbox"/> |

UPDATE >>

6. Click **OK**.
7. In the **PRODUCT NOTIFICATIONS** area, click **Add More Products**.

PRODUCT NOTIFICATIONS **Add More Products**

Show Details **1 Notices**

8. Scroll through the list, and then select the product name.
9. Select a release version.
10. Select the check box next to the required documentation types.

| PRODUCTS | My Notifications |
|---|---|
| Virtual Services Platform 7000 | VIRTUAL SERVICES PLATFORM 7000 Select a Release Version All and Future |
| Virtualization Provisioning Service | |
| Visual Messenger™ for OCTEL® 250/350 | |
| Visual Vectors | |
| Visualization Performance and Fault Manager | |
| Voice Portal | |
| Voice over IP Monitoring | |
| W310 Wireless LAN Gateway | |
| WLAN 2200 Series | |
| WLAN Handset 2200 Series | |
| | Administration and System Programming <input type="checkbox"/> Application Developer Information <input type="checkbox"/> Application Notes <input type="checkbox"/> Application and Technical Notes <input checked="" type="checkbox"/> Declarations of Conformity <input type="checkbox"/> Documentation Library <input checked="" type="checkbox"/> |
| | SUBMIT >> |

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

Chapter 2: New in this release

The following sections detail what is new in *Release Notes for Avaya Ethernet Routing Switch 4800 Series*, NN47205-400.

Features

See the following sections for information about the new features in this release.

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.

For Release 5.9.2, , the maximum size of an ASCII configuration file is limited to 500 kilobytes.

This feature introduces the following ACLI commands:

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

For more information, see *Configuring Systems on Avaya Ethernet Routing Switch 4800 Series*, NN47205-500.

Fabric Attach updates

Following are the Fabric Attach changes:

Fabric Attach Server and Fabric Attach Proxy functionality

The switch supports Fabric Attach Server and Fabric Attach Proxy functionality. A Fabric Attach Server is an SPB capable network device connected to the fabric edge running the FA agent in FA

Server mode. FA Servers receive requests to create services with specific I-SID/VLAN bindings. A Fabric Attach Proxy is a device running the FA agent in FA Proxy mode. FA Proxies support I-SID/VLAN assignment definition and have the ability to advertise these assignments for possible use by an FA Server, if connectivity permits. If FA Proxy is linked to FA Server in SPBM provisioning mode, then FA server needs to be a VSP 4000 or VSP 8000 Series unit.

Fabric Attach Auto Provision

You can use Auto Provision with an FA Server-capable device to take advantage of Fabric Attach functionality in non-SPB environments. Auto Provision allows an FA Proxy device (that is also FA Server-capable) to function as an FA Server when SPBM is disabled. With Auto Provision you can designate the device as an FA Proxy or FA Server. FA VLAN definitions, configured locally on an FA Proxy or through client processing, transparently replace I-SID/VLAN binding definitions in this scenario and allow all of the automated FA processing, with the exception of switched UNI-related operations, to be performed in the absence of SPBM operations. All existing FA default settings remain unchanged.

For more information, see *Configuring Avaya Fabric Connect on Avaya Ethernet Routing Switch 4800 Series*, NN47205-507.

ACL CLI commands

This feature introduces the following ACL CLI commands:

- `fa auto-provision`
- `default fa auto-provision`
- `fa proxy`
- `default fa proxy`
- `no fa proxy`
- `fa auto-provision proxy`
- `show fa elements client-type`
- `show fa zero-touch-options client-data`
- `fa zero-touch-options auto-port-mode-fa-client client-type`
- `fa zero-touch-options auto-pvid-mode-fa-client client-type`
- `no fa zero-touch-options auto-port-mode-fa-client client-type`
- `no fa zero-touch-options auto-pvid-mode-fa-client client-type`
- `fa zero-touch-options auto-port-mode-fa-client client-type <6-17>`
- `fa zero-touch-options auto-pvid-mode-fa-client client-type <6-17>`
- `fa zero-touch-options auto-trusted-mode-fa-client client-type <6-17>`

GRIP 15246 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 4800 Series*, NN47205-505

GRIP 15477 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 4800 Series*, NN47205-505.

GRIP 15739 RFC 3576 Reauthentication attribute for Disconnect and CoA requests

This feature adds the Reauthentication attribute for Disconnect and CoA requests. The Reauthentication VSA can be used to immediately reauthenticate EAP and NEAP clients.

For more information, see *Configuring Security on Avaya Ethernet Routing Switch 4800 Series*, NN47205-505

GRIP 15023 Fail Open UBP

When you configure Fail Open UBP and QoS support for UBP is enabled, the UBP classifier is installed and associated 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, see *Configuring Security on Avaya Ethernet Routing Switch 4800 Series*, NN47205-505.

QoS Double Wide

QoS Double Wide introduces a new UBP allocation mode called double, 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/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 4800 Series*, NN47205-504.

ACLI commands

This feature introduces the `alloc-mode` parameter for the `qos ubp classifier name` command.

GRIP 15329 Classifier elements in a User Based Policy

You can include up to 128 classifier elements to a single User Based Policy (UBP).

For more information on UBPs, see *Configuring Quality of Service on Avaya Ethernet Routing Switch 4800 Series*, NN47205-504.

Other changes

See the following sections for information about changes that do not apply to new features.

Document title change

Release Notes for Avaya Ethernet Routing Switch 4000 Series is renamed *Release Notes for Avaya Ethernet Routing Switch 4800 Series*.

Introduction chapter

Information about Related resources and Support are moved to the last chapter in this document.

SSL disabled

SSL is disabled in Release 5.9.2. The ERS 4800 5.9.2 agent supports TLS versions 1.0, 1.1, and 1.2.

Chapter 3: Important notices

The following sections provide important notices.

Supported software and hardware capabilities

The following table lists supported software and hardware scaling capabilities in Avaya Ethernet Routing Switch 4800 Series Software Release 5.9. The information in this table supersedes information contained in any other document in the suite.

Table 1: Supported software and hardware scaling capabilities

| Feature | Maximum Number Supported in ERS 4800 series |
|--|--|
| Egress queues | Configurable 1–8 |
| MAC addresses | 16384 |
| Stacking bandwidth (full stack of 8 units) | Up to 384 Gbps |
| QoS precedence | 16 per ASIC |
| QoS rules per ASIC | ERS 4826 – 256 rules per precedence in single/128 in double ERS 4850 – 512 rules per precedence in single/256 in double |
| Maximum number of units in a stack | 8 |
| Maximum number of Port Mirroring Instances | 4 |
| Maximum Admin Accounts | 10 (two default non-deletable users, one with Read-Write (RW) privileges and one with Read-Only (RO) privileges; others can be configured with either RW or RO privileges) |
| Layer 2 | |
| Concurrent VLANs | 1024 |
| Supported VLAN IDs | 1 - 4094 (0 and 4095 reserved; 4001 reserved by STP; 4002-4008 reserved by multiple STP groups) |
| Protocol VLAN types | 7 |

Table continues...

| Feature | Maximum Number Supported in ERS 4800 series |
|--|---|
| Multi-Link Trunking (MLT), Distributed Multi-Link Trunking (DMLT), and Link Aggregation (LAG) groups | 32 |
| Maximum MAC Learning rate on an MLT trunk | 500 new MAC addresses per second |
| Links or ports for MLT, DMLT or LAG | 8 |
| Static MAC Addresses | 1,024 |
| Spanning Tree Group instances (802.1s) | 8 |
| Avaya Spanning Tree Groups | 8 |
| DHCP Snooping table entries | 1024 |
| Layer 3 | |
| IP Interfaces (VLANs or Brouter ports) | 256 |
| ARP Entries total (local, static & dynamic) | 1792 |
| ARP Entries — local (IP interfaces per switch/stack) | 256 |
| ARP Entries — static | 256 |
| ARP Entries — dynamic | 1280 |
| IPv4 Routes total (local, static & dynamic) | 2048 |
| IPv4 Static Routes | 512 (configurable 0-512) |
| IPv4 Local Routes | 256 (configurable 2-256) |
| IPv4 Dynamic Routes (RIP & OSPF) | 1280 (configurable up to 2046) |
| Dynamic Routing Interfaces (RIP & OSPF) | 64 |
| OSPF Areas | 4 (3 areas plus area 0) |
| OSPF Adjacencies (devices per OSPF Area) | 16 |
| OSPF Link State Advertisements (LSA) | 10000 |
| OSPF Virtual Links | 4 |
| ECMP (Max concurrent equal cost paths) | 4 |
| ECMP (Max next hop entries) | 128 |
| VRRP Instances | 256 |
| Management Routes | 4 |
| UDP Forwarding Entries | 128 |
| DHCP Relay Entries | 256 |
| DHCP Relay Forward Paths | 512 |
| Fabric Connect (SPB) | |
| SPB operational mode | Standalone or stack of up to 8 units |
| SPB nodes per region | 450 |
| SPB (IS-IS) adjacencies per node | 4 |
| SPB Customer VLANs (C-VLANs) per node | 500 |

Table continues...

| Feature | Maximum Number Supported in ERS 4800 series |
|--|--|
| SPB I-SIDs per node | 500 |
| SPB Switched UNIs | 500 |
| Number of B-VLANs | 2 |
| Number of IS-IS interfaces per node | 4 |
| Maximum multicast streams | 256 per stack |
| Maximum Layer 2 VSNs with SPBM Multicast | 450 per stack |
| Maximum number of different multicast streams supported (identified by source/group IP and ingress C-VLAN) | <p>250</p> <p>The following formula applies:</p> $512 \text{ ENTRIES} \geq L2_VSN + 2 \times MC_STREAMS + 8 \text{ (reserved)}$ <p>Where,</p> <ul style="list-style-type: none"> • ENTRIES is the total number of entries supported. • L2_VSN is the number of L2_VSNs (with or without IGMP snooping). • MC_STREAMS is the number of IP Multicast streams, local + remote. For remote streams, two entries are occupied and for local streams, only one entry is occupied. <p>* Note:</p> <p>For each L2VSN (C-VLAN or Switched-UNI) created on the SPBM device, an entry is occupied in a hardware table. For each multicast stream, two entries are occupied in the same table, one for the source and one for the receiver, on both the source and client BEBs. The total number of entries is 512, where eight entries are unavailable (used internally by the system). The multicast traffic will work only for the streams that occupied the necessary entries in the hardware table. For example, if there are 250 multicast streams in one C-VLAN, 501 hardware entries will be occupied: 250 for the source of the traffic, 250 for the receivers, and one for the C-VLAN.</p> |
| Miscellaneous | |
| IGMP v1/v2 multicast groups | 512 |
| IGMP v3 multicast groups | 512 |
| IGMP Enabled VLANs | 256 |
| 802.1x (EAP) clients per port, running in MHMA | 32 |
| 802.1x (NEAP) clients per switch/stack | 384 |

Table continues...

| Feature | Maximum Number Supported in ERS 4800 series |
|--|---|
| 802.1x (EAP & NEAP) clients per switch/stack | 768 |
| Maximum RADIUS Servers | 2 |
| Maximum 802.1X EAP Servers | 2 |
| Maximum 802.1X NEAP Servers | 2 |
| Maximum RADIUS/EAP/NEAP Servers | 6 |
| IPFIX number of sampled flows | 100000 |
| LLDP Neighbors per port | 16 |
| LLDP Neighbors | 800 |
| RMON alarms | 800 |
| RMON events | 800 |
| RMON Ethernet statistics | 110 |
| RMON Ethernet history | 249 |
| Link State Tracking: Instances | 2 |
| Port Mirroring Instances | 4 |
| Port Mirroring: RSPAN destinations | 4 per switch or stack |
| Port Mirroring: RSPAN VLANs | 4 |
| Maximum PIM-SM interfaces | 16 PIM interfaces (4 active, 12 passive) |

Filter, meter and counter resources

The following table details filter, meter and counter resources used on the Avaya Ethernet Routing Switch 4000 when various applications are enabled.

*** Note:**

Filters will use the highest available precedence.

Table 2: Filter, meter and counter resources per port

| Feature | Observation | QoS | | | NonQoS | |
|---------|--------------|---------|--------|---------|---------|--------|
| | | Filters | Meters | Counter | Filters | Meters |
| EAPOL | | 0 | 0 | 0 | 2 | 0 |
| SPBM | | 0 | 0 | 0 | 3 | 0 |
| DHCP | | 0 | 0 | 0 | 9 | 1 |
| CFM | Precedence 2 | 0 | 0 | 0 | 2 | 2 |
| | Precedence 1 | 0 | 0 | 0 | 2 | 2 |
| ADAC | | 0 | 0 | 0 | 1 | 0 |

Table continues...

| Feature | Observation | QoS | | | NonQoS | |
|-----------------|------------------------------------|-----|---|---|--------|---|
| | | | | | | |
| DHCP Relay | L2 mode | 0 | 0 | 0 | 0 | 0 |
| DHCP Relay | L3 mode | 0 | 0 | 0 | 0 | 0 |
| DHCP Snooping | | 0 | 0 | 0 | 2 | 1 |
| MAC Security | | 0 | 0 | 0 | 0 | 0 |
| IP Source Guard | | 0 | 0 | 1 | 11 | 0 |
| Port Mirroring | Mode XrxYtx | 1 | 0 | 0 | 0 | 0 |
| Port Mirroring | XrxYtx or YrxXtx | 0 | 0 | 0 | 2 | 0 |
| Port Mirroring | AsrcBdst, Asrc, Adst | 1 | 0 | 0 | 0 | 0 |
| Port Mirroring | AsrcBdst or BscrAdst, Asrc or Adst | 2 | 0 | 0 | 0 | 0 |
| QoS | Trusted | 0 | 0 | 0 | 0 | 0 |
| QoS | Untrusted | | | | | |
| | Precedence 2 | 1 | 0 | 1 | 0 | 0 |
| | Precedence 1 | 1 | 0 | 1 | 0 | 0 |
| QoS | Unrestricted | 0 | 0 | 0 | 0 | 0 |
| UDP Forwarding | | 0 | 0 | 0 | 1 | 1 |
| OSPF | | 0 | 0 | 0 | 3 | 0 |
| RIP | | 0 | 0 | 0 | 1 | 0 |
| IPFIX | | 0 | 0 | 0 | 1 | 1 |
| SLPP Guard | | 0 | 0 | 0 | 1 | 1 |

File names for this release

File names for release 5.9.2

The following table describes the Avaya Ethernet Routing Switch 4800 Series, Software Release 5.9.2 software files. File sizes are approximate.

Table 3: Software Release 5.9.2 components

| Module or File Type | Description | File Name | File Size (bytes) |
|---------------------------------|--|------------------|-------------------|
| Standard Runtime Software Image | Standard image for the Avaya Ethernet Routing Switch 4800 Series | 4800_592046.img | 12,038,220 |
| Secure Runtime Software Image | Secure image for the Avaya Ethernet Routing Switch 4800 Series | 4800_592047s.img | 12,334,640 |

Table continues...

| Module or File Type | Description | File Name | File Size (bytes) |
|---|---|---|-------------------|
| Diagnostic Software Image | 4800 diagnostic image | 4000_58001_diag.bin | 1,934,853 |
| Enterprise Device Manager Help Files | Help files required for Avaya Ethernet Routing Switch 4800 series | ers4000v592_HELP_EDM.zip | 3,487,885 |
| Enterprise Device Manager Plug-in | Avaya Ethernet Routing Switch 4800 series Enterprise Device Manager plug-in for Configuration and Orchestration Manager | ers4000v5.9.2.0.zip | 4,951,468 |
| Software Release 5.9.2 Management Information Base (MIB) Definition Files | MIB definition files | Ethernet_Routing_Switch_4800_MIBs_5.9.2.zip | 1,592,838 |

Supported traps and notifications

For information about SNMP traps generated by the Avaya Ethernet Routing Switch 4000 Series, see *Troubleshooting Avaya Ethernet Routing Switch 4800 Series*, NN47205-700.

Supported Web browsers for Enterprise Device Manager

The following is a list of Internet Web browsers supported by EDM:

- Microsoft Internet Explorer versions 7.0 and 8.0. For higher versions, you must use Internet Explorer in compatibility mode.
- Mozilla Firefox version 3.x and up.

For more information about EDM, see *Using ACLI and EDM on Avaya Ethernet Routing Switch 4800 Series*, NN47205-102.

Software upgrade

To upgrade to the new software release 5.9 on ERS 4800, first verify or upgrade to software image 5.6.5 or 5.7.0, diagnostic image 5.8.0.

After the software and diagnostics image are verified or updated, you can then upgrade the agent version to release 5.9.

You can download the latest software release from www.avaya.com/support.

Table 4: Possible scenarios

| Image | Location |
|--|--|
| Local Agent Image | Agent image in the flash memory of the unit. |
| Local Diagnostic Image | Diagnostic image in the flash memory of the unit |
| 5.6.0.15 Diagnostic Image for the following units: 4550T-PWR+, 4526T-PWR+, 4850GTS, 4850GTS-PWR+, 4826GTS, 4826GTS-PWR+ | Diagnostic image released in 5.6 |
| Combo 5.6.0.15 Diagnostic Image that is a combination between 5.3.0.3 and 5.6.0.15 and can be downloaded on all units | Diagnostic image released in 5.6 |
| 5.6.1.18 Diagnostic Image for the following units: 4550T-PWR+, 4526T-PWR+, 4850GTS, 4850GTS-PWR+, 4826GTS, 4826GTS-PWR+ | Diagnostic image released in 5.6.1 |
| Combo 5.6.1.18 Diagnostic Image that is a combination between 5.3.0.3 and 5.6.1.18 and can be downloaded on all units | Diagnostic image released in 5.6.1 |
| 5.6.2.01 Diagnostic Image for the following units: 4550T-PWR+, 4526T-PWR+, 4850GTS, 4850GTS-PWR+, 4826GTS, 4826GTS-PWR+ | Diagnostic image released in 5.6.2 |
| 5.3.0.3 Diagnostic Image for the following units: 4524GT, 4524GT-PWR, 4526FX, 4526GTX, 4526GTX –PWR, 4526T, 4526T-PWR, 4548GT, 4548GT-PWR, 4550T, 4550T-PWR | Diagnostic image released in 5.7 |
| Combo 5.6.2.01 Diagnostic Image that is a combination between 5.3.0.3 and 5.6.2.01 and can be downloaded on all units | Diagnostic image released in 5.6.2 |
| 5.6.2.01 Diagnostic Image for the following units: 4550T-PWR+, 4526T-PWR+, 4850GTS, 4850GTS-PWR+, 4826GTS, 4826GTS-PWR+ | Diagnostic image released in 5.6.3 |
| Combo 5.6.2.01 Diagnostic Image that is a combination between 5.3.0.3 and 5.6.2.01 and can be downloaded on all units | Diagnostic image released in 5.6.3 |
| 5.6.2.01 Diagnostic Image for the following units: 4550T-PWR+, 4526T-PWR+, 4850GTS, 4850GTS-PWR+, 4826GTS, 4826GTS-PWR+ | Diagnostic image released in 5.6.4 |
| Combo 5.6.2.01 Diagnostic Image that is a combination between 5.3.0.3 and 5.6.2.01 and can be downloaded on all units | Diagnostic image released in 5.6.4 |
| 5.6.2.01 Diagnostic Image for the following units: 4550T-PWR+, 4526T-PWR+, 4850GTS, 4850GTS-PWR+, 4826GTS, 4826GTS-PWR+ | Diagnostic image released in 5.6.5 |

Table continues...

| Image | Location |
|---|------------------------------------|
| Combo 5.6.2.01 Diagnostic Image that is a combination between 5.3.0.3 and 5.6.2.01 and can be downloaded on all units | Diagnostic image released in 5.6.5 |
| 5.7.0.01 Diagnostic Image for the following units: 4550T-PWR+, 4526T-PWR+, 4850GTS, 4850GTS-PWR+, 4826GTS, 4826GTS-PWR+ | Diagnostic image released in 5.7 |
| Combo 5.7.0.01 Diagnostic Image that is a combination between 5.3.0.3 and 5.7.0.01 and can be downloaded on all units | Diagnostic image released in 5.7 |
| 5.8.0.01 Diagnostic Image for the ERS 4800 series. | Diagnostic image released in 5.8 |
| 5.9 Diagnostic Image for the ERS 4800 series. | Diagnostic image released in 5.9 |

Upgrading the software

Check the image software version for upgrading to release 5.9.

Important:

It is necessary to download 5.8.0.1 diagnostic image to the switch before downloading and running 5.9.0.

When upgrading from 5.6.0, 5.6.1, 5.6.2, 5.6.3 and 5.6.4 to 5.9.0, upgrade to 5.6.5 or to 5.7 and then proceed with the download of 5.8.0.1 diagnostic image and 5.9.0 software image.

Before upgrading, capture the system information using the procedure [Capturing the system information](#) on page 23 and then, upgrade to release 5.9 using any one of the following procedures:

- [Upgrading from 5.6.0, 5.6.1, 5.6.2, 5.6.3 or 5.6.4 to 5.7 and then 5.9](#) on page 24
- [Upgrading from 5.6.5, 5.7, 5.8 to 5.9](#) on page 24

If the DHCP snooping or Non-EAP Phone Authentication uses DHCP signature or DHCP relay in the network, see [Upgrade strategy if DHCP snooping DHCP relay or NonEap Phone Authentication use DHCP signature](#) on page 25

Capturing the system information

About this task

Capture and save the system information for future reporting and troubleshooting.

Procedure

1. Enter Global Configuration mode:

```
enable
```

```
configure terminal
```

2. Display the FLASH information.

```
show flash
```

3. Display the consolidated system information.

```
show system verbose
```

4. Save the ASCII and binary configuration.

```
copy running-config tftp address [A.B.C.D | WORD] filename [WORD]
```

```
copy config tftp address [A.B.C.D | WORD] filename [WORD]
```

Upgrading from 5.6.0, 5.6.1, 5.6.2, 5.6.3 or 5.6.4 to 5.7 and then 5.9

About this task

Use the following procedure to upgrade the software image from Release from 5.6.0, 5.6.1, 5.6.2, 5.6.3 or 5.6.4 to 5.7 and then to release 5.9 using ACLI.

Procedure

1. Download 5.8.0.1 diagnostic image from CLI with no-reset.

```
download address [A.B.C.D | WORD] diag 4000_58001_diag.bin no-reset
```

2. Download 5.7.0 software image from CLI with no-reset.

```
download address [A.B.C.D | WORD] image 4000_570009s.img no-reset
```

3. Display the boot information.

```
show boot
```

4. Reboot to run software image v5.7.0 and diagnostic image 5.8.0.1

```
boot
```

The unit reboots and runs software image v5.7.0 and diagnostic image 5.8.0.1

5. Download 5.9.0 software image from CLI.

```
download address [A.B.C.D | WORD] image 4000_590135s.img
```

6. Save the ASCII and binary configuration on the 5.9 build.

```
copy running-config tftp address [A.B.C.D | WORD] filename [WORD]
```

```
copy config tftp address [A.B.C.D | WORD] filename [WORD]
```

Upgrading from 5.6.5, 5.7, 5.8 to 5.9

About this task

Use the following procedure to upgrade 5.6.5, 5.7, 5.8 to 5.9 using ACLI.

Procedure

1. Download 5.8.0.1 diagnostic image from CLI with no-reset.

```
download address [A.B.C.D | WORD] diag 4000_58001_diag.bin no-reset
```


2. Download 5.8 software image from CLI with no-reset.

```
download address [A.B.C.D | WORD] image 4000_590135s.img
```

3. Display the boot information.

```
show boot
```

4. Reboot to run software image v5.9.0 and diagnostic image 5.8.0.1.

```
boot
```

The unit reboots and runs software image v5.9.0 and diagnostic image 5.8.0.1.

5. Save the ASCII and binary configuration on the 5.9 build.

```
copy running-config tftp address [A.B.C.D | WORD] filename [WORD]
```

```
copy config tftp address [A.B.C.D | WORD] filename [WORD]
```

Upgrade strategy if DHCP snooping, DHCP relay or NonEap Phone Authentication use DHCP signature

Use the following upgrade strategy if the DHCP snooping or NonEap Phone Authentication uses DHCP signature or DHCP relay in the network.

| | |
|------------------|--|
| Upgrade strategy | <p>Upgrade all switches in your network if the switches are running software versions prior to the versions mentioned in the following:</p> <ul style="list-style-type: none"> • ERS 25xx: 4.4.3. <p>* Note:</p> <p>Note: ERS 25xx is in End of Sales and currently there is no schedule planned for 4.4.3 software version.</p> <ul style="list-style-type: none"> • ERS 35xx: 5.1.2, 5.2.x • ERS 4xxx: 5.6.4, 5.7.1, 5.8, 5.9 • ERS 5xxx: 6.2.8, 6.3.3, 6.6.x, 7.0 • VSP 7xxx: 10.3.2, 10.3.3 <p>* Note:</p> <p>Upgrade the affected ERS switches closest to the client devices first and then progress towards the core.</p> |
| Issue | <p>In some previous software releases of the Stackable ERS platforms (ERS 2500, 3500, 4000 and 5000 Series) as well as the VSP 7000, a software issue was found to cause malformed DHCP packets as they were forwarded out of the switch.</p> |

Table continues...

| | |
|--|---|
| | <p>In the software releases listed in the preceding row, a code change has been made to stop the malformed packets from being generated and also to discard these malformed packets if the switch is receiving them.</p> <p>Due to the nature of the code change, there are potential interaction scenarios between ERS switches running different code versions which will need to be managed within the context of a network upgrade to releases containing the code changes.</p> |
| <p>Implications if this upgrade strategy is not followed</p> | <p>DHCP packets which previously transitioned the network without issue may now be lost if using ERS switches which utilize mixed agent versions with and without this fix.</p> |
| <p>Workaround if this upgrade strategy is not followed</p> | <ul style="list-style-type: none"> • Disable the DHCP features (DHCP snooping, DHCP relay or DHCP signature authentication) on switches running the older software versions so that the malformed DHCP packets are not generated. Implementation of this option is dependent on the network topology that still allows DHCP packets to reach the DHCP server and may require additional configuration changes. • Disabling DHCP snooping or DHCP relay on switches running the software with the fix will prevent malformed DHCP packets from being dropped if they are received from other switches that are not upgraded. Implementation of this option may also require additional configuration changes to ensure that the DHCP requests reach the DHCP server. |

For more information, see <https://kb.avaya.com/kb/index?page=content&id=SOLN251146>

Updating switch software

You can update the version of software running on the switch through either ACLI or Enterprise Device Manager (EDM).

Before you attempt to change the switch software, ensure that the following prerequisites are in place:

- The switch has a valid IP address and a Trivial File Transfer Protocol (TFTP) or Secure File Transfer Protocol (SFTP) server is on the network that is accessible by the switch and that has the desired software version loaded onto the server.

OR

- If you update the switch software using a USB Mass Storage Device, ensure that the Mass Storage Device has the desired software version and is inserted into the front panel USB port.
- If you use CLI, ensure that CLI is in Privileged EXEC mode.

See the following sections for details about updating switch software:

- [General software upgrade instructions](#) on page 27
- [Changing switch software in CLI](#) on page 27
- [Changing switch software in EDM](#) on page 29

General software upgrade instructions

Use the following procedure to upgrade the Avaya Ethernet Routing Switch 4000 Series software:

1. Backup the binary (and optionally the ASCII) configuration file to a TFTP and/or SFTP server or USB storage device.
2. Upgrade the diagnostic code, if a new version is available. The system will reboot after this step, if you do not specify the **no-reset** option.
3. Upgrade the software image. The system will reboot after this step, if you do not specify the **no-reset** option.
4. If the system was not reset/rebooted after the agent code was updated, you will need to choose a time to reset the system so that the software upgrade will take effect.

Changing switch software in CLI

Perform the following procedure to change the software version that runs on the switch with CLI:

1. Access CLI through the Telnet/SSH protocol or through a Console connection.
2. From the command prompt, use the download command with the following parameters to change the software version:

```
download [{tftp | sftp} address {<A.B.C.D> | <ipv6_address>}] | usb
[unit<unit number>] diag <WORD> | image <WORD> | image-if-newer
<WORD> | poe_module_image <WORD>} [username <WORD> [password] [no-
reset]
```

3. Press **Enter**.

The software download 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 or power off the unit during the download process. Depending on network conditions, this process may take up to 8 minutes if performing an agent code update in a large stack configuration.

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

! **Important:**

During the download process, the management functionality of the switch is locked to prevent configuration changes or other downloads. Normal switching operations will continue to function while the download is in progress.

Job aid—download command parameters

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

Table 5: ACLI download command parameters

| Parameter | Description |
|--|---|
| | The image, image-if-newer, diag, and poe_module_image parameters are mutually exclusive; you can execute only one at a time. The address <ip> and usb parameters or tftp and sftp parameters are mutually exclusive; you can execute only one at a time. |
| tftp address <ipv6 address> <ipv4 address> | The IPv4 or IPv6 address of the TFTP server you use. The address <ipv6_address> <ipv4_address> parameter is optional and if you omit it, the switch defaults to the TFTP server specified by the <code>tftp-server</code> command. |
| sftp address <ipv6 address> <ipv4 address> | The IPv4 or IPv6 address of the SFTP server you use. The address <ipv6_address> <ipv4_address> parameter is optional and if you omit it, the switch defaults to the SFTP server specified by the <code>sftp-server</code> command. When using SFTP, the username parameter can be utilized. Note: SFTP transfer is only possible when the switch/stack is running the secure software image. |
| usb [unit <unit number>] | Specifies that the software download is performed using a USB Mass Storage Device and the front panel USB port. Use the unit number parameter to specify which switch contains the USB in a stack. |
| image <image name> | The name of the software image to be downloaded from the TFTP/SFTP server or USB Mass Storage Device. |
| image-if-newer <image name> | This parameter is the name of the software image to be downloaded from the TFTP/SFTP server or USB Mass Storage Device if it is newer than the currently running image. |

Table continues...

| Parameter | Description |
|--------------------------------|--|
| diag <image name> | The name of the diagnostic image to be downloaded from the TFTP/SFTP server or USB Mass Storage Device. |
| poe_module_image <image name> | The name of the Power over Ethernet plus firmware to be downloaded from the TFTP/SFTP server or USB Mass Storage Device. This option is available only for 4000 Series switches that support Power Over Ethernet plus. |
| no-reset | This parameter forces the switch to not reset after the software download is complete. |
| username <username> [password] | Specifies the username and optionally the password which can be used when connecting to the SFTP server. No password is required if DSA or RSA keys have been appropriately configured. |

Changing switch software in EDM

Use the following procedure to change the software version running on the switch that uses EDM.

1. From the navigation tree, click **Edit**.
2. In the Edit tree, click **File System**.
3. In the work area, on the **Config/Image/Diag file** tab, configure the parameters required to perform the download.
4. On the toolbar, click **Apply**.

The software download occurs automatically after you click **Apply**. This process erases the contents of FLASH memory and replaces it with the new software image.

Do not interrupt the download or power off the unit during the download process. Depending on network conditions, this process may take up to 8 minutes if performing an agent code update in a large stack configuration

When the download is complete, the switch automatically resets and the new software image initiates a self-test.

Important:

During the download process, the management functionality of the switch is locked to prevent configuration changes or other downloads. Normal switching operations will continue to function while the download is in progress.

Job aid—File System screen fields

The following table describes the File System screen fields.

Table 6: File System screen fields

| Field | Description |
|---------------------------|---|
| TftpServerInetAddress | Indicates the IP address of the TFTP or SFTP* server on which the new software images are stored for download. |
| TftpServerInetAddressType | Indicates the type of TFTP or SFTP* server address type: <ul style="list-style-type: none"> • IPv4 • IPv6 |
| BinaryConfigFileName | Indicates the binary configuration file currently associated with the switch. Use this field when you work with configuration files; do not use this field when you download a software image. |
| BinaryConfigUnitNumber | When in standalone mode, and loading a binary configuration file that was created from a stack, this object specifies the unit number of the portion of the configuration file to be extracted and used for the standalone unit configuration. If this value is 0, it is ignored. |
| ImageFileName | Indicates the name of the image file currently associated with the switch. If needed, change this field to the name of the software image to be downloaded. |
| FwFileName (Diagnostics) | The name of the diagnostic file currently associated with the switch. If needed, change this field to the name of the diagnostic software image to be downloaded. |
| UsbTargetUnit | Indicates the unit number of the USB port to be used to upload or download a file. A value of 0 indicates download is via TFTP; a value of 9 indicates a standalone switch and a value of 10 indicates SFTP* server. |
| Action | This group of options represents the actions taken during this file system operation. The options applicable to a software download are <ul style="list-style-type: none"> • dnldConfig: Download a configuration to the switch. • dnldConfigFromSftp: Download a configuration to switch from the SFTP Server*. • dnldConfigFromUsb: Download a configuration to switch using the front panel USB port. • dnldFw: Download a new diagnostic software image to the switch. This option replaces the image regardless of whether it is newer or older than the current image. • dnldFwFromSftp: Download a new diagnostic software image to the switch from the SFTP server. This option replaces the image regardless of whether it is newer or older than the current image*. • dnldFwFromSftpNoReset: Download a new diagnostic software image to the switch from the SFTP server. This |

Table continues...

| Field | Description |
|-------|---|
| | <p>option replaces the image regardless of whether it is newer or older than the current image. After the download is complete, the switch is not reset*.</p> <ul style="list-style-type: none"> • dnldFwFromUsb: Download a new diagnostic software image to the switch from the front panel USB port. This option replaces the image regardless of whether it is newer or older than the current image. • dnldFwNoReset: Download a new diagnostic software image to the switch. This option replaces the image regardless of whether it is newer or older than the current image. After the download is complete, the switch is not reset. • dnldImg: Download a new software image to the switch. This option replaces the software image on the switch regardless of whether it is newer or older than the current image. • dnldImgFromSftp: Download a new software image to the switch from the SFTP server. This option replaces the image regardless of whether it is newer or older than the current image*. • dnldImgFromSftpNoReset: Download a new software image to the switch from the SFTP server. This option replaces the software image on the switch regardless of whether it is newer or older than the current image. After the download is complete, the switch is not reset*. • dnldImgFromUsb: Download a new software image to the switch using the front panel USB port. This option replaces the image regardless of whether it is newer or older than the current image. • dnldImgIfNewer: Download a new software image to the switch only if it is newer than the one currently in use. • dnldImgNoReset: Download a new software image to the switch. This option replaces the software image on the switch regardless of whether it is newer or older than the current image. After the download is complete, the switch is not reset. • upldConfig: Upload a configuration to the switch from a designated location. • upldConfigToSftp: Upload binary config to SFTP server*. • upldConfigToUsb: Upload binary config to USB port • upldImgToUsb: Upload image to USB port |

Table continues...

| Field | Description |
|--------|--|
| Status | Display the status of the last action that occurred since the switch last booted. The values that are displayed are <ul style="list-style-type: none"> • other: No action occurred since the last boot. • inProgress: The selected operation is in progress. • success: The selected operation succeeded. • fail: The selected operation failed. |

* Note: SFTP functions are only supported when running the Secure software image.

Setting IP parameters with the ip.cfg file on a USB memory device

You can load the ip.cfg file from the USB memory device as a means of pre-staging the IP address and other parameters for the operation of a switch.

You can specify one or more of the optional parameters in the ip.cfg file.

The following table describes the ip.cfg file parameters:

Table 7: ip.cfg file optional parameters

| Parameter | Description |
|-----------------------|--|
| IP <xx.xx.xx.xx> | Specifies the IP address for the switch. Example: 192.168.22.1 |
| Mask <xx.xx.xx.xx> | Specifies the network mask. Example: 255.255.255.0 |
| Gateway <xx.xx.xx.xx> | Specifies the default gateway. Example: 181.30.30.254 |
| SNMPread <string> | Specifies the SNMP read community string. Example: public |
| SNMPwrite <string> | Specifies the SNMP write community string. Example: private |
| VLAN <number> | Specifies the management VLAN-ID. Example: VLAN 1 |
| USBdiag <string> | Specifies the file name of the diagnostic image to load from the USB device. Example: ers4800/4800_580001_diag.bin |
| USBascii <string> | Specifies the file name of the ASCII configuration file to load from the USB device. Example: customer1.cfg |

Table continues...

| Parameter | Description |
|-----------------------------------|--|
| USBagent <string> | Specifies the file name of the runtime agent image to load from the USB device. Example: ers4800/4800_580004.img |
| NEXTIP, NEXTMask, and NEXTGateway | Specifies IP addresses, network mask and gateway to be used once the switch is rebooted. |

The ip.cfg file loads information from the ASCII configuration file in order of precedence and any lines commencing with a # character are treated as a comment and not processed.

If you boot up an ERS 4000 switch in factory default configuration with a USB Mass Storage device inserted which contains the following example ip.cfg file, the stack IP becomes 181.30.30.113 with the appropriate mask and gateway regardless of what IP address is in the config.txt file, as the IP commands are processed after the ASCII file is processed:

```
USBascii config.txt
IP 181.30.30.113
Mask 255.255.255.0
Gateway 181.30.30.254
```

If the ip.cfg file contains commands (as follows) where the IP information is specified before any ASCII scripts, then the IP Address will be what is specified in the ip.cfg or if the ASCII file contains IP address commands these will take precedence as they are processed last:

```
IP 181.30.30.113
Mask 255.255.255.0
Gateway 181.30.30.254
USBascii ip.txt
```

It should be noted that if the ip.cfg file specifies an image or agent code, the switch loads the software, even if the same version is already installed on the switch. This is the correct operation of the system as ip.cfg ensures that the appropriate software is always upgraded on the units.

The Avaya Ethernet Routing Switch 4000 restarts with factory default settings and attempts to read the ip.cfg file from an installed USB drive within three minutes. The Avaya Ethernet Routing Switch 4000 banner page appears while the switch retrieves the ip.cfg file.

Important:

To use the ip.cfg capability, the switch must be in default configuration and a USB stick with the ip.cfg file in the root directory must be present. The switch will attempt to read the ip.cfg if present within the first 3 minutes of switch operation. If a console is connected to the switch during the boot process and you require ip.cfg to operate, then DO NOT attempt to access the switch for at least three minutes. This is necessary to give the switch sufficient time to detect and process ip.cfg functions.

The system does not display a message to indicate the ip.cfg file download from the USB memory device is in progress.

Use the following procedure to check the status of the download three minutes after the Avaya banner page displays:

1. Press CTRL and y keys together.

Two possible responses indicate a pass or fail status.

- Pass: The system provides an ACLI prompt.
- Fail: The system prompts you for an IP address.

You can confirm the successful download with the `show ip` command. If the USB ip.cfg file download succeeded, all parameters read from the ip.cfg file show as present in the switch and become part of the runtime configuration.

Save the configuration with the ACLI command, `copy config nvram`. After the successful ip.cfg file download from the USB memory device, you can manage the switch through Telnet and SNMP.

If you load any diagnostic or agent images with ip.cfg, you must have the diagnostic or agent images on the same USB memory device. To ensure that diagnostic and agent image downloaded successfully, check in the system log or audit log.

Hardware and software compatibility

This section provides hardware and software compatibility information.

XFP, SFP and SFP+ Transceiver Compatibility

The following table lists the XFP, SFP and SFP+ transceiver compatibility.

Table 8: XFP, SFP, and SFP + transceiver compatibility

| Supported XFPs, SFPs and SFP+s | Description | Minimum software version | Part Number |
|---|-----------------------------------|--------------------------|--------------|
| Small Form Factor Pluggable (SFP) transceivers | | | |
| 1000BASE-SX SFP | 850 nm LC connector | 5.0.0 | AA1419013-E5 |
| 1000BASE-SX SFP | 850 nm MT-RJ connector | 5.0.0 | AA1419014-E5 |
| 1000BASE-LX SFP | 1310 nm LC connector | 5.0.0 | AA1419015-E5 |
| 1000BASE-CWDM SFP | 1470 nm LC connector, up to 40 km | 5.0.0 | AA1419025-E5 |
| 1000BASE-CWDM SFP | 1490 nm LC connector, up to 40 km | 5.0.0 | AA1419026-E5 |
| 1000BASE-CWDM SFP | 1510 nm LC connector, up to 40 km | 5.0.0 | AA1419027-E5 |
| 1000BASE-CWDM SFP | 1530 nm LC connector, up to 40km | 5.0.0 | AA1419028-E5 |
| 1000BASE-CWDM SFP | 1550 nm LC connector, up to 40 km | 5.0.0 | AA1419029-E5 |

Table continues...

| Supported XFPs, SFPs and SFP+s | Description | Minimum software version | Part Number |
|--------------------------------|--|--------------------------|--------------|
| 1000BASE-CWDM SFP | 1570 nm LC connector, up to 40 km | 5.0.0 | AA1419030-E5 |
| 1000BASE-CWDM SFP | 1590 nm LC connector, up to 40 km | 5.0.0 | AA1419031-E5 |
| 1000BASE-CWDM SFP | 1610 nm LC connector, up to 40 km | 5.0.0 | AA1419032-E5 |
| 1000BASE-CWDM SFP | 1470 nm LC connector, up to 70 km | 5.0.0 | AA1419033-E5 |
| 1000BASE-CWDM SFP | 1490 nm LC connector, up to 70 km | 5.0.0 | AA1419034-E5 |
| 1000BASE-CWDM SFP | 1510 nm LC connector, up to 70 km | 5.0.0 | AA1419035-E5 |
| 1000BASE-CWDM SFP | 1530 nm LC connector, up to 70 km | 5.0.0 | AA1419036-E5 |
| 1000BASE-CWDM SFP | 1550 nm LC connector, up to 70 km | 5.0.0 | AA1419037-E5 |
| 1000BASE-CWDM SFP | 1570 nm LC connector, up to 70 km | 5.0.0 | AA1419038-E5 |
| 1000BASE-CWDM SFP | 1590 nm LC connector, up to 70 km | 5.0.0 | AA1419039-E5 |
| 1000BASE-CWDM SFP | 1610 nm LC connector, up to 70 km | 5.0.0 | AA1419040-E5 |
| 1000BSE-T SFP | Category 5 copper unshielded twisted pair (UTP), RJ-45 connector | 5.0.0 | AA1419043-E6 |
| 1000BASE-SX DDI SFP | 850 nm DDI LC connector | 5.2.0 | AA1419048-E6 |
| 1000BASE-LX DDI SFP | 1310 nm DDI LC connector | 5.2.0 | AA1419049-E6 |
| 1000BaseXD DDI SFP | 1310nm LC connector | 5.4.0 | AA1419050-E6 |
| 1000BaseXD DDI SFP | 1550nm LC connector | 5.4.0 | AA1419051-E6 |
| 1000BaseZX DDI SFP | 1550nm LC connector | 5.4.0 | AA1419052-E6 |
| 1000BaseCWDM SFP | 1470nm LC connector, up to 40km | 5.4.0 | AA1419053-E6 |
| 1000BaseCWDM DDI SFP | 1490nm LC connector, up to 40km | 5.4.0 | AA1419054-E6 |
| 1000BaseCWDM DDI SFP | 1510nm LC connector, up to 40km | 5.4.0 | AA1419055-E6 |
| 1000BaseCWDM DDI SFP | 1530nm LC connector, up to 40km | 5.4.0 | AA1419056-E6 |

Table continues...

Important notices

| Supported XFPs, SFPs and SFP+s | Description | Minimum software version | Part Number |
|--------------------------------|--|--------------------------|--------------|
| 1000BaseCWDM DDI SFP | 1570nm LC connector, up to 40km | 5.4.0 | AA1419058-E6 |
| 1000BaseCWDM DDI SFP | 1590nm LC connector, up to 40km | 5.4.0 | AA1419059-E6 |
| 1000BaseCWDM DDI SFP | 1610nm LC connector, up to 40km | 5.4.0 | AA1419060-E6 |
| 1000BaseCWDM DDI SFP | 1470nm LC connector, up to 70km | 5.4.0 | AA1419061-E6 |
| 1000BaseCWDM DDI SFP | 1490nm LC connector, up to 70km | 5.4.0 | AA1419062-E6 |
| 1000BaseCWDM DDI SFP | 1510nm LC connector, up to 70km | 5.4.0 | AA1419063-E6 |
| 1000BaseCWDM DDI SFP | 1530nm LC connector, up to 70km | 5.4.0 | AA1419064-E6 |
| 1000BaseCWDM DDI SFP | 1550nm LC connector, up to 70km | 5.4.0 | AA1419065-E6 |
| 1000BaseCWDM DDI SFP | 1570nm LC connector, up to 70km | 5.4.0 | AA1419066-E6 |
| 1000BaseCWDM DDI SFP | 1590nm LC connector, up to 70km | 5.4.0 | AA1419067-E6 |
| 1000BaseCWDM DDI SFP | 1610nm LC connector, up to 70km | 5.4.0 | AA1419068-E6 |
| 1000BASE-BX bidirectional SFP | 1310 nm, single fiber LC (Must be paired with AA1419070-E5) | 5.2.0 | AA1419069-E5 |
| 1000BASE-BX bidirectional SFP | 1490 nm, single fiber LC (Must be paired with AA1419069-E5) | 5.2.0 | AA1419070-E5 |
| 1000Base DDI SFP | 1550nm LC connector, 120 km | 5.4.0 | AA1419071-E6 |
| 100BASE-FX SFP | 1310 nm LC connector | 5.0.0 | AA1419074-E6 |
| T1 SFP | 1.544 Mbps Fast Ethernet to T1 remote bridge, RJ-48C | 5.1.0 | AA1419075-E6 |
| 1000BASE-BX SFP | 1310nm LC connector, up to 40km (Must be paired with AA1419077-E6) | 5.3.0 | AA1419076-E6 |
| 1000BASE-BX SFP | 1490nm LC connector, up to 40km (Must be | 5.3.0 | AA1419077-E6 |

Table continues...

| Supported XFPs, SFPs and SFP+s | Description | Minimum software version | Part Number |
|--|--|--------------------------|--------------|
| | paired with AA1419076-E6) | | |
| 10 Gigabit Ethernet XFP Transceivers | | | |
| 10GBASE-LR/LW XFP | 1-port 1310 nm SMF, LC connector | 5.2.0 | AA1403001-E5 |
| 10GBASE-SR XFP | 1-port 850 nm MMF, LC connector | 5.1.0 | AA1403005-E5 |
| 10GBASE-ZR/ZW XFP | 1550 nm SMF LC connector | 5.1.0 | AA1403006-E5 |
| 10GBASE-LRM XFP | 1310 nm, up to 220 m over MMF, DDI | 5.2.0 | AA1403007-E6 |
| 10 Gigabit Ethernet SFP+ Transceivers | | | |
| 10GBASE-LR SFP+ | 1-Port 10 Gigabit-LR SFP + (LC) Single mode up to 10 km | 5.6.0 | AA1403011-E6 |
| 10GBASE-ER SFP+ | 1-Port 10 Gigabit-ER SFP + (LC) Single mode up to 40 km | 5.6.0 | AA1403013-E6 |
| 10GBASE-SR SFP+ | 1-Port 10 Gigabit-SR SFP + (LC) Multi-mode fibre up to 300 m | 5.6.0 | AA1403015-E6 |
| 10GBASE-LRM SFP+ | 1-Port 10 Gigabit-LRM SFP+ (LC) Multi-mode fibre up to 220 m | 5.6.0 | AA1403017-E6 |
| 10GDAC-10M SFP+ | SFP+ direct attach cable 10 m | 5.6.0 | AA1403018-E6 |
| 10GDAC-3M SFP+ | SFP+ direct attach cable 3 m | 5.6.0 | AA1403019-E6 |
| 10GDAC-5M SFP+ | SFP+ direct attach cable 5 m | 5.6.0 | AA1403020-E6 |
| 10GBASE ZR/ZW SFP+ | 1550 nm 80km SMF | 5.8.0 | AA1403016-E6 |
| 10GBASE-ER CWDM SFP+ | 1471 nm Wavelength up to 40km | 5.9 | AA1403153-E6 |
| 10GBASE-ER CWDM SFP+ | 1491 nm Wavelength up to 40km | 5.9 | AA1403154-E6 |
| 10GBASE-ER CWDM SFP+ | 1511 nm Wavelength up to 40km | 5.9 | AA1403155-E6 |
| 10GBASE-ER CWDM SFP+ | 1531 nm Wavelength up to 40km | 5.9 | AA1403156-E6 |

Table continues...

| Supported XFPs, SFPs and SFP+s | Description | Minimum software version | Part Number |
|--------------------------------|-------------------------------|--------------------------|--------------|
| 10GBASE-ER CWDM SFP+ | 1551 nm Wavelength up to 40km | 5.9 | AA1403157-E6 |
| 10GBASE-ER CWDM SFP+ | 1571 nm Wavelength up to 40km | 5.9 | AA1403158-E6 |
| 10GBASE-ER CWDM SFP+ | 1591 nm Wavelength up to 40km | 5.9 | AA1403159-E6 |
| 10GBASE-ER CWDM SFP+ | 1611 nm Wavelength up to 40km | 5.9 | AA1403160-E6 |
| 10GBASE-ER CWDM SFP+ | 1471 nm Wavelength up to 70km | 5.9 | AA1403161-E6 |
| 10GBASE-ER CWDM SFP+ | 1491 nm Wavelength up to 70km | 5.9 | AA1403162-E6 |
| 10GBASE-ER CWDM SFP+ | 1510nm Wavelength up to 70km | 5.9 | AA1403163-E6 |
| 10GBASE-ER CWDM SFP+ | 1531 nm Wavelength up to 70km | 5.9 | AA1403164-E6 |
| 10GBASE-ER CWDM SFP+ | 1551 nm Wavelength up to 70km | 5.9 | AA1403165-E6 |
| 10GBASE-ER CWDM SFP+ | 1571 nm Wavelength up to 70km | 5.9 | AA1403166-E6 |
| 10GBASE-ER CWDM SFP+ | 1591 nm Wavelength up to 70km | 5.9 | AA1403167-E6 |
| 10GBASE-ER CWDM SFP+ | 1611 nm Wavelength up to 70km | 5.9 | AA1403168-E6 |
| 10GBASE-BX10 SFP+ | 10 km | 5.10 | AA1403169-E6 |
| 10GBASE-BX10 SFP+ | 10 km | 5.10 | AA1403170-E6 |

For more information, see *Installing Avaya Ethernet Routing Switch 4800 Series*, NN47205-300 and *Installing Transceivers and Optical Components on Avaya Ethernet Routing Switch 4800 Series*, NN47205-301.

Supported standards, RFCs and MIBs

The following sections list the standards, RFCs and MIBs supported in Release 5.9.

Standards

The following IEEE Standards contain information pertinent to the Avaya Ethernet Routing Switch 4000 Series:

- IEEE 802.1 (Port VLAN, Port & Protocol VLANs, VLAN Name, Protocol Entity)
- IEEE 802.1AB (Link Layer Discovery Protocol)
- IEEE 802.1aq (Shortest Path Bridging)
- IEEE 802.1D (Standard for Spanning Tree Protocol)
- IEEE 802.1p (Prioritizing)
- IEEE 802.1Q (VLAN Tagging)
- IEEE 802.1s (Multiple Spanning Trees)
- IEEE 802.1v (VLAN Classification by Protocol and Port)
- IEEE 802.1w (Rapid Reconfiguration of Spanning Tree)
- IEEE 802.1X (EAPOL)
- 802.1X-2004 (Port Based Network Access Control)
- IEEE 802.3 (Ethernet)
- IEEE 802.3ab (1000BASE-T)
- IEEE 802.3ab (Gigabit Ethernet over Copper)
- IEEE 802.3ad (Link Aggregation)
- IEEE 802.3ae (10Gb/s Ethernet)
- IEEE 802.3ae (10GBASE-LR/SR/LM)
- IEEE 802.3af (Power over Ethernet)
- IEEE 802.3at (Power over Ethernet)
- IEEE 802.3u (100BASE-FX)
- IEEE 802.3u (100BASE-TX)
- IEEE 802.3u (Fast Ethernet)
- IEEE 802.3x (Flow Control)
- IEEE 802.3z (1000BASE-SX)
- IEEE 802.3z (1000BASE-x)
- IEEE 802.3z (Gigabit Ethernet over Fiber-Optic)
- IEEE P802.3ak (10GBASE-CX4)

RFCs

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

- RFC 768 UDP
- RFC 783 TFTP
- RFC 792 ICMP
- RFC 793 TCP
- RFC 826 ARP
- RFC 854 Telnet
- RFC 894 IP over Ethernet
- RFC 903 Reverse ARP
- RFC 950 / RFC 791 IP
- RFC 951 BootP
- RFC 958 NTP
- RFC 1058 RIPv1
- RFC 1112 IGMPv1
- RFC 1122 Requirements for Internet hosts
- RFC 1155 SMI
- RFC 1156 MIB for management of TCP/IP
- RFC 1157 SNMP
- RFC 1212 Concise MIB definitions
- RFC 1213 MIB-II
- RFC 1215 SNMP Traps Definition
- RFC 1340 Assigned Numbers
- RFC 1350 TFTP
- RFC 1354 IP Forwarding Table MIB
- RFC 1398 Ethernet MIB
- RFC 1442 SMI for SNMPv2
- RFC 1450 MIB for SNMPv2
- RFC 1493 Bridge MIB
- RFC 1519 Classless Inter-Domain Routing (CIDR)
- RFC 1591 DNS Client
- RFC 1650 Definitions of Managed Objects for Ethernet-like Interfaces
- RFC 1724 / RFC 1389 RIPv2 MIB extensions

- RFC 1769 / RFC 1361 SNMP
- RFC 1886 DNS extensions to support IPv6
- RFC 1908 Coexistence between SNMPv1 & v2
- RFC 1945 HTTP v1.0
- RFC 1981 Path MTU Discovery for IPv6
- RFC 2011 SNMP v2 MIB for IP
- RFC 2012 SNMP v2 MIB for TDP
- RFC 2013 SNMP v2 MIB for UDP
- RFC 2096 IP Forwarding Table MIB
- RFC 2131 / RFC 1541 Dynamic Host Configuration Protocol (DHCP)
- RFC 2138 RADIUS Authentication
- RFC 2139 RADIUS Accounting
- RFC 2236 IGMPv2
- RFC 2328 / RFC 2178 / RFC 1583 OSPFv2
- RFC 2453 RIPv2
- RFC 2454 IPv6 UDP MIB
- RFC 2460 IPv6 Specification
- RFC 2461 IPv6 Neighbor Discovery
- RFC 2464 Transmission of IPv6 packets over Ethernet
- RFC 2474 Differentiated Services (DiffServ)
- RFC 2541 Secure Shell protocol architecture
- RFC 2597 Assured Forwarding PHB Group
- RFC 2598 Expedited Forwarding PHB Group
- RFC 2616 / RFC 2068 HTTP 1.1
- RFC 2660 HTTPS - Secure Web
- RFC 2665 / RFC 1643 Ethernet MIB
- RFC 2674 Q-BRIDGE-MIB
- RFC 2710 Multicast Listener Discovery version 1 (MLDv1)
- RFC 2715 Interoperability Rules for Multicast Routing Protocols
- RFC 2787 Definitions of Managed Objects for VRRP
- RFC 2819 / RFC 1757 / RFC 1271 RMON
- RFC 2851 Textual Conventions for Internet network addresses
- RFC 2863 / RFC 2233 / RFC 1573 Interfaces Group MIB
- RFC 2865 RADIUS
- RFC 2866 / RFC 2138 RADIUS Accounting

Important notices

- RFC 2869 RADIUS Extensions—Interim updates
- RFC 2933 IGMP MIB
- RFC 3058 RADIUS Authentication
- RFC 3140 / RFC 2836 Per-Hop Behavior Identification codes
- RFC 3162 IPv6 RADIUS Client
- RFC 3246 Expedited Forwarding Per-Hop Behavior
- RFC 3260 / RFC 2475 Architecture for Differentiated Services
- RFC 3289 DiffServ MIBs
- RFC 3410 / RFC 2570 SNMPv3
- RFC 3411 / RFC 2571 SNMP Frameworks
- RFC 3412 / RFC 2572 SNMP Message Processing
- RFC 3413 / RFC 2573 SNMPv3 Applications
- RFC 3414 / RFC 2574 SNMPv3 USM
- RFC 3415 / RFC 2575 SNMPv3 VACM
- RFC 3416 / RFC 1905 SNMP
- RFC 3417 / RFC 1906 SNMP Transport Mappings
- RFC 3418 / RFC 1907 SNMPv2 MIB
- RFC 3513 IPv6 Addressing Architecture
- RFC 3484 Default Address Selection for IPv6
- RFC 3569 Overview of Source Specific Multicast (SSM)
- RFC 3576 Dynamic Authorization Extensions to RADIUS
- RFC 3579 RADIUS support for EAP
- RFC 3584 / RFC 2576 Co-existence of SNMP v1/v2/v3
- RFC 3587 IPv6 Global Unicast Format
- RFC 3596 DNS extensions to support IPv6
- RFC 3621 Power over Ethernet MIB
- RFC 3635 Definitions of Managed Objects for the Ethernet-like Interface Types
- RFC 3768 / RFC 2338 VRRP
- RFC 3810 Multicast Listener Discovery version 2 (MLDv2)
- RFC 3826 AES for the SNMP User-based Security Model
- RFC 3917 Requirements for IPFIX
- RFC 3954 Netflow Services Export v9
- RFC 3993 DHCP Subscriber-ID sub-option
- RFC 4007 Scoped Address Architecture
- RFC 4022 / RFC 2452 TCP MIB

- RFC 4113 UDP MIB
- RFC 4133 / RFC 2737 / RFC 2037 Entity MIB
- RFC 4193 Unique Local IPv6 Unicast Addresses
- RFC 4213 Transition Mechanisms for IPv6 Hosts & Routers
- RFC 4250 SSH Protocol Assigned Numbers
- RFC 4251 SSH Protocol Architecture
- RFC 4252 SSH Authentication Protocol
- RFC 4253 SSH Transport Layer Protocol
- RFC 4254 SSH Connection Protocol
- RFC 4291 IPv6 Addressing Architecture
- RFC 4293 IPv6 MIB
- RFC 4344 SSH Transport layer Encryption Modes
- RFC 4345 Improved Arcfour Modes for SSH
- RFC 4429 Optimistic Duplicate Address Detection (DAD) for IPv6
- RFC 4432 SSHv2 RSA
- RFC 4443 / RFC 2463 ICMPv6 for IPv6
- RFC 4541 Considerations for IGMP and MLD snooping switches
- RFC 4601 Protocol Independent Multicast – Sparse Mode (PIM-SM) Protocol Specification
- RFC 4604 / RFC 3376 IGMPv3
- RFC 4673 RADIUS Dynamic Authorization Server MIB
- RFC 4675 RADIUS Attributes for VLAN and Priority Support
- RFC 4716 SSH Public Key File Format
- RFC 4750 / RFC 1850 / RFC 1253 OSPF v2 MIB
- RFC 4789 SNMP over IEEE 802 Networks
- RFC 4861 Neighbor Discovery for IPv6
- RFC 4862 / RFC 2462 IPv6 Stateless Address Auto-Configuration
- RFC 5010 / RFC 3046 DHCP Relay Agent Information Option 82
- RFC 5101 Specification of the IP Flow Information Export (IPFIX) Protocol for Exchange of IP Traffic
- RFC 5176 / RFC 3576 Dynamic Authorization Extensions to RADIUS
- RFC 5186 IGMPv3/MLDv2 and Multicast Routing Interaction
- RFC 5905 / RFC 4330 / RFC 1305 NTPv4
- RFC 6329 IS-IS Extensions Supporting Shortest Path Bridging

IPv6 specific RFCs

The following lists supported IPv6 specific RFCs:

- RFC 1981 Path MTU Discovery for IPv6
- RFC 1886 DNS Extensions to support IPv6
- RFC 1981 Path MTU Discovery for IPv6
- RFC 2460 Internet Protocol v6 (IPv6) Specification
- RFC 2461 Neighbor Discovery for IPv6
- RFC 2464 Transmission of IPv6 Packets over Ethernet Networks
- RFC 2710 Multicast Listener Discovery version 1 (MLDv1)
- RFC 3162 RADIUS and IPv6
- RFC 3484 Default Address Selection for IPv6
- RFC 3810 Multicast Listener Discovery version 2 (MLDv2)
- RFC 4007 IPv6 Scoped Address Architecture
- RFC 4193 Unique Local IPv6 Unicast Addresses
- RFC 4291 IPv6 Addressing Architecture
- RFC 4429 Optimistic Duplicate Address Detection (DAD) for IPv6
- RFC 4443 ICMPv6 for IPv6
- RFC 4541 IGMP and MLD snooping
- RFC 4861 Neighbor Discovery for IPv6
- RFC 4862 IPv6 Stateless Address Auto-Configuration
- RFC 5095 Deprecation of Type 0 Routing Headers in IPv6

The following table lists partially supported IPv6 specific RFCs:

Table 9: Partially Supported IPv6 specific RFCs

| Standard | Description | Compliance |
|----------|--|---|
| RFC 2462 | IPv6 Stateless Address Auto-configuration | Auto-configuration of link local addresses only |
| RFC 2462 | Auto-configuration of link local addresses | Supports creation of link-local addresses in section 5.3, and duplicate address detection in section 5.4. |
| RFC 4007 | Scoped Address Architecture | Supports some behavior such as source address selection when |

Table continues...

| Standard | Description | Compliance |
|----------|--|--|
| | | transmitting packets to a specific scope, but there is not a zone concept in the code. |
| RFC 4022 | Management Information Base for TCP | Mostly supported. |
| RFC 4113 | Management Information Base for UDP | Mostly supported. |
| RFC 4213 | Transition Mechanisms for IPv6 Hosts and Routers | Supports dual stack. No support for tunneling yet. |
| RFC 4291 | IPv6 Addressing Architecture | Supports earlier version of RFC (3513). |
| RFC 4293 | Management Information Base for IP | Mostly supported. |
| RFC 4443 | Internet Control Message Protocol (ICMPv6) | Supports earlier version of RFC (2463). |

Chapter 4: Resolved issues

Use the information in this section to learn more about issues that have been resolved in Release 5.9.2.

| Reference number | Description |
|------------------|--|
| ERS454800-963 | Password expiration message received when accessing switch with telnet. |
| ERS454800-1160 | SPBM: problems encountered when traffic goes over redundant NNI links on a non-base unit (NBU). |
| ERS454800-1166 | Unable to authenticate NEAP devices in Release 5.9 software. |
| ERS454800-1174 | EAPOL configuration lost on NBU switches after upgrading from Release 5.8.1 to Release 5.9 under heavily loaded EAP clients. |
| ERS454800-1183 | Admin users locked out after expiration of aging-time even though password security is disabled. |
| ERS454800-1202 | L2VSN VLANs not aging properly on ERS 4000. |
| ERS454800-1204 | Configuration for user access credentials are lost after switch upgrade. |
| ERS454800-1289 | OSPF neighborship stuck at Exstart State - Graceful Restart initiated on its peer router. |

Chapter 5: Known Issues and Limitations

Use the information in this section to learn more about known issues and limitations from Release 5.7 to 5.9.2. Where appropriate, use workarounds provided for the known issues and limitations.

Known issues and limitations for Release 5.9.2

The following table lists known issues and limitations for software Release 5.9.2.

| Reference number | Description |
|------------------|--|
| ERS454800–2127 | ERS 4000: Auto-negotiation setting change to custom after upgrade. Workaround: After upgrading the software image from 5.6.x to >=5.7.0 releases the port speed and auto-negotiation-advertisements settings must be defaulted for the SFP+ ports (25-26 on ERS4826 and 49-50 on ERS4850) to avoid link issues on these ports. In order to correct the settings after the upgrade, run <code>default auto-negotiation-advertisements port <25-26 49-50></code> followed by <code>default speed port <25-26 49-50></code> . |
| ERS454800–806 | MHSA: CPU stuck in 100% for almost 50 seconds after clearing CAM (EAP client authenticated) |
| ERS454800–1053 | FA with EAP: Multiple Standard VLANs/VSA BINDs with ISID=0 are not supported in MHSA mode in the SBP topology. WORKAROUND: Standard VLAN must be changed to (VLAN:ISID) binding. |
| ERS454800–1294 | RFC 3576: Inconsistency between Release 5.9 and 5.9.2 when sending a CoA or Disconnect message for an EAP client with NAS-IP_Address and NAS-Port attributes. All RFC 3576 requests should select a RADIUS authenticated client. Requests using only the port number as the client selection attribute have no impact on port or client configuration. |
| ERS454800–1312 | EAP: FA: In MHSA mode, an FA Server functioning in SPBM mode rejects VSAs from the RADIUS server that contain VLAN/I-SID bindings with an I-SID value of 0. |
| ERS454800–1315 | SSH: It may take close to five minutes to generate an SSH key. |
| ERS454800–1320 | DOSFS: Boot ASCII configuration script processing fails when booting from script block while connected with SSH. |

Table continues...

| Reference number | Description |
|------------------|---|
| ERS454800–1326 | EAPOL Log message is not generated when a RADIUS assigned VLAN cannot be created. |

IPv6 limitations

The following table lists limitations specific to the implementation of IPv6 in this release.

Table 10: IPv6 limitations

| Reference number | Description |
|------------------|--|
| 1 | IPv6 Management should only be configured from a base unit in stack. |
| 2 | Only one IPv6 address can be configured and it will be associated to the management VLAN. |
| 3 | No DHCP/BOOTP, Stateless Address Autoconfiguration or IPv6 loopback address is supported for the management address. |
| 4 | The only IPv4 to IPv6 transition mechanism supported is dual-stack (no tunnelling). |