Release Notes for Avaya Virtual Services Platform 9000

Release 4.1
NN46250-401
Issue 09.05
July 2016

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Contents

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) and a list of resolved issues. This document also describes known limitations and expected behaviors that may first appear to be issues.

Related resources

Documentation

See *Documentation Reference for Avaya Virtual Services Platform 9000,* NN46250-100 for a list of the documentation for this product.

Training

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

Course code	Course title
4D00010E	Knowledge Access: ACIS - Avaya ERS 8000 and VSP 9000 Implementation
5D00040E	Knowledge Access: ACSS - Avaya VSP 9000 Support

Viewing Avaya Mentor videos

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

About this task

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

Procedure

- To find videos on the Avaya Support website, go to http://support.avaya.com and perform one of the following actions:
  - In **Search**, type `Avaya Mentor Videos` to see a list of the available videos.
  - 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:**

  Videos are not available for all products.

Subscribing to e-notifications

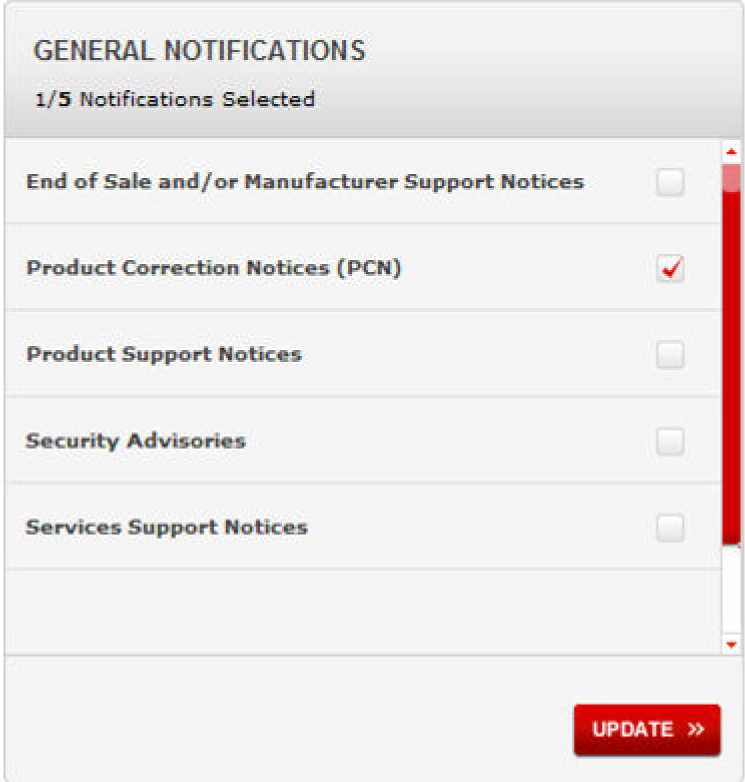
Subscribe to e-notifications to receive an email notification when documents are added to or changed on the Avaya Support website.

About this task

You can subscribe to different types of general notifications, for example, Product Correction Notices (PCN), which apply to any product or a specific product. You can also subscribe to specific types of documentation for a specific product, for example, Application & Technical Notes for Virtual Services Platform 7000.

Procedure

1. In an Internet browser, go to https://support.avaya.com.
2. Type your username and password, and then click **Login**.
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**.



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1/5 Notifications Selected

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6. Click **OK**.
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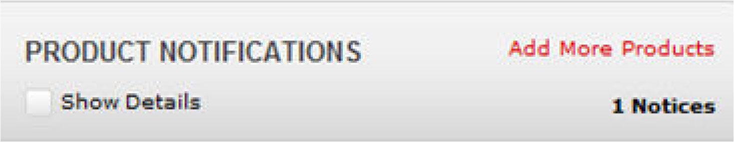

PRODUCT NOTIFICATIONS

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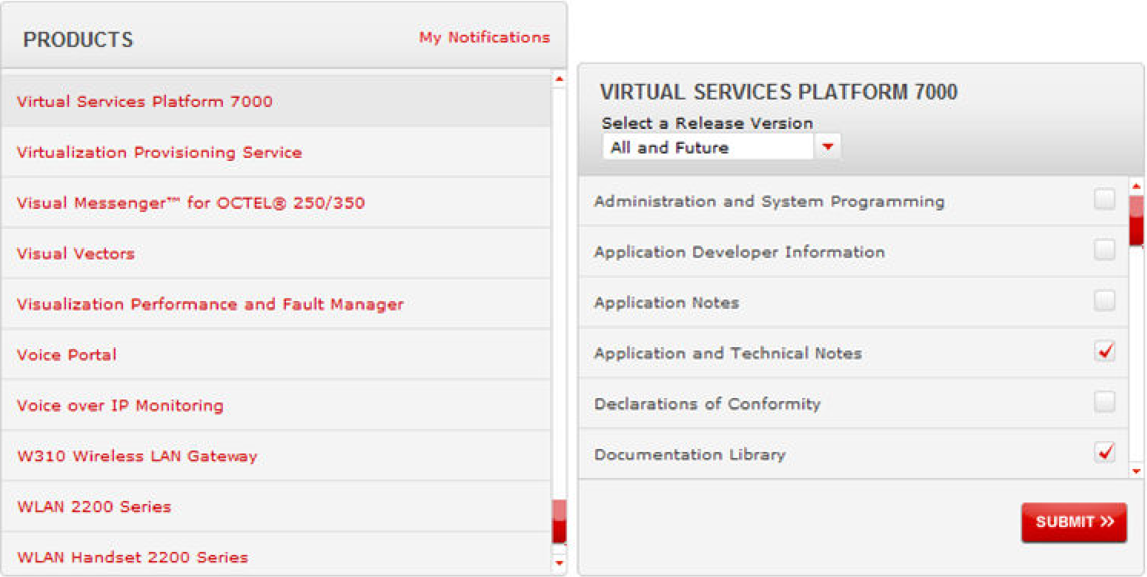
1 Notices

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.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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.

Searching a documentation collection

On the Avaya Support website, you can download the documentation library for a specific product and software release to perform searches across an entire document collection. For example, you can perform a single, simultaneous search across the collection to quickly find all occurrences of a particular feature. Use this procedure to perform an index search of your documentation collection.

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**.

   The search results show the number of documents and instances found. You can sort the search results by Relevance Ranking, Date Modified, Filename, or Location. The default is Relevance Ranking.

Chapter 2: New in this release

The following sections describe what is new in *Release Notes for Avaya Virtual Services Platform 9000,* NN46250-401, for Release 4.1.

Features in Release 4.1

See the following sections for information about feature changes.

New feature support

Release 4.1 adds the following new software features:

- IPv6 support is reintroduced for first generation I/O modules and introduced for second generation I/O modules. Configuration for IPv6 is available using Avaya Command Line Interface (ACLI) and Enterprise Device Manager (EDM).

  Note:

  Border Gateway Protocol Plus (BGP+), IPv6 tunnels, IPv6 Shortcuts, and IPv6 filters are not supported in this release.

- Media Access Control Security (MACsec) on the Avaya Virtual Services Platform 9000 9048XS-2 Input/Output (I/O) module.
- Product Licensing and Delivery System (PLDS) as the license order, delivery, and management tool. Pre-existing licenses continue to be supported. New license generation keys are only provided through PLDS.

For more information about new software features, see:

- New features on page 15.
- Software and hardware scaling capabilities on page 34.
- Features and hardware models by release on page 75.
- Feature licensing on page 27.

New hardware support

Release 4.1 adds support for new SFP+ and QSFP+ modules and cables. For more information see, New hardware supported on page 17.

Other changes

There are no other changes in this release.

Chapter 3: Important notices and new features

This section describes the supported hardware and software features of the Avaya Virtual Services Platform and provides important information for this release.

Installing 9048XS-2 or 9012QQ-2 I/O modules

Use this procedure to install the 9048XS-2 or 9012QQ-2 I/O module.

⚠ **Caution:**

> You must update your device fully to Release 4.0.1.0 or higher, and ensure that the upgrade is fully complete, before you install new 9048XS-2 or 9012QQ-2 I/O modules. Once the upgrade is fully complete, insert the new 9048XS-2 or 9012QQ-2 I/O module into the chassis, one module at a time. Avaya recommends that you update to the latest software release.
>
> The 9048XS-2 or 9012QQ-2 go through a series of steps as part of the upgrade process, including burning of images into the FPGAs on the module and can go through multiple module resets to activate those firmware images. Up to 35 minutes may be required for the upgrades on each module to be complete. Allow the upgrade process to complete successfully. Failure to do so could result in a failed or an incorrect upgrade or incorrect commissioning of your device.

Before you begin

When installing the I/O module, ensure you have:

- Release 4.0.1.0 software or above.
- 9048XS-2 or 9012QQ-2 I/O module.
- 9012FCHS modules if using the Virtual Services Platform 9012 chassis. Replacing only one cooling module in the Virtual Services Platform 9012 chassis will result in the module being non-operational.
- The required number of Switch Fabrics. A minimum of five Switch Fabric (SF) modules are required to run the I/O module, however, Avaya recommends that you use six SF modules for redundancy.

Procedure

1. Do not insert Input-Output (I/O) modules until the upgrade is complete.

2. Upgrade the software to Release 4.0.1.0 or higher following the upgrade steps in *Applying Upgrades and Patches to Avaya Virtual Services Platform 9000,* NN46250-400.
3. Use the show command to confirm that the system upgrade is complete:

   ```
   show sys-info
   ```

4. Confirm that all services are working as expected.
5. Make sure you commit the software before moving to the next step.
6. Before you insert any I/O modules, when you use the Virtual Services Platform 9012 chassis, replace both cooling modules with 9012FCHS modules. If using the 9010 chassis no change of the cooling modules is required. For more information on proper installation of cooling modules, see *Installing Cooling Modules in Avaya Virtual Services Platform 9000,* NN46250-302.
7. Ensure the cooling modules are functioning properly.
8. Insert additional Switch Fabric modules as needed. The system upgrades the SF modules to the proper release. Allow time for this to complete.
9. Verify that the SF modules are upgraded with the current release:

   ```
   show sys-info
   ```

10. Insert the I/O module into the chassis one at a time. The system upgrades the I/O modules to the proper release. Allow time for the system to complete the upgrade. As part of this process, the I/O module can reset.
11. Verify that the I/O modules are upgraded with the current release:

    ```
    show sys-info
    ```

12. Ensure the status LED turns green, and remains green, and that all ports light up.
13. Save the configuration:

    ```
    save config
    ```

14. The following is an example of the log messages displayed with a successful installation:

    ```
    CP1  [09/21/14 10:13:20.082] 0x00010750 00000000 GlobalRouter HW INFO Module
    9048XS-2 in slot 10 is ready for configuration download
    CP1  [09/21/14 10:13:20.083] 0x00010758 00000000 GlobalRouter HW INFO Downloading
    configuration to all cards
    CP1  [09/21/14 10:13:20.085] 0x00088512 00000000 GlobalRouter SW INFO Loading
    configuration
    CP1  [09/21/14 10:13:21.449] 0x00010757 00000000 GlobalRouter HW INFO Initial
    configuration download to all cards completed
    CP1  [09/21/14 10:13:21.467] 0x0003458b 00000000 GlobalRouter SW INFO The system
    is ready
    ```

Downgrading from Release 4.1

About this task

Use this procedure to downgrade to Release 3.x when a 9048XS-2 or 9012QQ-2 I/O module is installed and you are running Release 4.x or greater.

⚠ **Caution:**

You must remove second generation I/O modules (9048XS-2 or 9012QQ-2) before you downgrade to a release that does not support second generation I/O modules, which includes Release 3.4 and earlier. Failure to do so can result in a failed downgrade, and leave the system non-functional.

Procedure

1. You must have physical access to the chassis.
2. Disable and power down the 9048XS-2 or 9012QQ-2 modules. Save the configuration if you will not be booting from a saved Release 3.x configuration.
3. Remove the 9048XS-2 or 9012QQ-2 modules from the chassis.
4. Have the Release 3.x configuration you wish to use after downgrading ready and saved on the VSP 9000.
5. High Speed Fan Trays and Switch Fabric cards can remain installed in the chassis. The High Speed Fan Trays will work with Release 3.4.x but may not be recognized if downgrading to a version prior to Release 3.4.2.2.
6. Follow normal downgrade procedures.

New features

The following sections highlight the feature support added in this release.

Feature licensing

Release 4.1 transitions feature licensing to the Product Licensing & Delivery System (PLDS) as the license order, delivery, and management tool. PLDS provides self-service license activation, upgrades, moves, and changes.

✱ **Note:**

If VSP 9000 has both a legacy license file and PLDS license file, the system installs the PLDS license. This is due to the PLDS license always having higher precedence compared to the legacy license.

❗ **Important:**

To prevent licensing issues in the unlikely event of a software downgrade to Release 4.0 or earlier, keep pre-existing advanced licenses installed on these switches so that there is no impact to the licensed features in earlier releases.

A premier license is required for Layer 3 Virtual Services Network (VSNs) and MACsec features. Two types of premier license exist:

- Support for Layer 3 VSNs only.
- Support for Layer 3 VSNs and MACsec.

For customers who want to try premier features prior to purchasing a premier license, two types of PLDS premier trial licenses exist that permit the use of premier features for a 60-day period:

- Trial support for Layer 3 VSNs only
- Trial support for Layer 3 VSNs and MACsec

The PLDS premier 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. The system sends notification messages informing you that the trial period will expire, as the countdown approaches the end of the trial period. 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.

⚠ **Caution:**

> You must upgrade your trial license to a valid license to protect your network and allow the premier features to continue to function.

If a system restart occurs after the license expiration, the Premier features will not be loaded even if they are in the saved configuration.

If you purchase a premier 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 on PLDS licensing, see *Administering Avaya Virtual Services Platform 9000,* NN46250-600.

For more information on base and premier license features, see Feature licensing on page 27.

IPv6 support

IPv6 support is reintroduced for first generation I/O modules and introduced for second generation I/O modules. Configuration for IPv6 is available using Avaya Command Line Interface (ACLI) and Enterprise Device Manager (EDM).

✱ **Note:**

> Border Gateway Protocol Plus (BGP+), IPv6 tunnels, IPv6 Shortcuts, and IPv6 filters are not supported in this release.

For more information, see *Configuring IPv6 Routing on Avaya Virtual Services Platform 9000,* NN46250-509.

Media Access Control Security (MACsec)

The Avaya Virtual Services Platform 9000 9048XS-2 Input/Output (I/O) module supports the Media Access Control Security (MACsec) feature. MACsec capable LANs provide data origin authenticity, data confidentiality, and data integrity between authenticated hosts/systems, which means the receiver receives the data as the data is transmitted by the end host. The MACsec key encrypts and decrypts every frame exchanged, which leads to secure data communication.

Note:

MACsec replay protect is not supported on VSP 9000 in the current release, and you cannot configure MACsec replay protect on the switch.

You must disable MACsec replay protect on VOSS switches (VSP 8400, VSP 8200, VSP 7200, or VSP 4000), because replay protect on a VOSS switch may cause the switch to drop packets.

For more information, see *Configuring Security on Avaya Virtual Services Platform 9000,* NN46250-601, *Monitoring Performance on Avaya Virtual Services Platform 9000,* NN46250-701, and *Troubleshooting Avaya Virtual Services Platform 9000,* NN46250-700.

New hardware supported

This section identifies newly supported hardware.

SFP+ and QSFP+ modules and cables

Release 4.1 adds the following SFP+ and QSFP+ modules and cables.

Bidirectional SFP+ optical transceiver

Release 4.1 adds support for the 10GBASE-BX SFP+ bidirectional transceivers.

Model	Part number
10GBASE-BX SFP+ bidirectional transceivers, 10 kilometer	AA1403169, AA1403170

QSFP+ optical transceiver

Release 4.1 adds the following two QSFP+ optical transceivers.

Model	Part number
40GBase-LM4 QSFP+	AA1404002-E6

QSFP+ Direct Attach Cable (DAC)

Release 4.1 adds support for the QSFP+ to QSFP+ 40 gigabit Direct Attach Cable (DAC) assembly, which directly connects two QSFP+ ports. The new 10 meter cable is added in this release.

Model	Part number
QSFP+ to QSFP+ 40G, 10 meter active DAC	AA1404028-E6

QSFP+ breakout cable specifications

Release 4.1 adds support for the QSFP+ to four SFP+ 10 Gigabit Ethernet (GbE) breakout cable (BOC) assembly, which directly connects one QSFP+ port to four SFP+ ports. The new 1, 3, 5, 10 meter cables are added in this release.

Note:

- Avaya Virtual Services Platform 9000 does not support the 40 Gigabit Ethernet ends of the QSFP+ breakout cables because the platform does not support channelization on the VSP 9012QQ-2 module. Avaya Virtual Services Platform 9000 supports only the four SFP+ 10 Gigabit Ethernet ends of the following QSFP+ breakout cables: AA1404033-E6, AA1404035-E6, AA1404036-E6, and AA1404041-E6.
- VSP 9000 9024XL I/O modules do not support the following breakout cables:
  - QSFP+ to 4 SFP+ breakout cable, 1 meter (Passive), AA1404033-E6
  - QSFP+ to 4 SFP+ breakout cable, 3 meter (Passive), AA1404035-E6
  - QSFP+ to 4 SFP+ breakout cable, 5 meter (Passive), AA1404036-E6

  The four SFP+ 10 Gigabit Ethernet ends of the QSFP+ breakout cables are supported only on the 9048XS-2 I/O modules.

  VSP 9000 does not support the 40 Gigabit Ethernet ends of the QSFP+ breakout cables as the platform does not support channelization. For alternate use on the 9024XL I/O module, one can use a 40GBASE-SR4 QSFP transceiver on the distant channelized 40 GigabitEthernet interface, with a fiber breakout patch lead connecting into 4 x 10GBASE-SR/SW SFP+ (AA1403015-E6) transceivers used in the 9024XL ports.

Model	Part number
QSFP+ to 4 SFP+ breakout cable, 1 meter (Passive)	AA1404033-E6
QSFP+ to 4 SFP+ breakout cable, 3 meter (Passive)	AA1404035-E6
QSFP+ to 4 SFP+ breakout cable, 5 meter (Passive)	AA1404036-E6
Fiber QSFP+ to 4 SFP+ breakout cable, 10 meter (Active)	AA1404041-E6

For more information, see *Installing Transceivers and Optical Components on Avaya Virtual Services Platform 9000,* NN46250-305.

Existing hardware supported in the current release

Refer to these documents for information on the existing Avaya Virtual Services Platform 9000 hardware supported by the current release.

- *Installing Modules in Avaya Virtual Services Platform 9000,* NN46250-301
- *Installing Cooling Modules in Avaya Virtual Services Platform 9000,* NN46250-302
- *Installing AC Power Supplies in Avaya Virtual Services Platform 9000,* NN46250-303
- *Installing the Avaya Virtual Services Platform 9000,* NN46250-304
- *Installing Transceivers and Optical Components on Avaya Virtual Services Platform 9000,* NN46250-305

Using dos-chkdsk

Use the **dos-chkdsk** command to check MS DOS file system for any inconsistencies.

Before you begin

If the **dos-chkdsk /extflash** command output displays the System ID as `MADOS5.0`, then you must do the following:

1. First, backup the files from the /extflash.
2. After you backup your flash, format your /extflash using the **dos-format /extflash** command. This brings your system to the `mksdosfs` format. Your system must have the /extflash in the `mksdosfs` file system for the LogToExtflash functionality to work properly.

If your System ID is not in the `mkdosfs` format, logging to the /extflash stops, and a log message reads: `Extflash Unavailable!!! Logging to Extflash not started.`

Procedure

1. After you ensure that your System ID displays as `mkdosfs`, if at the end of the **dos-chkdsk WORD<1-99>** command output you see:

   ```
   1) Correct
   2) Don't correct
   ```

2. Then, you should run the **dos-chkdsk WORD<1-99> repair** command.

   See the bottom of the following system output:

   ```
   Switch:1#% dos-chkdsk /extflash
   /usr/sbin/fsck.vfat /dev/hde1 -v >& /dev/pts/22

   dosfsck 2.11a (05 Mar 2010)
   dosfsck 2.11a, 05 Mar 2010, FAT32, LFN
   Checking we can access the last sector of the filesystem
   Boot sector contents:
   System ID "mkdosfs"
   Media byte 0xf8 (hard disk)
          512 bytes per logical sector
         4096 bytes per cluster
           32 reserved sectors
   First FAT starts at byte 16384 (sector 32)
            2 FATs, 32 bit entries
      1996288 bytes per FAT (= 3899 sectors)
   Root directory start at cluster 2 (arbitrary size)
   Data area starts at byte 4008960 (sector 7830)
       498981 data clusters (2043826176 bytes)
   63 sectors/track, 16 heads
            0 hidden sectors
      3999680 sectors total
   /log.5ec00001.122
     File size is 1310974 bytes, cluster chain length is > 1314816 bytes.
     Truncating file to 1310974 bytes.
   /log.5ec00001.170
     File size is 1139952 bytes, cluster chain length is > 1142784 bytes.
     Truncating file to 1139952 bytes.
   /log.5ec00001.172
     File size is 1138640 bytes, cluster chain length is > 1138688 bytes.
     Truncating file to 1138640 bytes.
   /log.5ec00001.175
     File size is 1140083 bytes, cluster chain length is > 1142784 bytes.
   ```

```
  Truncating file to 1140083 bytes.
/log.5ec00001.195
  File size is 1140491 bytes, cluster chain length is > 1142784 bytes.
  Truncating file to 1140491 bytes.
/log.5ec00001.201
  File size is 1139894 bytes, cluster chain length is > 1142784 bytes.
  Truncating file to 1139894 bytes.
/log.5ec00001.202
  File size is 1139093 bytes, cluster chain length is > 1142784 bytes.
  Truncating file to 1139093 bytes.
/log.5ec00001.204
  File size is 1139583 bytes, cluster chain length is > 1142784 bytes.
  Truncating file to 1139583 bytes.
/log.5ec00001.205
  File size is 1139885 bytes, cluster chain length is > 1142784 bytes.
  Truncating file to 1139885 bytes.
/log.5ec00001.211
  File size is 1139918 bytes, cluster chain length is > 1142784 bytes.
  Truncating file to 1139918 bytes.
/log.5ec00001.217
  File size is 1138866 bytes, cluster chain length is > 1142784 bytes.
  Truncating file to 1138866 bytes.
/log.5ec00001.222
  File size is 1139364 bytes, cluster chain length is > 1142784 bytes.
  Truncating file to 1139364 bytes.
/log.5ec00001.230
  File size is 1139949 bytes, cluster chain length is > 1142784 bytes.
  Truncating file to 1139949 bytes.
/log.5ec00001.544
  File size is 1139882 bytes, cluster chain length is > 1142784 bytes.
  Truncating file to 1139882 bytes.
Checking for unused clusters.
Checking free cluster summary.
Free cluster summary wrong (213744 vs. really 213765)
1) Correct
2) Don't correct
Switch:1#dos-chkdsk WORD<1-99> repair
```

3.

File names

This section describes the Avaya Virtual Services Platform 9000 software files.

Software files

The following table provides the details of the Virtual Services Platform 9000 software files.

Table 1: Software files

File name	Description	File sizes (bytes)
VSP9K.4.1.0.0.tgz	Release 4.1 archived distribution	176,639,388
VSP9K.4.1.0.0_modules.tgz	Encryption modules	41,899
VSP9K.4.1.0.0_mib.zip	Archive of all MIB files	824,523

Table continues…

File name	Description	File sizes (bytes)
VSP9K.4.1.0.0_mib.txt	MIB file	5,485,726
VSP9K.4.1.0.0_mib_sup.txt	MIB file	956,539
VSP9000v410_HELP_EDM_gzip.zip	EDM Help file	3,882,169
VSP9K.4.1.0.0.md5	MD5 Checksums	452
VSP9K.4.1.0.0.sha1	SHA encryption	576
VSP9000v4.1.0.0.zip	EDM WAR plugin for COM	5,656,346

❗ **Important:**

Download images using the binary file transfer.

Check that the file type suffix is ".tgz" and that the image names after you download them to the device match those shown in the preceding table. Some download utilities append ".tar" to the file name or change the filename extension from ".tgz" to ".tar". If the file type suffix is ".tar" or the filename does not exactly match the names shown in the preceding table, rename the downloaded file to the name shown in the table so that the activation procedures operate properly.

Always verify the file sizes after download.

Open Source software files

The following table gives the details of the Open Source software files distributed with the Virtual Services Platform 9000 software.

Table 2: Open Source software files

File name	Description	File sizes (bytes)
VSP9K.4.1.0.0_oss-notice.html	Master copyright file. This file is located in the Licenses directory.	414,245
VSP9K.4.1.0.0_OpenSource.zip	Open source base software for Virtual Services Platform 9000 Release 4.1.	95,862,435

You can download Avaya Virtual Services Platform 9000 software and files, including MIB files, from the Avaya Support Portal at www.avaya.com/support.

Important information and restrictions

This section contains important information and restrictions you must consider before you use the Avaya Virtual Services Platform 9000.

Protecting modules

⚠ **Warning:**

Risk of equipment damage. Do not touch the top of the module or you can damage pins, components and connectors.

⚠ **Warning:**

Modules are heavy. Damage to a module can occur if it bumps into another object, including other modules installed in a chassis. Use both hands to support modules.

Virtual Services Platform 9000 modules are larger and heavier than Ethernet Routing Switch 8000 series modules. Handle the modules used in Virtual Services Platform 9000 with care. Take the following items into consideration when you handle modules:

- To prevent damage from electrostatic discharge, always wear an antistatic wrist strap connected to an ESD jack when you connect cables or you perform maintenance on this device.
- Always place the modules on appropriate antistatic material.
- Support the module from underneath with two hands. Do not touch components or connector pins with your hand, or damage can result.
- Damage to a module can occur if you bump the module into another object, including other modules installed in a chassis. Be careful not to bump module connectors against the action levers of an adjacent module. Damage to connectors can result. Use both hands to support modules.
- Visually inspect the connectors for damage before you insert the module. If you insert a module with damaged connectors you will damage the midplane.
- Check the clearance between the insertion lever and the gasket on adjacent modules during insertion or extraction.
- Do not stack modules one on top of the other when you move them.
- Do not leave slots open. Fill all slots with modules or filler modules to maintain safety compliance, proper cooling, and EMI containment.
- Do not over tighten screws. Tighten until snug. Do not use a power tool to tighten screws.

Module installation precautions

You must take the following precautions while you install modules in the Virtual Services Platform 9000:

- Ensure the module sheet metal slides in the rails on the side of the Virtual Services Platform 9012 chassis, or the top and bottom of the Virtual Services Platform 9010 chassis.
- Modules come with screws embedded in the sheet metal. You must use the screws to keep the cards tightly in place.
- You must support the weight of the modules until they are inserted completely.

Resetting multiple modules

When you reset multiple modules in the system, it is important to make sure the module has fully recovered before you reset the next module. If the subsequent module is reset before the previous module has recovered, various error messages can appear as the system recovers through the system synchronization.

Removing a master CP module with CPU-HA mode activated

Perform this procedure, if the system operates in CPU-HA mode, to properly remove the master CP module. You must perform this procedure to avoid jeopardizing the integrity of the file system.

Procedure

1. Enter Global Configuration mode:

   ```
   enable
   ```

   ```
   configure terminal
   ```

2. Use the `sys action cpu-switch-over` command to fail over to another CP.
3. Use the slot power commands to power down the module.
4. Remove the CP module.

   This action removes the original master.

   Important:

   Do not reinsert a CP module until at least 15 seconds elapse, which is long enough for another CP module to become master.

Example

```
VSP-9012:1>enable
```

```
VSP-9012:1#configure terminal
```

```
VSP-9012:1(config)#sys action cpu-switch-over
```

Removing external storage devices from the CP module

Perform this procedure to safely remove the USB and the external Compact Flash devices from the CP module. You must perform this procedure to prevent data loss or hardware damage.

Important:

Do not unplug the storage device without first performing this procedure.

You must use the appropriate stop command to unmount the device before you physically remove it from the CP module.

Before you begin

Several system tools use the external Compact Flash as the default storage location. Check the following features before you remove the card:

- Packet Capture (PCAP)
- logging
- debug or trace

The Virtual Services Platform 9000 stop command does not succeed if the specified device is in use. Common uses that impede the proper execution of the stop command are:

- USB or external Compact Flash file access is in progress (move, copy, read, or write) to or from the USB, or the external Compact Flash.

  Discontinue operations or wait for access completion before you use the stop command.
- The ACLI session current working directory is configured for the device you need to remove.

  Change the current working directory to internal Compact Flash, which is the default.
- Logging is enabled to the external Compact Flash, which is the default.

  Use the **`show logging config`** command to verify the current storage location. If the location is the external Compact Flash card that you need to remove, use the **`no logging logToExtFlash`** command to log to the internal Compact Flash.
- PCAP is enabled.

  Disable PCAP, which requires the external Compact Flash. Use the **`show pcap`** command to verify if PCAP is enabled. To disable PCAP, use the **`no pcap enable`** command.
- Debugging features are enabled.

  The debug-config file and trace-logging flags must be disabled, which is the default. Use the **`show boot config flags`** command to verify the status. Use the **`no boot config flags debug-config file`** or the **`no boot config flags trace-logging`** command to disable these flags.

About this task

Note:

Use the Avaya Compact Flash device (EC1411010-E6) with the Virtual Services Platform 9000 because the Avaya Compact Flash is validated for proper operation on the Virtual Services Platform 9000. Do not use other Compact Flash devices because they are not verified for Virtual Services Platform 9000 compatibility, and can result in loss of access to the Compact Flash device.

Procedure

1. Enter Privileged EXEC mode:

```
enable
```

2. Remove a USB device:
    a. Unmount the USB device:

       `usb-stop`

    b. Wait for the response that indicates it is safe to remove the device.
    c. Physically remove the device.
3. Remove an external Compact Flash device:
    a. Unmount the external flash device:

       `extflash-stop`

    b. Wait for the response that indicates it is safe to remove the device.
    c. Physically remove the device.

Example

Unmount and remove the USB:

```
VSP-9012:1>enable
VSP-9012:1#usb-stop
It is now safe to remove the USB device.
VSP-9012:1#extflash-stop
It is now safe to remove the external Compact Flash device.
```

Next steps

No restrictions or requirements exist before you can reinsert a USB or external Compact Flash device. You can insert these devices at any time and Virtual Services Platform 9000 automatically recognizes them. The devices are accessible within seconds after insertion.

After you insert the external Compact Flash, enable logging to the external Compact Flash with the **`logging logToExtFlash`** command.

Additionally, you can enable the following features as required:

- PCAP
- debug-config file or trace-logging flags

Supported browsers

Virtual Services Platform 9000 supports the following browsers to access the Enterprise Device Manager (EDM):

- Microsoft Internet Explorer 10.x and earlier supported versions
- Mozilla Firefox 38.x and earlier supported versions

IPv4 interface MTU

Because Virtual Services Platform 9000 does not negotiate the maximum transmission unit (MTU) for IPv4 interfaces, the interface MTU is the maximum sized packet that the CP transmits. Virtual

Services Platform 9000 receives and processes any packet less than the system MTU. In the fastpath, Virtual Services Platform 9000 receives and sends packets less than, or equal to, the system MTU.

For more information about the system MTU, see *Administering Avaya Virtual Services Platform 9000,* NN46250-600.

Supported system and management applications with IPv6

Note:

Virtual Services Platform 9000 does not support IPv6 tunnels or BGP+ for Release 4.1.

You can use IPv6 for the following access methods and features:

- DHCP Relay
- DNS client
- Enterprise Device Manager (EDM)
- FTP client and server
- HTTP and HTTPS
- ping
- Rlogin
- RADIUS client
- SNMP
- SSH
- Syslog client
- Telnet
- TFTP client and server
- Traceroute

User configurable SSL certificates

Virtual Services Platform 9000 does not generate SSL certificates with user-configurable parameters. You can, however, use your own certificate.

You can generate a certificate off the VSP 9000 system, and upload the key and certificate files to the `/intflash/.ssh` directory. Rename the uploaded files to host.cert and host.key, and then reboot the system. The system loads the user-generated certificates during startup. If the system cannot find host.cert and host.key during startup, it generates a default certificate.

For more information about SSH and SSL certificates, see *Administering Avaya Virtual Services Platform 9000,* NN46250-600.

EDM image management

EDM does not currently support image management functionality. You must perform all image management work through the ACLI. This includes, but is not limited to, software upgrades, software image management, and software patching. See *Applying Upgrades and Patches to Avaya Virtual Services Platform 9000,* NN46250-400, for information and procedures about image management.

After you use ACLI to upgrade or downgrade the system software, before you connect to the device using EDM, Avaya recommends that you clear the browser cache. If you fail to clear the browser cache before you connect to the device, you can continue to see the previous software version in EDM.

Feature licensing

Release 4.1 transitions feature licensing to the Product Licensing and Delivery System (PLDS) with the earlier three-tier framework changed to a two-tier framework. The two-tier framework includes the following license levels:

- Base license
- Premier license

The various premier licenses supported on Virtual Services Platform 9000 are as follows:

- PLDS premier license
- PLDS premier license with MACsec
- PLDS premier trial license
- PLDS premier trial license with MACsec
- PLDS premier to premier with MACsec uplift license

✱ **Note:**

For existing VSP 9000 deployments with licenses installed, the previously purchased and installed licenses will continue to operate when the switches are upgraded to Release 4.1 and higher. Because advanced features are part of the base software license in Release 4.1, the previously installed advanced licenses will be ignored and those features will continue to operate with the base license.

❗ **Important:**

To prevent licensing issues in the unlikely event of a software downgrade to Release 4.0 or earlier, keep pre-existing advanced licenses installed on these switches so that there is no impact to the licensed features in earlier releases.

If you use a base license, you do not need to install a license file. If you purchase a premier license, you must obtain and install a license file. You can also obtain and install either of two versions of the PLDS trial license files: a PLDS premier trial license, or PLDS premier trial license with MACsec. If you install one of the PLDS trial licenses you will have access to the premier features for a 60-day period.

For more information about how to generate and install a license file, see *Administering Avaya Virtual Services Platform 9000,* NN46250-600 and *Getting Started with Avaya PLDS for Avaya Networking Products*, NN46199-300.

Premier software license

The premier license activates the Layer 3 Virtual Service Network features, in addition to the base license features, which include:

- Border Gateway Protocol version 4 (BGP) for 256 BGP peers or greater than 64,000 routes
- Layer 3 Virtual Services Networks (VSNs)
- IP Routes forwarding records. IPv6 records are approximately four times the size of IPv4 records.:
    - For first or second generation modules in first generation mode: The maximum number of 400,000 IPv4 routes is possible when no IPv6 routes are configured, and the maximum number of IPv6 routes is 128,000 when no IPv4 routes are configured.
    - For second generation modules in second generation mode: The maximum number of 1,000,000 IPv4 routes is possible when no IPv6 routes are configured, and the maximum number of IPv6 routes is 256,000 when no IPv4 routes are configured.
- Layer 3 VSNs for multicast routing
- IP multicast virtualization
- More than 24 virtual routing and forwarding (VRF) instances
- Lossless Ethernet on first generation modules

  ✳ **Note:**

  Lossless Ethernet is not supported on second generation modules.

Premier with MACsec license

The premier with MACsec license activates the MACsec feature in addition to the base license and premier license features.

The premier with MACsec license has the highest precedence. If VSP 9000 has other license files along with the PLDS premier MACsec license file, the system installs the PLDS premier with MACsec license. The premier with MACsec license and premier with MACsec trial license have the same priority.

Premier trial licenses

To trial premier features prior to purchasing a premier license, two types of PLDS premier trial licenses exist that permit use of premier features for a 60-day period:

- Premier with MACsec trial license— Allows all of the premier features, including MACsec for a 60-day period.
- Premier trial license — Allows all of the premier features, except for MACsec, for a 60-day period.

You need to obtain and install a PLDS trial license to enable premier features for a 60-day period.

If switch has both a PLDS premier trial license and premier permanent license in its intflash disk, and then you use the command to load the license, the system reads both licenses, and the switch loads whichever license is read in second place. Both the PLDS premier trial license and premier permanent license have the same priority, and so the system loads the license based on the timestamp.

You use the system MAC address of a switch to generate the PLDS premier trial license, and you can only use the MAC address once to generate a trial license.

Expiry of the trial license

⚠ **Caution:**

> You must upgrade your trial license to a valid license to protect your network and allow the premier features to continue to function.

After 60 days, the premier trial license expires. You will see notification messages as the countdown approaches the end of the trial period.

You will see messages on the console and in the alarms database that the license has expired. The next time you restart the system after the license expiration, the system no longer supports the premier services. If you restart the system after the license expiration, the premier features will not be loaded even if they are in the saved configuration. If the expired license file is still installed in VSP 9000, then you will continue to see messages on the console, and in the alarms database after you restart the system. To disable these messages, remove the trial license from the VSP 9000.

If the VSP 9000 has both a PLDS premier trial license and a legacy premier license file, the system installs the PLDS trial license. After the PLDS premier trial license expires, the legacy premier license does not install automatically, and the legacy premier features are not enabled automatically. You must restart the system, and install the legacy premier license to enable the legacy premier license features.

Base software license

The base software license is provided free of charge with the purchase of the VSP 9000 hardware. You do not require a license file to unlock the base features.

The Base License includes the following Layer 2 features:

- Access Control Lists (ACLs)
- Connectivity Fault Management 802.1ag for Fabric Connect
- Core Layer 2 switching
- Internet Group Management Protocol (IGMP)
- Layer 2 ping for C-VLAN 802.1ag for Fabric Connect
- Layer 2 Virtual Services Network (VSNs)
- Layer 2 VSN with multicast and IGMP
- Link Aggregation (LACP) 802.1AX
- MultiLink Trunking (MLT)
- Multiple Spanning Tree Protocol (MSTP)
- Packet Capture Function (PCAP)
- Policers
- Quality of Service (QoS) 802.1p/Q

- Rapid Spanning Tree Protocol (RSTP)
- Routed Split MultiLink Trunking (RSMLT)
- Shapers
- Shortest Path Bridging core/base (NNI)
- Simple Loop Prevention Protocol (SLPP)
- Split MultiLink Trunking (SMLT)
- Virtualized multicast over Fabric Connect
- Virtual Local Area Network (VLANs)

The base License includes the following Layer 3 routing features:

- Border Gateway Protocol version 4 (BGP4) for 16 peers or 64,000 routes
- Core Layer 3 routing and switching
- Dynamic Host Configuration Protocol (DHCP) Relay
- Global Routing Table (GRT) IP routing
- GRT with IP Shortcuts
- Inter-ISID routing
- IP Remote Monitoring
- IP Multicast Routing parity with IGMP v1, v2, and v3
- IP Virtual Routing and Forwarding (VRF)
- IPv6 Mgmt
- IPv6 routing and IPv6 traceroute support
- Multicast using IP-Shortcuts
- OSPF in the GRT and VRF
- OSPF in the GRT with IP Shortcuts
- Packet Capture function (PCAP)
- RIP in the GRT and VRF
- RIP in the GRT with IP Shortcuts
- Route Policy Virtualization in the GRT and the GRT with IP Shortcuts
- Shortest Path Briding Key Health Indicators
- SLA Mon™
- Terminal Access Controller Access-Control System Plub (TACACS+)
- Virtual Router Redundancy Protocol (VRRP)
- 24 virtual routing and forwarding (VRF) instances

The base License also includes features in other OSI layers:

- DoS protection
- HTTPS port configurable

- Telnet in RO

Shutting down the system

Use this procedure to properly shut down a running system.

About this task

This command properly shuts down the file system, and powers off all I/O modules and Switch Fabric modules. The power supplies, cooling modules, and CP modules remain in the powered on state. After you use this command, you must physically turn off the chassis power. To restore power after you use this command, you must physically turn the chassis power on again.

Procedure

1. Enter Privileged EXEC mode:

   ```
   enable
   ```

2. Shut down the system:

   ```
   sys shutdown
   ```

Example

Shut down a running system.

```
VSP-9012:1>enable
VSP-9012:1#sys shutdown
Are you sure you want shutdown the system? Y/N  (y/n) ? y
CP1  [05/02/14 12:32:34.062] 0x00010813 00000000 GlobalRouter HW INFO System shutdown
initiated from CLI
SF3  [05/02/14 12:32:33.240] 0x00274597 00000000 GlobalRouter SW INFO Shutdown request
received from slot 1.
SF5  [05/02/14 12:32:33.313] 0x00274597 00000000 GlobalRouter SW INFO Shutdown request
received from slot 1.
SF2  [05/02/14 12:32:33.331] 0x00274597 00000000 GlobalRouter SW INFO Shutdown request
received from slot 1.
SF4  [05/02/14 12:32:33.399] 0x00274597 00000000 GlobalRouter SW INFO Shutdown request
received from slot 1.
SF1  [05/02/14 12:32:33.537] 0x00274597 00000000 GlobalRouter SW INFO Shutdown request
received from slot 1.
IO10 [05/02/14 12:32:36.067] 0x00274597 00000000 GlobalRouter SW INFO Shutdown request
received from slot 1.
IO6  [05/02/14 12:32:39.988] 0x00274597 00000000 GlobalRouter SW INFO Shutdown request
received from slot 1.
CP1  [05/02/14 12:32:48.064] 0x00010736 00000000 GlobalRouter HW INFO Slot 6 powered off
by admin
CP1  [05/02/14 12:32:48.066] 0x0000c5f9 00000000 GlobalRouter HW INFO Link Down(6/8)
Port disabled
CP2  [05/02/14 12:32:57.845] 0x000646fa 00000000 GlobalRouter MLT INFO IST DOWN, status
vector: 0x400000400002000
CP1  [05/02/14 12:32:58.065] 0x00010736 00000000 GlobalRouter HW INFO Slot 10 powered off
by admin
CP1  [05/02/14 12:32:58.065] 0x0000c5f9 00000000 GlobalRouter HW INFO Link Down(10/1)
Port disabled
CP1  [05/02/14 12:32:58.066] 0x0000c5f9 00000000 GlobalRouter HW INFO Link Down(10/2)
Port disabled
CP1  [05/02/14 12:32:58.068] 0x0000c5f9 00000000 GlobalRouter HW INFO Link Down(10/4)
Port disabled
```

```
CP1  [05/02/14 12:32:58.068] 0x00000009 01900001.2 DYNAMIC SET GlobalRouter SW INFO SMLT
2 Link is DOWN
CP1  [05/02/14 12:32:58.068] 0x00000009 01900001.3 DYNAMIC SET GlobalRouter SW INFO SMLT
3 Link is DOWN
CP1  [05/02/14 12:32:58.070] 0x000646fa 00000000 GlobalRouter MLT INFO IST DOWN, status
vector: 0x2060000000002800
CP1  [05/02/14 12:32:58.070] 0x000646da 01900004 DYNAMIC SET GlobalRouter MLT WARNING
SMLT IST Link is DOWN /IST Slave
CP1  [05/02/14 12:32:58.072] 0x00064708 01900005 DYNAMIC SET GlobalRouter MLT WARNING MLT
19 is OPERATIONAL DOWN
CP1  [05/02/14 12:32:58.074] 0x0000c5f9 00000000 GlobalRouter HW INFO Link Down(10/15)
Port disabled
CP1  [05/02/14 12:32:58.076] 0x00064708 01900005 DYNAMIC SET GlobalRouter MLT WARNING MLT
2 is OPERATIONAL DOWN
CP1  [05/02/14 12:32:58.077] 0x0000c5f9 00000000 GlobalRouter HW INFO Link Down(10/21)
Port disabled
CP1  [05/02/14 12:32:58.079] 0x00064708 01900005 DYNAMIC SET GlobalRouter MLT WARNING MLT
3 is OPERATIONAL DOWN
CP1  [05/02/14 12:32:58.565] 0x00010736 00000000 GlobalRouter HW INFO Slot SF 5 powered
off by admin
CP1  [05/02/14 12:32:59.066] 0x00010736 00000000 GlobalRouter HW INFO Slot SF 4 powered
off by admin
CP1  [05/02/14 12:32:59.567] 0x00010736 00000000 GlobalRouter HW INFO Slot SF 3 powered
off by admin
CP1  [05/02/14 12:33:00.068] 0x00010736 00000000 GlobalRouter HW INFO Slot SF 2 powered
off by admin
CP2  [05/02/14 12:33:00.337] 0x00274597 00000000 GlobalRouter SW INFO Shutdown request
received from slot 1.
CP1  [05/02/14 12:33:00.569] 0x00010736 00000000 GlobalRouter HW INFO Slot SF 1 powered
off by admin
CP1  [05/02/14 12:33:01.091] 0x000045b7 00000000 GlobalRouter SNMP INFO HA-CPU: Lost
connection to Standby CPU.
CP1  [05/02/14 12:33:10.000] LifeCycle: INFO: Stopping all processes
CP1  [05/02/14 12:33:11.000] LifeCycle: INFO: All processes have stopped
CP1  [05/02/14 12:33:11.000] LifeCycle: INFO: Un-mounting filesytems
CP1  [05/02/14 12:33:11.000] LifeCycle: INFO: File systems un-mounted
CP1  [05/02/14 12:33:11.000] LifeCycle: INFO: All applications stopped. It is now safe to
power down the chassis
```

SPB on an Interswitch Trunk

It is recommended that the Interswitch MLT be configured as an IS-IS interface when SPB is configured on an Interswitch Trunk (IST).

Lossless Ethernet

Virtual Services Platform 9000 does not support Lossless Ethernet on second generation modules.

Fixes from previous releases

The Virtual Services Platform 9000 Software Release 4.1 incorporates all fixes from prior releases, up to and including, Release 4.0.1.2.

Hardware and software compatibility

Hardware and software compatibility information can be obtained from *Administering Avaya Virtual Services Platform 9000,* NN46250-600. Refer to that document for more information.

Other documents

In addition to the product documentation, Avaya provides Technical Configuration Guides and Technical Solution Guides. You can refer to these guides for more information about how to configure or use the Virtual Services Platform 9000 in specific scenarios. The following table lists the guides available for the Virtual Services Platform 9000.

Document title	Document number
Getting Started with Avaya PLDS for Avaya Networking Products	NN46199–300
Link Aggregation Control Protocol (LACP) 802.3ad and VLACP for VSP and ERS Technical Configuration Guide	NN48500-502
Switch Clustering using Split-MultiLink Trunking (SMLT) with VSP 9000, ERS 8600/8800, 8300, and 5000 Technical Configuration Guide	NN48500-518
Switch Clustering Supported Topologies and Interoperability with Virtual Services Platform 9000 & Ethernet Routing Switches	NN48500-555
Technical Configuration Guide for Microsoft Network Load Balancing	NN48500-593
Super Large Campus Technical Configuration Guide	NN48500-609
Avaya Virtual Services Platform 9000 with Coraid EtherDrive SRX-Series Storage Appliances Technical Configuration Guide	NN48500-611
Avaya Flare™ for Avaya Data Technical Configuration Guide	NN48500-613
Shortest Path Bridging (802.1aq) for ERS 8800 and VSP 9000 Technical Configuration Guide	NN48500-617
Migrating to a Virtual Services Fabric using Shortest Path Bridging Technical Configuration Guide	NN48500-622
Avaya Virtual Services Platform 9000 and Avaya Virtual Services Platform 7000 with Coraid EtherDrive SRX-Series Storage Appliances Technical Configuration Guide	NN48500-629
Basic SPB Configuration	NN48500-632
IPv6 for VSP 9000 Technical Configuration Guide	NN48500-634

You can find these documents at www.avaya.com/support under the product Data Networking Solution, or by performing a search.

Chapter 4: Software and hardware scaling capabilities

This chapter details the software and hardware scaling capabilities of Avaya Virtual Services Platform 9000. The information in *Release Notes for Avaya Virtual Services Platform 9000,* NN46250-401, takes precedence over information in other documents.

Hardware scaling capabilities

This section lists hardware scaling capabilities of Avaya Virtual Services Platform 9000.

Table 3: Module capabilities

Component	Maximum number supported
9012QQ-2 I/O module	
40 GbE fiber connections	9010 chassis: 96 (8 x 12) 9012 chassis: 120 (10 x 12)
Processor	800 MHz dual core
9024XL I/O module	
10 GbE fiber connections	9010 chassis: 192 (8 x 24) 9012 chassis: 240 (10 x 24)
Processor	1 GHz
9048XS-2 I/O module	
10 GbE fiber connections	9010 chassis: 384 (8 x 48) 9012 chassis: 480 (10 x 48)
Processor	800 MHz dual core
9048GB I/O module	
GbE fiber connections	9010 chassis: 384 (8 x 48) 9012 chassis: 480 (10 x 48)
Processor	1 GHz

Table continues…

Component	Maximum number supported
9048GT I/O module	
10/100/1000 copper connections	9010 chassis: 384 (8 x 48) 9012 chassis: 480 (10 x 48)
Processor	1 GHz
9080CP module	
Processor	1.33 GHz
Console port	1 D-subminiature 25-pin shell 9 pin connector (DB9) per CP module
Ethernet management	1 Registered Jack (RJ) 45 per CP module
USB port	1 Universal Serial Bus (USB) Type A (Master) per CP module
External Compact Flash	1 per CP module

Table 4: VSP 9010 AC chassis capabilities

Component	Maximum number supported
CP modules	2
Interface modules	8
SF modules	6 If you install only first generation I/O modules, you must install a minimum of three SF modules in the chassis. If you install second generation I/O modules, you must install five SF modules. Always install an SF module in both slots SF1 and SF4.
Power Supplies	8
Total power capacity	• 21.8 kW when connected to 220 VAC • 16 kW when connected to 110 VAC
Jumbo packets	9600 bytes for IPv4 9500 bytes for IPv6

Table 5: VSP 9012 chassis capabilities

Component	Maximum number supported
CP modules	2
Interface modules	10
SF modules	6 If you install only first generation I/O modules, you must install a minimum of three SF modules in the chassis. If you install second generation I/O

Table continues…

Component	Maximum number supported
	modules, you must install five SF modules. Always install an SF module in both slots SF1 and SF4.
Auxiliary slots	2
Power supplies	6
Total power capacity	• 16.3 kW when connected to 220 VAC • 12 kW when connected to 110 VAC
Jumbo packets	9600 bytes for IPv4 9500 bytes for IPv6

Software scaling capabilities

This section lists software scaling capabilities of Avaya Virtual Services Platform 9000.

Table 6: Software scaling capabilities

	Maximum number supported
Layer 2	
IEEE/Port-based VLANs	4,084
Inter-Switch Trunk (IST)	1 group
Internet Protocol (IP) Subnet-based VLANs	256
LACP	512 aggregators
LACP ports per aggregator	8 active and 8 standby
Lossless Ethernet	2 ports for each 8–port cluster 6 ports for each 9024XL module **Note:** VSP 9000 supports Lossless Ethernet on first generation modules, which include: 9024XL, 9048GB, and 9048GT modules. VSP 9000 does not support Lossless Ethernet on second generation modules.
MACs in forwarding database (FDB)	128K
Multi-Link Trunking (MLT)	512 groups
Multiple Spanning Tree Protocol (MSTP)	64 instances
Protocol-based VLANs	16
Rapid Spanning Tree Protocol (RSTP)	1 instance
SLPP	500 VLANs

Table continues…

	Maximum number supported
Source MAC-based VLANs	100
Split Multi-Link Trunking (SMLT)	511 groups plus 1 IST MLT
SMLT ports per group	16
VLACP Interfaces	128
Layer 3	
Address Resolution Protocol (ARP) for each port, VRF, or VLAN	64,000 entries total
BGP peers	256
BGP Internet peers (full)	2 (second generation mode only)
BGP routes	1.5 million
Circuitless IP interfaces	256
ECMP routes	64,000
ECMP routes (fastpath)	8
FIB IPv4 routes	400,000 for first or second generation Input/Output (I/O) modules in first generation mode. 1,000,000 for second generation I/O modules in second generation mode.
FIB IPv6 routes	78,000 for first or second generation Input/Output (I/O) modules in first generation mode, and for second generation I/O modules in second generation mode.
The fastpath forwarding table uses a common table for IPv4 and IPv6 forwarding records. IPv6 records are approximately four times the size of IPv4 records. • For first or second generation modules in first generation mode: The maximum number of 400,000 IPv4 routes is possible when no IPv6 routes are configured, and the maximum number of IPv6 routes is 78,000 when no IPv4 routes are configured. • For second generation modules in second generation mode: The maximum number of 1,000,000 IPv4 routes is possible when no IPv6 routes are configured, and the maximum number of IPv6 routes is 78,000 when no IPv4 routes are configured.	
IPv4 interfaces	4,343
IP interfaces (Brouter)	480
IP prefix entries	25 000
IPv4 prefix list	500
IP routing policies	500 for each VRF 5,000 for each system
IPFIX flows	96,000 for each interface module 960,000 for each chassis
IPv4 or IPv6 FTP sessions	4 each, 8 total

Table continues…

	Maximum number supported
IPv4 or IPv6 Rlogin sessions	8 each, 16 total
IPv4 or IPv6 SSH sessions	8 total (any combination of IPv4 and IPv6 up to 8)
IPv4 or IPv6 Telnet sessions	8 each, 16 total
IPv4 VRF instances	512
IPv6 dynamic neighbors/interface	64K
IPv6 interfaces	4,087 (4,084 VLAN and 3 management [1/1, 2/1, virtual IP])
IPv6 routes (fastpath)	78,000
IPv6 static neighbors	1,000
IPv6 static routes	10,000
MACsec connectivity associations (CA)	512 connectivity associations on a switch **Note:** You can associate a port to only one MACsec connectivity association at a time.
Multicast IGMP interfaces	4,084
Multicast IGMP instances	on 64 VRFs
Multicast source and group (S, G)	6,000 for each system, including VRFs
NLB Clusters — Multicast, with multicast MAC flooding disabled	1 for each VLAN 2,000 for each system
NLB Clusters — Multicast, with multicast MAC flooding enabled	128 for each VLAN 2,000 for each system
NLB Clusters — Unicast	128 for each VLAN 2,000 for each system
OSPF adjacencies	512
OSPF areas	12 for each OSPF instance 80 for each system
OSPF instances	64 (one per VRF)
OSPF interfaces	512 active, 2000 passive
OSPF LSA packet size	Jumbo packets
OSPF routes	64,000
OSPFv3 adjacencies	512
OSPFv3 adjacencies per interface	256
OSPFv3 areas	64
OSPFv3 passive interfaces	1,000
OSPFv3 routers per area	250

Table continues…

	Maximum number supported
OSPFv3 routes	64,000
PIM interfaces	512 active; 4084 passive
PIM instances	on GRT only
RIB IPv4 routes	3 * fastpath routes
RIP instances	64 (one for each VRF)
RIP interfaces	200
RIP routes	2,500 for each VRF 10,000 for each system
RSMLT interfaces (IPv4/IPv6)	4,000 over 512 SMLT interfaces
Static ARP entries	2,048 for each VRF 10,000 for each system
Static routes (IPv4)	2,000 for each VRF 10,000 total across VRFs
UDP/DHCP forwarding entries	512 for each VRF 1,024 for each system
VRRP interfaces (IPv4)	255 for a VRF 512 for a system
VRRP interfaces (IPv6)	512 for a system
VRRP interfaces fast timers (200ms)	24
Diagnostics	
Mirrored ports	479
Remote Mirroring Termination (RMT) ports	32
Filters and QoS	
Flow-based policers (IPv4 and IPv6)	16,000
Port shapers (IPv4 and IPv6)	480
Access control lists (ACL) for each chassis (IPv4)	2,048
Access control entries (ACE) for each chassis (IPv4)	16,000
ACEs per ACL (a combination of Security and QoS ACEs)	1,000
Unique redirect next hop values for ACE Actions (IPv4)	2,000
SPBM	
ARP entries (routed)	64,000
MAC entries	128,000 (combination of ARP entries and Layer 2 MACs)

Table continues…

	Maximum number supported
Backbone MAC	1,000
IP routes in the Global Router	100,000 (combination of OSPF and IS-IS)
IS-IS adjacencies	128
Layer 2 VSNs	4,000
VLANs in VRF	1,600
Layer 3 VSNs	512

Chapter 5: Known issues and limitations

This section details the known issues and limitations of the Avaya Virtual Services Platform 9000. Where appropriate, use the workarounds provided.

Known Issues

Alarm, logging, and error reporting

Table 7: Known issues

Issue number	Description	Workaround
wi01004076	You can see the following error message when you boot the VSP 9000: `HW ERROR framework_process_entity_data : Application Sync failed for entity:0x414c524d representing Module ALARM`	This message has no functional impact and can be ignored.

wi01057618	Occasionally, the following error messages may appear on the console: `IO6 [11/02/12 15:04:12.255] 0x00170563 00000000 GlobalRouter COP-SW ERROR K2-2 PCIE_BAD_ADR INT Event, bad address = 0x12fb8a6c`
	`IO6 [11/02/12 15:04:12.255] 0x00170566 00000000 GlobalRouter COP-SW WARNING K2-2 CMD PKT Logic Error: REPLY CODE=0x80`
	`IO6 [11/02/12 15:04:12.255] 0x00170574 00000000 GlobalRouter COP-SW ERROR`
		These messages do not impact the operation of the switch and can be ignored.

Table continues…

Issue number	Description	Workaround
	K2-2 Zag-1 BAP I/F Error Adr = 0x70, Data = 0x2000 IO6 [11/02/12 15:04:12.255] 0x00170574 00000000 GlobalRouter COP-SW ERROR K2-2 Zag-1 BAP I/F Error Adr = 0x74, Data = 0x20b8a6c IO6 [11/02/12 15:04:12.255] 0x001705fb 00000000 GlobalRouter COP-SW ERROR K2-2 Zag-1 BAP RSP reg 0x1C: 0x402 0xD4: 0x10 0xD8: 0x20b8a6c IO6 [11/02/12 15:04:12.255] 0x00118526 00000000 GlobalRouter COP-SW ERROR @/vob/cb/nd_dld/cbio/rlcd/lib/rlcd_util.c#574:rspRead32() k2b_pci_read failed rc: -1!!, k2DevId: 6, k2Slice: 2	
wi01092935	In some scenarios, you can see the following error message: CP2 [04/10/13 17:40:24.533] 0x0001079a 00000000 GlobalRouter HW ERROR framework_process_entity_data : Application Sync failed for entity:0x4952534d representing Module IRSM ,event:4/4 maxNumEvents: 11.	This causes no negative issue.
wi01168372	The memory used to store RMON information is shared between alarms and events. The maximum number of each is dependent on the number of alarm-event pairs configured.	—
wi01183021	A log message may be encountered with the text "GlobalRouter COP-SW WARNING K2-0". This message is not service impacting and can be ignored.	—
wi01200901	Users may experience an outage when adding a module to a live chassis.	—

Table continues…

Issue number	Description	Workaround
wi01207750	Layer 3 remote mirroring may not work when monitoring destinations on SMLT VLANs.	Users should have the Layer 3 mirroring destination connected on a seperate VLAN. This VLAN should not span on multiple switches.
wi01207826	Layer 3 flow mirroring does not take precedence over port mirroring on second generation I/O modules. The mirror destination will receive both copies from port and flow mirroring.	

Chassis operations

Table 8: Known issues

Issue number	Description	Workaround
wi00564595	If there is not enough power available in the chassis to power all cards when the system is powered up, one or more cards will not be powered on. Configuration for these cards will be ignored. When enough power is available the cards will be automatically powered up but they will not automatically receive their configuration.	To download the configuration to any cards that experience delayed boot up, source the configuration for that card.
wi00891718	Unable to access `/usb` from the peer CP.	Use TFTP from the peer or configure the network management port and use a transport protocol like FTP or TFTP, directly to the secondary CP.
wi00969922	If you remove the backup CP module, you can see the following output on the console: `fbuf allocated in "/vob/cb/nd_platform/chassis/lib/ch_sync.c" at line 341 is freed` This message occurs if an application tries to synchronize data to the backup CP module at the same time that you remove the module.	This message has no functional impact and can be ignored.
wi00970236	The default value for the loadingconfig time is 15 minutes. The configurable range for the **`boot config`**	Beginning with Release 4.0, the **`boot config loadconfigtime`** command is no longer supported.

Table continues…

Issue number	Description	Workaround
	loadconfigtime command is 0 to 300 seconds. If you configure a value that is less than the default, the device still uses the default value to validate the loading time. Because the maximum configurable value is 300 seconds, the value is always less than the default and does not take effect. The intent of the parameter is the time to load the configuration. The timer that runs in the VSP 9000 actually tracks the full start time, for example, the time spent waiting for other IO ready and to download port MAC.	
wi01096199	When a chassis is rebooted and comes up, all modules must be "online" and "ready" before the Chassis Manager decides to download the configuration. If a module is not ready at that time, then it will be left out and "hot-inserted" at a later point. Configuration for that module will be lost, and the module will be loaded with the default configuration.	Make sure all modules are up and operational, and then source the configuration file.
wi01123043 and wi01127303	In rare circumstances, when powering down a chassis, for example, a chassis reboot or software upgrade, there may be a crash on shutdown due to a small timing window when cleaning up a particular process. This does not affect any services as it powers up, nor does it have any effect on the boot-up.	—
wi01130808	The **show sys-info temp** command does not show Zone 5 for CP modules. This is a display issue and there is no impact to thermally driving the chassis. The hottest and coolest are still properly recorded and driving the chassis thermals/fan.	This is a display issue. You can gauge system thermal health of the CP by using the other outlet sensor.
wi01190901	An outage may be observed when a module is added to a running chassis and that module is defined in the configuration file. No outage occurs if the module is not yet defined in the configuration file.	—

Table continues…

Issue number	Description	Workaround
wi01225639	You can configure the CP limit at the individual port level or at the MultiLink Trunking (MLT) level. However, the CP limit configuration is only applicable at the MLT level, if a port is part of that particular MLT.	Ensure the port or ports are part of the MLT for which you want to configure the CP limit.

EDM

Table 9: Known issues

Issue number	Description	Workaround
wi00948868	EDM can take a significant amount of time to capture and display the MAC and ARP table with the maximum number of 128K MAC and 64K ARP entries.	—
wi00956046	You cannot use FireFox 7.x to connect to an IPv6 address with HTTPS. The connection appears as untrusted, and if you select the option to add a security exception, the browser displays an error. This issue is a known Mozilla bug (633001).	Use FireFox 3.x or Internet Explorer.
wi00965260	Do not use **VLAN** > **VLANs** > **IP** > **RSMLT** tab to configure RSMLT hold-down timer and hold-up timer parameters for IPv6.	Use **IPv6** > **RSMLT** to configure the IPv6 only interface RSMLT hold-down timer and hold-up timer interfaces.
wi01047577	EDM should show OSPF interfaces on the neighbor tab. The neighbor tab should clearly mention neighborIPAddr [NBRIPADDR] and Neighrouterid [NBRROUTERID]. Currently, the tab shows IPADDR; whether it is an OSPF interface address or neighbor interface address is missing in the EDM display.	Use `show ip ospf neigh` in ACLI.
wi01081155	The DC OK LED does not display status in EDM. The 9006AC power supply in the chassis does light this LED to display status.	—
wi01113706	Time-out dialog boxes can appear when you launch the MgmtRouter	—

Table continues…

Issue number	Description	Workaround
	context with a loaded configuration, for example, 128 SMLT and 4,082 VLANs. There is no impact on functionality.	
wi01155021	OpenSSL implementation does not support AES encryption from most browsers.	—
wi01202035	Multiple route maps may be displayed in EDM when only one should be displayed.	—

HA operations

Table 10: Known issues

Issue number	Description	Workaround
wi00937861	The **`exception dump max-disk-space`** configuration ACLI command is not available on the standby CPU.	—
wi01106991	The following messages appear on the master CP console of an HA switch when you scale 255 VRRP interfaces on SMLT VLANs of an IST peer under one VRF: `SW WARNING smltProcLearnMacAddrWithLifid VRRP BACKUP_MASTER is ENABLED and Mac is VRRP_SRC_MAC. Do NOT learn it on IST MGID CP2 [06/13/13 14:26:28.655] 0x00000658 00000000 GlobalRouter SW WARNING smltDumpLearnMacAddrLifidMsgmac 00:00:5e:00:01:37 Vlan 255 portType 1 smlt 65535 port 111 status 0 ip 0.0.0.0 lastMac 0LifId 0 Lpid 0` After configuration, all 255 VRRP interfaces are UP on both IST peer switches.	This warning appears due to an occasional race condition while configuring VRRP. There is no traffic loss, service impact, or side effects.
wi01162570	Users may observe the following error during HA operations: `0x000b45ba 00000000 GlobalRouter SW ERROR`	—

Table continues…

Issue number	Description	Workaround
	`rtmChangeListSyncCallback: vrfId: 0 received entry can't be located` This is a temporary error that can be ignored.	
wi01188623	The HA state may be displayed incorrectly.	—
wi01196226	Users may see extended heartbeat errors during table sync on first HA failover with scaled BGP routes.	—
wi01201467	IGMPv3 traffic loss can occur during a High Availability failover.	—
wi01207149	Users may observe a VSPTALK back trace during a failover in warm standby mode. There is no service impact from this action.	—

wi01233230	An OSPF LA sync issue occurred on the core box of VSP 9000. The following message was observed:
	`VSP-110:1#CP2  [04/06/15 14:42:48.597] 0x0001079a 00000000 GlobalRouter HW ERROR framework_process_entity_data: Application Sync failed for entity:0x4f535046 representing Module OSPF ,event:32/36 maxNumEvents:55`
	`CP2  [04/06/15 14:43:38.927] 0x0001079a 00000000 GlobalRouter HW ERROR framework_process_entity_data: Application Sync failed for entity:0x4f535046 representing Module OSPF ,event:32/36 maxNumEvents:55`
	`CP2  [04/06/15 14:43:38.927] 0x0001864a 00000000 GlobalRouter OSPF ERROR ospfsync_lsupdate_rx_event_cb: BAD event mask 0x40000. LSA does not exist! lsid 192.168.15.110 adv_rtr 10.139.150.110 type 2 seq 0x80000028 area 0.0.0.0`
	`CP2  [04/06/15 14:43:38.928] 0x0001079a 00000000 GlobalRouter HW ERROR framework_process_entity_data: Application Sync failed for entity:0x4f535046 representing`
		Avaya recommends you reset the standby CP, and the primary and secondary CPs will sync.

Table continues…

Issue number	Description	Workaround

	`Module OSPF ,event:32/36 maxNumEvents:55`
	`CP2  [04/06/15 14:45:14.018] 0x0001079a 00000000 GlobalRouter HW ERROR framework_process_entity_data: Application Sync failed for entity:0x4f535046 representing Module OSPF ,event:32/36 maxNumEvents:55`	

Hardware

Table 11: Known issues

Issue number	Description	Workaround
wi01102332	VSP 9000 interface modules have a high-profile, high-compression gasket that extends a very short distance above the edge of the front panel sheet metal. Some care needs to be taken to make sure that the insertion lever does not catch the gasket.	Check the clearance between the insertion lever and the gasket on adjacent modules during insertion or extraction. Also, inserting cards from bottom up makes this easier as per details in *Installing Modules in Avaya Virtual Services Platform 9000,* NN46250-301.
wi01181840	Remote fault indication detection is incorrectly reported through the front panel LED as a Local fault.	—
wi01213851	In rare cases, LEDs may erroneously report a link fault when physical connectivity is first established.	Disable and re-enable the port to clear the issue.
wi01218710	The AA1404036-E6 breakout cable is not supported on the VSP 9000 first generation 9024XL module.	—
wi01226942	VSP 9000 9024XL I/O modules do not support the following breakout cables: • QSFP+ to 4 SFP+ breakout cable, 1 meter (Passive), AA1404033-E6 • QSFP+ to 4 SFP+ breakout cable, 3 meter (Passive), AA1404035-E6 • QSFP+ to 4 SFP+ breakout cable, 5 meter (Passive), AA1404036-E6 The four SFP+ 10 Gigabit Ethernet ends of the QSFP+ breakout cables are	For alternate use on the 9024XL I/O module, one can use a 40GBASE-SR4 QSFP transceiver on the distant channelized 40 GigabitEthernet interface, with a fiber breakout patch lead connecting into 4 x 10GBASE-SR/SW SFP+ (AA1403015-E6) transceivers used in the 9024XL ports.

Table continues…

Issue number	Description	Workaround
	supported only on the 9048XS-2 I/O modules. VSP 9000 does not support the 40 Gigabit Ethernet ends of the QSFP+ breakout cables as the platform does not support channelization.	
wi01233925	Failure seen on second generation I/O modules while downgrading from Release 4.1 to 3.4.	You must remove second generation I/O modules (9048XS-2 or 9012QQ-2) before you downgrade to a release that does not support second generation I/O modules, which includes Release 3.4 and earlier. Failure to do so can result in a your system going down.

Management and general administration

Table 12: Known issues

Issue number	Description	Workaround
wi00509904	File transfer may fail when attempting to move large files with TFTP.	Use FTP for transfer of files larger than 32MB.
wi00510551	Compression options are not supported in SSHv2 but no error message is displayed when they are used.	Do not use compression options with SSHv2.
wi00520113	Transferring files using passive FTP may fail when using a Windows PC.	Use active mode when transferring files with FTP.
wi00979353	The ACLI command to configure the SNMPv3 trap target entry does not support the entry name configuration. The name is derived internally from the IP address and port number by using the MD5 hash. If you use EDM to create the trap target entry, the specified entry name is not retained after you use the **`save config`** command and restart the system. The name will be derived from the host IP address and port number.	—
wi01109195	The system does not support filenames that contain a colon (:).	Do not use a colon in filenames on the system.
wi01122342	If you create a default route in the Management VRF and create an FTP	Avaya recommends that you do not configure a default route in the

Table continues…

Issue number	Description	Workaround
	connection to the Global Routing Table VRF IP address, the outgoing FTP transfer data will go out the Management VRF.	Management VRF and instead use a static route. For more information about the Management VRF and static routes, see *Configuring IP Routing on Avaya Virtual Services Platform 9000,* NN46250-505. If by mistake you do get into this situation, on the host where you initiate FTP, set FTP to passive.
wi01129311	If you create a port mirroring instance and the monitoring destination is monitor VLAN, and the monitor VLAN has 3/1 as a port member, you will not see mirrored packets on 3/1. All other ports in the monitor VLAN will receive the mirrored packet.	If the mirrored packets must go out on 3/1, use the out-port parameter.
wi01177026	IPFIX flow entries are not displayed for the 9048XS-2 I/O module in the ACLI.	—
wi01177192	IPFIX hash statistics are not displayed for the 9048XS-2 I/O module.	—
wi01177518	The command **`ip ipfix template-refresh-packets`** does not work with the 9048XS-2 I/O module.	—
wi01178561	IPFIX flow records are not grouped in an export packet on 9048XS-2. Only one flow record per IPFIX export packet.	—
wi01177926	IPFIX flow information packets may not be captured according to the configured sample rate on the 9048XS-2 I/O module.	—
wi01190609	With IPFIX enabled, there can be packet loss seen at high traffic rates. If IPFIX is required, set the sample rate to a value below 50.	—
wi01190660	IPFIX does not show the egress port in flow packets if the egress port is part of an MLT.	—
wi01193995	The password prompt is displayed after entering a pass-phrase when authentication is set to pass-phrase only.	—

Table continues…

Issue number	Description	Workaround
wi01196660	EAPoL requests sent to the RADIUS Server regardless of whether RADIUS is globally enabled or not.	Remove the RADIUS server EAPoL entry from the configuraton.
wi01207160	The ACLI command **`show pluggable-optical-modules details`** displays all four channels of information for a 40GB QSFP. The equivalent EDM screen only displays one channel.	Use the ACLI command to display the complete set of information.
wi01233675	The system did not copy PLDS licenses over to the standby CP when the VSP 9000 chassis was in warm standby mode. In non HA-CPU, also called Warm Standby, the two CPs do not synchronize.In HA-CPU mode, also called Hot Standby, the two CPs synchronize.	If you use warm standby, then you must copy the PLDS license file to the warm standby CP manually. Avaya recommends that you do not run VSP 9000 in warm standby.
wi01233913	When an interswitch trunk (IST) second generation module port is mirrored, the link state messaging (LSM) packets are dropped on the mirrored port.	This is working as designed. LSM packets are never mirrored (either rx or tx direction).

MLT, SMLT, and link aggregation

Table 13: Known issues

Issue number	Description	Workaround
wi00822560	Disable member ports before deleting an MLT.	—
wi01169208	Users may experience unexpected behavior if they disable STP on one end of an MLT with LACP enabled.	—
wi01196289	Users may experience errors when downgrading SMLT ports.	—
wi01221622	After you disable and enable Interswitch Trunking (IST), and disable and enable the IPv6 VLAN interface, you are not able to see the peer Routed Split MultiLink Trunking (RSMLT) information.	—

Table continues…

Issue number	Description	Workaround
wi01231535	When you remove an LACP enabled port from all of the VLANs of which it is a member, then add it back to one of the same VLANs, the port may experience a loss of connectivity.	Use the **shutdown** command, followed by the **no shutdown** command to recover the port. Please note that this issue seems to be specific to LACP enabled ports. No issue is seen when tested with the same scenario with LACP disabled on the ports.

Multicast

Table 14: Known issues

Issue number	Description	Workaround
wi01115976	The system cannot filter specific senders and allow other senders to transmit on IGMPv2 enabled interfaces.	Use IGMPv3 for control plane restrictions or use ACL filters.
wi01128586	On interfaces enabled for Layer 3 VSN with Multicast (Layer 3 IP Multicast over Fabric Connect), IGMP V2 hosts requesting membership for group addresses in the Source Specific Multicast range (SSM) will not work properly if the IGMP version of the interface is 1 or 2.	This issue has 3 workaround scenarios: 1. IGMP V2 SSM range membership reports are fully supported on Layer 3 VSN Multicast interfaces by configuring the interface as follows: a. Set the IGMP version of the Layer 3 VSN multicast interface to 3. b. Enable **ip igmp compatibility-mode**. 2. The IGMP SSM range on the VRF is configurable and can be configured to restrict the SSM range to just one un-used multicast group address. Thus, all but this one group address will be in the non-SSM range, and any IGMPV2 membership group with non-SSM range address will be processed with no traffic loss. 3. The SSM range group can be configured as an IGMP static group entry for an outgoing port. This configuration will allow IGMPV3 membership with the

Table continues…

Issue number	Description	Workaround
		static SSM group range to be processed with no traffic loss. For example, under the VLAN Interface Configuration mode: `(config-if)#ip igmp static-group 232.1.1.1 232.1.1.2 6/1 static`

Patching and upgrading

Table 15: Known issues

Issue number	Description	Workaround
wi00511642	The **`software patch commit`** and **`software patch remove`** commands will not display messages such as Syncing release directory on backup CP card in slot 2 while executing the command in a Telnet session.	—
wi00888516	If you apply multiple patches using the patch-id parameter, and at least one patch is a candidate and at least one patch is a non-candidate, the system returns an error message. The error message identifies the non-candidate patch but does not indicate the other patches were applied, even though they were.	Use the **`show software patch`** command to see the status of the patches.
wi01115509	Do not wait for the software to auto-commit a reset patch. The auto-commit feature waits 240 minutes to commit a reset patch.	When you apply a reset patch, you must manually commit the patch after the chassis restarts.
wi01129127	While adding a version of software prior to VSP 9000 Release 3.4 to the system, the following message appears: `Unable to update release information for release X.` A new accounting feature was added to VSP 9000 Release 3.4 that tracks when a software release was added, activated, and committed. This feature is only supported on VSP 9000	This error message does not affect the add or activation of a prior VSP 9000 release and can be safely ignored.

Table continues…

Issue number	Description	Workaround
	Release 3.4 and later. During the software add of a prior release, the system cannot update the database because the database is not present in prior releases.	
wi01217421	When a unicast Address Resolution Protocol (ARP) response packet from the edge traverses through a 9024XL module, a 9048GT module, or a 9048GB module to a 9048XS-2 module, or a 9012QQ-2 module interswitch trunk (IST) multilink trunk (MLT), the special packet processing of ARP is not handled correctly. This led to an ARP request pointing to the IST cluster on one side and split multilink trunk (SMLT) on the local side, causing traffic issues. The patch is hitless, but the module has to power off, and then on again, for the new RSP image to be loaded.	1. Use the **`show software`** command to verify that the software load label on the chassis is 4.0.1.0.GA, which is the primary release. If the software label is not 4.0.1.0.GA do not proceed with the patch application and contact your next level of support. 2. FTP the patch file VSP9K. 4.0.1.0.GA-T01217421A.tgz to the /intflash in binary format. **Note:** Please ensure that the syncing of information to the backup CP module is complete before you proceed to the next step. 3. Ensure you are in Privileged EXEC mode, or higher, in ACLI. Use the **`software patch add VSP9K. 4.0.1.0.GA-T01217421A.tgz`** command to add the patch. 4. Use the **`show software patch`** command to ensure the patch status reads: “ca”. 5. Use the **`software patch apply patch-ids T01217421A`** command to apply the patch. 6. Use the **`show software patch`** command to ensure the patch status reads: “ap”, 7. Use the **`software patch commit`** command to commit the software. 8. Use the **`show software patch`** command to ensure the patch status reads: “ap”. 9. The module has to power cycle off, and then on, for the new RSP

Table continues…

Issue number	Description	Workaround
		image to take effect. Ensure you are in Global Configuration Mode in ACLI, and then, use the **no sys power slot {slot[-slot][,...]}** command for the particular slot to power off, followed by the **sys power slot {slot[-slot][,...]}** command, to power on the module. Now the new RSP image takes effect. **Note:** If you wish to remove the patch, enter the following commands in the following order to remove the patch: 1. `software patch revert patch-ids T01209683A` 2. `software patch commit` 3. `software patch remove version 4.0.1.0.GA patch-id T01209683A` 4. `show software patch`

QoS and filters

Table 16: Known issues

Issue number	Description	Workaround
wi01225029	If you configure the QoS shaper rate to a value lower than 100,000 kbps, on a port, an error message can appear. The current QoS shaper rate range is 10,000 to 40,000,000 kbps. Avaya only has QoS tables for 20G, 10G, 1G, and 100M. If a user enters a shape rate other than 10G, 1G, or 100 M the fabric is configured to 10G.	Do not configure the QoS shaper rate to a rate of lower than 100,000 kbps on a port.

Routing

Table 17: Known issues

Issue number	Description	Workaround
wi01028980	When booting with a configuration that contains duplicate IPv6 addresses on an SMLT VLAN, Duplicate Address Detection (DAD) fails and shows the preferred IPv6 address instead of Duplicate.	If you update the configuration, Duplicate Address Detection will work. Do not use the same address for RSMLT peers in the configuration file.
wi01082088	`OSPF INFO HA-CPU LSDB sanity check: AS external checksum total mismatch` log message is changed from Warning to Info.	This message indicates an internal error condition of a record, but has no functional impact, and OSPF operates correctly if an HA failover is performed. However, to investigate further perform the following: 1. Obtain **`show ip ospf ase`** information from both Master and Standby CPs. 2. Compare output: a. If only self-originated LSAs are out of sync with sequence number, then reset the Standby CP. b. If any LSAs are not self-originated and out of sync (disregard the age column), contact Avaya Support to report this issue.
wi01091347	In a dual CP configuration, if the OSPF Router ID is detected to be the same as another OSPF router, multiple framework sync error messages can appear on the Primary CP console window: `CP2 [04/04/13 07:22:51.191] 0x0001079a 00000000 GlobalRouter HW ERROR framework_process_entity_data: Application Sync failed for entity:0x4f535046.`	This condition is a misconfiguration in the network and very rare. If this condition occurs, enable tracing for OSPF to see the trace log for the hello packet received that has the same Router ID. Correct the other Router ID to be unique and these framework sync error messages will not appear.

Table continues…

Issue number	Description	Workaround
	These framework sync errors indicate a problem syncing the duplicate Router ID information to the Secondary CP, which is correct. There is no functional impact caused by these messages. Users can still create a Telnet connection to the switch and manage it. OSPF is working properly and not allowing a neighbor adjacency to form with the duplicate OSPF Router ID.	
wi01122597	**show ip arp** does not show the total number of ARP entries for the current VRF.	If you want to see an ARP summary per VRF, including the current VRF, use **show ip vrf**.
wi01126460	The VSP 9000 does not support less specific static routes with a global next-hop address that falls within the route being configured. For example: 2000::0/48 with next hop 2000::1 will be blocked even though the next hop addresss 2000::1 may be reachable with a more specific route.	Always configure static routes with a link-local next hop instead of global.
wi01134134	ACL filters with the default deny action and permit control-packet-action not working after a line card powers off and on.	Use the command **filter acl set 30 default-action deny control-packet-action permit** to restore functionality.
wi01163533	Highly scaled OSPF routes may not be advertised properly.	—
wi01164891	Timers cannot be configured between BGP peer groups.	—
wi01169460	When a BGP neighbor is applied with a outbound route map set with as-path prepend, the new as-path is not prepended to the permitted routes	—
wi01179396	Bytes count is not displayed in the **show filter acl statistics ACL# ACE#** command when applied to a 9048XS-2 I/O module.	—
wi01190374	BGP is not supported in COM 3.1.	—
wi01197696	The switch fabric does not load balance when the ingress port is on a legacy module and the egress port is a 40GB port. All the traffic egresses 1 switch fabric port which limits the throughput to the fabric port speed. This is an expected behavior.	—

Table continues…

Issue number	Description	Workaround
wi01195036	Filtered routes are removed from both the RTM and ip-unicast fib entry.	—
wi01196662	EAPoL is not logging a message when dynamic VLAN assignment occurs.	—
wi01202750	An error message is displayed when trying to delete ports from a disabled ACL.	—
wi01206135	Spoof detection does not work with the VRRP virtual IP address.	—
wi01207496	The **Match Protocol > ISIS** option is not available in EDM when creating a new policy on the **IP > Policy > Route Policy** screen.	Use the equivalent ACLI commands to perform this procedure.
wi01214987	The IPv6 routing packets forwarding path does not match with the hash-cal result.	—
wi01222093	The OSPFv3 neighbors will be stuck in the exchange/extract state if they are on the same IPv6 interface and the MTU does not match.	Match the MTU on the IPv6 interface, and disable and enable the OSPFv3 route globally.
wi01232911	If you enable spoof detect on a port, the current warning message is not worded correctly, and the message does not show up on Telnet and SSH sessions.	Ignore the message for now because it is not accurate. The message should state: “If you are running SMLT/VRRP/RSMLT, please ensure to configure spoof-detect on both SMLT/VRRP/RSMLT aggregation switches as well as all NNI interfaces where the vIST might terminate on to avoid connectivity issues."
wi01233918	In topologies where static routes that are configured to point to a VRRP virtual IP as the next hop in a different destination VRF, disable and enable of the backup master attribute on the node leads to traffic loss.	The disabling and enabling of the backup master attribute is not a support configuration.
VSP9000-466	If traffic enters on one NNI port in a Layer 2 VSN, and the traffic has to be routed out a different NNI using the default route, traffic is incorrectly dropped by the RSP. NNI to NNI routing for the Layer 2 VSN traffic is not an expected scenario if you adhere to the network design best practices. This issue is specific to second generation I/O modules, which include the	Use a more specific static route instead of a default route.

Table continues…

Issue number	Description	Workaround
	9048XS-2 and 9012QQ-2, and will be fixed in an upcoming sustaining release.	

Security

Issue	Description	Workaround
wi01224881	If a port is removed from a Connectivity Association (CA) in a MACsec configuration, all of the configurations are restored to the default settings without warning. This is working as expected.	—
wi01225546	If you enable replay protection for MACsec, and switch A sends N number of packets to switch B. If switch A fails, then comes back online, and re-establishes the link with switch B, switch B continues to drop packets from switch A as late packets until the packet number reaches N, because switch A started its packet number at 1.	Do not use replay protection until dynamic key exchange is supported.
wi01226107	After an upgrade and downgrade between Release 4.0.1.1 and Release 4.1.0.0, the MACsec configuration did not load, and the .shadov.txt file changed.	If you upgrade back to Release 4.1.0.0, you must manually key in the old MACsec keys for MACsec to work.
wi01231995 and wi01231997	MACsec replay protect is not supported on VSP 9000 in the current release.	If VSP 9000 is exchanging packets using MACsec with a VOSS switch (VSP 8400, VSP 8200, VSP 7200, or VSP 4000), Avaya recommends you disable MACsec replay protect on the VOSS switch. Failure to disable MACsec replay protect on the VOSS device may cause the far end device to drop packets.

SPBM and IS-IS

Table 18: Known issues

Issue number	Description	Workaround
wi01004034	The ERS **`show isis spbm show-all`** command is not available on VSP 9000.	—

wi01109764	In a highly-scaled Layer 2 VSN (IGMP snooping) Multicast over Fabric Connect configuration on an IST peer router, if IS-IS is disabled globally on both IST peers, and then re-enabled, the following error log can appear:
	`BEB_1:1(config)#CP1 [06/26/13 05:01:58.985] 0x0006c69e 01b00001 DYNAMIC SET GlobalRouter IPMC ERROR The maximum number of Egress Records (pepstreams) 7901 has been reached!! CP2 [06/26/13 05:01:59.053] 0x0006c6a4 00000000 GlobalRouter IPMC ERROR ipmSysAllocEgressRec FAIL PepStrGetNew G 232.31.12.4 InVlanId 2412 CP1 [06/26/13 05:01:58.988] 0x0006c69f 01b00001 DYNAMIC CLEAR GlobalRouter IPMC ERROR The number of Egress Records (pepstreams) is now below the maximum number supported 7901`
		Disable and re-enable IGMP snooping. Perform the following in ACLI:
		`# config terminal`
		`(config)# interface vlan 100`
		`(config-if)# no ip igmp snooping`
		`(config-if)# ip igmp snooping`

wi01117073	`ISIS WARNING isisCheckPtptSrm:send lsp 00be.b000.0200.00-43 seq112. invalid lsp (nil) or len 27` messages intermittently appear on the console when both IST peers booted simultaneously.	There is no functional impact observed.
wi01128615	When a VSP 9000 receives MinM packets with a Destination MAC as that of its own BMAC, ingress mirroring on NNI ports will show the B-TAG ethertype as 0x88A8 even if 0x8100 was used on the wire.	—

Table continues…

Issue number	Description	Workaround
wi01177656	The counters for the **show isis spbm drop-stats port unknown-unicast-sa** command do not increment when used with a 9048XS-2 I/O module.	—
wi01181089	When making changes to route redistribution into ISIS while LSP usage is greater than 128, all routes may not be properly redistributed.	Disable redistribution of routes into ISIS until LSP usage falls below 128 LSP's, then re-enable and apply redistribution.
wi01188301	IS-IS "subnet allow" and "subnet suppress" are not supported.	—
wi01192838	IS-IS LSDB Host Name set to NULL before the LSPID life time expires.	—
wi01196147	A maximum of 20,000 routes are advertised per BEB.	—
wi01201590	IS-IS routes can stop being redistributed while configuring IS-IS Accept Policies.	Apply the accept policies again.
wi01227604	IS-IS Link State Database (LSDB) traps generated incorrectly.	—
wi01230022	Redistribution configurations were lost while doing a dynamic I-SID change in a Layer 3 VRF.	This is working as designed. If you want to change the I-SID, you must disable the IP VPN. However, even after you disable the IP VPN, if you change the I-SID, then all IP VPN related configurations associated with that I-SID are deleted.
wi01233885	IPv6 is not supported on a VLAN where SPB is enabled (L2VSN/IPSC/L3VSN). If IPv6 is configured on a VLAN where SPB is enabled, the following error message appears in the log: `OVPE_UTL ERROR utl_getLpidRange: invalid slot number 1`	IPv6 over SPBM is not supported. For more information, see New features on page 15.
VSP9000–427	The **clear statistics** command does not clear the drop statistics, such as rpfc-unicast-sa or unknown-multicast-da.	—

VLAN operations

Table 19: Known issues

Issue number	Description	Workaround
wi01169208	VLAN interface does not become enabled on a 9024XL I/O module when a LACP MLT is the only member.	—
wi01229734	On second generation modules, the default VLAN is set to '0' on a tagged port if you remove the default VLAN from the port, and VLACP link goes down.	Assign an unused VLAN to be the default VLAN.

Additional Known Issues

Issue Number	Description	Workaround
wi01181840	Remote fault recognition is not functioning correctly for 1G optics. The local switch will continue to attempt transmit data if transmit connection is broken.	—
wi1195104	Not all IPFIX flows are exported on the 9048XS-2 module.	—

Limitations

This section lists known limitations and expected behaviors that may first appear to be issues. The following table provides a description of the limitation or behavior and the work around, if one exists.

Table 20: Limitations and expected behaviors

Issue number	Description	Workaround
wi00511257	If you change the priority of, and then disable and enable the MLT port on an Ethernet Routing Switch 8600, the port takes 35 seconds to become the designated forwarding port on the root bridge. This condition causes traffic interruption for 35 seconds.	—

Table continues…

Issue number	Description	Workaround
wi00511527	MSTP bridges may not learn the correct CIST regional root.	If you encounter this problem you can change the bridging priority of the switch to make sure the root selection occurs as desired.
wi00565499	If you use VSP and Ethernet Routing Switch 8600 on a VLAN, and all systems operate in MSTP mode, a loop can be generated if you restart a VLAN port on the Ethernet Routing Switch.	Disable the links on the Ethernet Routing Switch.
wi00664833	The MAC DA filter only applies for traffic that is bridged through the device. If the packet is routed, then the legacy MAC DA filter does not apply for traffic that is routed through the box.	Use ACL-based filters to implement the MAC DA filter. The ACL-based filter works correctly regardless of whether the packet is bridged or routed.
wi00689238	If a VSP 9000 aggregation switch sends a high volume (more than 3000) of OSPF or RIP routes to an Ethernet Routing Switch 8600 edge device to redistribute into an OSPF domain, the CPU utilization of the edge device can increase, which results in dropping all VLACP packets from the VSP device. The VLACP link operational state is down.	—
wi00691506	A topology change of an SMLT link between VSP 9000 systems and Ethernet Routing Switch 8600 Release 5.1.3 results in dropped packets. This problem occurs when one of the two MLT ports of the ERS is not a designated port or a root port. Topology changes make this port a blocking port and also other ports of the MLT change to the same state (blocking).	—
wi00732215	When all members of an LACP aggregation go down, the ARP record corresponding to the aggregation gets deleted and needs to be re-ARPed to forward traffic across IST.	To work around this problem use regular MLT interfaces instead of LACP interfaces. If LACP is required, the traffic recovery time will be between 1-12 seconds based on volume of re-ARPing required.
wi00733551	The Bandwidth Allocation Group (BAG) rate configuration of all ports is based on the maximum port speed of the module during the system bootup time. When you configure an interface shaper and it is lower than the maximum port	—

Table continues…

Issue number	Description	Workaround
	speed, the BAG rate becomes larger than the port forwarding rate. This condition is an incorrect Qos configuration. As a result, low priority traffic is not dropped as expected.	
wi00820028	You should clear the cache of the browser used to configure and monitor the device after an image upgrade. If this is not done incorrect screen displays can result.	Clearing the browser cache is found in **Tools** > **Internet Options** > **Browser History** > **Delete** > **Delete all ….** in Internet Explorer 7.0 and in **Tools** > **Clear Recent History** > **Select all options** > **Clear Now** in Firefox 3.6.x.
wi00854206	For VLACP enabled links, recommended values exist for the configuration of the VLACP timers. However, in an SMLT topology, with VLACP and multicast both enabled on the SMLT link, you may need to adjust or increase the VLACP timers on that link to accommodate for a scaled multicast environment where there is a higher processing load on the CP, especially during failover events. This higher load can affect the ability to process VLACP keep-alive messages in a timely manner, which can cause the link to flap. You may need to configure timers proportionately to the anticipated multicast route load.	Avaya recommends that you configure IST links with a VLACP timeout of long, timeout scale of 3, and slow-periodic-time of 30 000 ms. These links are not impacted by multicast scaling considerations.
wi00981875	VSP 9000 management-plane-initiated applications that do not have VRF specific context are biased toward the Management Router routing table. When you configure a default route on both the Management Router and the Global Router, the default route on the Management Router takes precedence.	If you require both in-band management (Global Router) and out-of-band management (Management Router), the default route should not be present on the Management Router. Configure static routes for specific management networks in the desired VRF instead.
wi01068569	If you disable redistribution, and then apply a policy, you receive a warning that you need to apply the policy even though you already did. When you enable redistribution, and then apply the policy, you do not receive the warning because you already applied the policy.	—

Table continues…

Issue number	Description	Workaround
	This is working as expected.	
wi01086118	Ingress port mirroring does not work if the VLAN for the incoming packet does not match the VLAN for the port.	—
wi01162590	Do not enable LACP on IST ports.	Use MLT configuration with VLACP long timers. To remove an IST configuration, use the **`no ist peer-ip`** command. For more information about LACP configuration, see *Link Aggregation Control Protocol (LACP) 802.3ad and VLACP for VSP and ERS Technical Configuration Guide*, NN48500-502.
wi01164112	If you disable LACP on a square or full-mesh core network because you need to make an LACP configuration change, you can cause a looping scenario.	If you need to modify the LACP configuration, for example, change the LACP key, on a square or full-mesh core network, you must perform the following tasks: 1. Shutdown all LACP ports. 2. Make the configuration change. 3. Bring all LACP ports back up.
wi01167121	You can experience loss of multicast and broadcast traffic if you mix interface speeds in the same VLAN and on the same slice. For example, ports 4/1, 3/1 and 3/2 are in the same VLAN. 3/1 is a 1 Gbps port and 3/2 is a 10 Gbps port. If 4/1 is sending broadcast or multicast traffic in the VLAN, the maximum output from 3/2 will be the same as 3/1. If 4/1 is sending 2 Gbps of traffic, 3/1 and 3/2 will have a maximum of 1 Gbps output. If the ports are on different slices, the 1 Gbps port will send 1 Gbps of traffic and the 10 Gbps port will send 2 Gbps of traffic.	Do not mix interface speeds within the same group of ports that comprise a slice and are members of the same VLAN.

Table continues…

Issue number	Description	Workaround
	A slice is equal to two lanes. A lane refers to the following grouping of ports on an I/O module: • For 24-port modules: a group of four ports, for example 1-4 or 5-8, and so on. • For 48-port modules: a group of eight ports, for example, 1-8 or 9-16, and so on.	

MLT configuration recommendation

MLT is designed for redundancy and robustness for when the components and subsystems that comprise the network fail. To take advantage of this, it is suggested that MLT links span different I/O cards so that if there is a failure on a card it only takes down one MLT link and the others continue to operate normally. If there are more MLT ports required on a single card, those links should reside in different slices on a given card. A slice is a grouping of ports that are handled by a single forwarding engine on the I/O card.

show pluggables Command

You may have to wait up to 30 seconds between subsequent `show pluggables` commands to give time for pluggable information to be refreshed.

Flash drive format

New external flash devices come with a FAT16 format. While this appears to work correctly when inserted into a 9080CP card, there is an incompatibility issue when there are more than 169 log files created. The incompatibility will cause the logging mechanism to stop writing any new log files. To correct this issue you need to reformat any new flash device after it has been inserted into the 9080CP with the `dos-format` command as explained in the document *CP Module Compact Flash Replacement*.

Power supply LEDs

VSP 9000 Power Supply LEDs are in a non-deterministic state when the CP Power Supply indicator is lit RED, indicating a fault. There will be log messages indicating the Power Supply fault event but the LEDs may be RED, GREEN or OFF.

IPFIX and IS-IS

IPFIX is not supported on IS-IS interfaces. Log messages such as the following will appear repeatedly in the log files:

```
IO3 [10/25/13 13:58:50.722] 0x0001c68d 00000000 GlobalRouter HW ERROR getSlotIdFromLpid:
LPID (2868) is not associated with a slot!
IO3 [10/25/13 14:02:30.791] 0x000005e0 00000000 GlobalRouter SW ERROR Invalid LPID: 2904
for getPimPortFromLpid conversion!!!
```

Displaying egress QoS queue weights

There is no mechanism to display the egress QoS queue weights in general or on a port basis.

The no ist enable command

The **`no ist enable command`** only dynamically disables an IST. It does not delete it. The IST will become enabled again the next time the chassis restarts.

Chapter 6: Resolved issues

This chapter identifies the issues resolved in Release 4.1.

Alarm, logging, and error reporting

Table 21: Resolved issues

Issue number	Issue description
wi01224927	Debug routing to dump zagros registers are missing for second generation modules.

Chassis operations

Table 22: Resolved issues

Issue number	Issue description
wi01182679	The update implements the 40 gigabit Switch Fabric (SF) module driver.
wi01211138	In VSP 9000 Release 3.4.3.0, the message “Extflash Unavailable. Logging to Extflash not started” can appear, and you may not be able to configure logging to the extflash after the extflash has been reformatted to mkdosfs, an MS-DOS file system under Linux on a device.
wi01217758	When connected to a 4450GSX-PWR+ through a 10 gigabit link, if you use the commands **`shutdown`**, followed by **`no shutdown`** of a VSP 9000 port, the action results in mismatched link states; with the VSP 4000 side up, and the VSP 9000 side down.
wi01223830	Porting of wi01221756 to VSP 9000, Release 4.1.0.0. VSP 4000, Release 4.1.0.0 software device failed with tShell-cli, Signal 11.

Table continues…

Issue number	Issue description
wi01226457	When a monitoring tool is used to poll the VSP 9000, CPU utilization daily at a frequent interval, the system occasionally reported 100 per cent CPU utilization for a fraction of a second. This high CPUm utilization had no impact on the system. The WI wi01226457 is a clone of wi01225223.
wi01230741	There was an invalid master slot number on one of the slices in some instances after boot up

Hardware

Table 23: Resolved issues

Issue number	Issue description
wi01217871	ACLI and EDM are not displaying information correctly for the breakout cables AA1404036-E6 and AA1404033-E6.

Management and general administration

Table 24: Resolved issues

Issue number	Issue description
wi01164854	The command `show pluggable-optical-modules` may display inaccurate information.
wi01178852	*Monitoring Performance on Avaya Virtual Services Platform 9000,* NN46250-701, added additional information on `show khi forwarding mac <3-10>` and `show khi forwarding mac-higig <3-10>` support. The two commands are not supported on second generation modules. The `show khi forwarding sierra <3-10>` command is only available on second generation modules.
wi01194506	Both management IPs must be configured to use the virtual management IP.
wi01195052	The initial NTP synchronization after boot up can take up to 15 minutes.

Table continues…

Issue number	Issue description
wi01202461	An error message may display when deleting a file whose name contains a colon.
wi01206147	Users may experience failures in MIB walk when two IPFIX collectors are configured and the IP address of the first collector is higher than the IP address of the second collector.
wi01208627	Users may not see the control packets transmitted by the CP in the capture buffer when PCAP is enabled at the port level.
wi01211531	Users may see errors in their logs files in rare instances when the number of log files in storage is greater than 999.
wi01212217	In VSP 9000 Release 4.0, for the 9048XS-2 module, a datapath issue prevented the module from collecting critical show commands, and blocked the use of EDM.
wi01219653	Crash seen while adding the subtree object identifier (OID) for the notify-filter under the SNMP server.
wi01222776	If you configure the port name string length to greater than 40 characters, then subsequent attempts to save the configuration can lead the switch to reset to factory settings after a reboot.
wi01224044	A security Penetration Scan performed to ensure PCI compliance for VSP 9000 required additional commands to be added.
wi01224431	After deletion of the PLDS premier+macsec license file, if you use the **`save config`** command, the file should not be saved on the master or the standby.
wi01225109	When the PLDS premier+macsec trial license is loaded then the logs message displays that the premier license had been loaded previously, although the licence is in the process of loading.
wi01225142	When show license is done for PLDS premier and PLDS premier plus MACsec, then the RSA encryption details should not be displayed.
wi01226712	The base license should support 24 VRFs, and for more than 24 VRFs Premier license should be required.
wi01229048	Trial license expiry date displays different numbers on the same day.

MLT, SMLT, and link aggregation

Table 25: Resolved issues

Issue number	Issue description
wi01182045	A VSP 9000 switch, using first generation modules, failed “Process Name: cbcp-main.x., Thread Name: tMainTask” when booted with 4084 IPv6 Routed Split MultiLink Trunking (RSMLT) enabled VLANs on 128 SMLT interfaces.
wi01192436	Currently if the MultiLink Trunk goes up or down the device does not send an SNMP trap.

Multicast

Table 26: Resolved issues

Issue number	Issue description
wi01193274	Invalid group displayed on console after a CPU switch over.

Routing

Table 27: Resolved issues

Issue number	Issue description
wi01181026	The **`show ipv6 vrrp statistics`** command does not display the IPv6 Virtual Router Redundancy Protocol (VRRP) interface statistics results on a port level, but the command does display the statistics correctly globally, when you verify IPv6 VRRP statistics.
wi01197732	When an Interswitch Trunk (IST) VLAN goes up and down quickly during boot, the device can create a new smltSlave () thread before the device terminates the previous smltSlave(). Two smltSlave() threads run concurrently. Multiple smltSlave() threads access SmltInfo data structure and can cause a deadlock.

Table continues…

Issue number	Issue description
wi01202426	A customer saw IcdPimPortToMac messages in the logs, which displayed as, “COP-SW ERROR IcdPimPortToMac: invalid PIM_PORT”. This was also seen in similar WIs, wi01125251 and wi01131449. The message can occur during an SNMP query for dot3StatsTable entries, that MIB is processed in a code path different from the one seen in wi01125251 and wi01131449.
wi1202429	A tagged port with **`untag-port-default-vlan`** enabled can still send tagged packets for the default VLAN. This occurs when a trunk port, configured to **`untag-port-default-vlan`**, belongs to no VLAN, for instance the null VLAN, and is made a member of a VLAN. vlanActivatePort() makes that VLAN the default VLAN of the port, but does not check whether by default a trunk port sends tagged packets, and no check exists for **`untag-port-default-vlan`**, so the default tag of outgoing ports remains configured.
wi01204001	When an interface cost changes, the cost is not updated on all areas. For an invalid setup, where the same route is learned from many areas, the message is not shown on the console, and not visible for a configuration problem. With multiple OSPF areas configured, and both of them advertising the same IP prefix, if you increase the cost of the OSPF interface, over which the best route is learned to make that route the sub-optimal route, then the best route, which is in some other area, is not getting installed into routing table.
wi01206320	Users may observe a port bounce in the log when inserting a 40GB DAC cable.
wi01216764	Flapping of OSPF neighbors on multiple VSP 9000s occurred in the network under a high rate of ARP or RARP.
wi01217238	IST cluster deployments with a mixture of first and second generation I/O modules, and where the IST ports are configured on the second generation modules, ARP entries may incorrectly point traffic toward the IST MLT when they should be pointing toward the SMLT on which it was learned, resulting in dropped packets. Cluster deployments with only one module type deployed (first or second generation) will not experience this issue.

Table continues…

Issue number	Issue description
wi01217900	Broadcast traffic into the Layer 2 VLAN is being copied to the CPU when there is no IP assigned to the VLAN.
wi01218105	In VSP 9000 Release 3.4.3, CP limit was not being triggered by BC traffic correctly if you configure the CP limit to 5800 or higher.
wi01225100	Crash observed when more than 30 BGP network statements are configured.
wi01226453	Default route redistribution is not taking effect on the switch. The second generation module is not forwarding traffic that matches the default route, and the next hop is Shortest Path Bridging (SPB). The problem exists only in the Layer 3 Virtual Services Network (VSN) context, but not in the Global Routing Table (GRT).
wi01227602	IPv6 neighbor is not deleted after the port is shutdown.
wi01227678	After you configure IPv6 static-route with next-hop 0::0 from ACLI, the EDM shows IPv6 static-route next-hop as N/A. After you delete this entry from EDM, and try to create the same it has failed.
wi01229081	With legacy IPv6, with the port down, IPv6 local equivalent route failed to clear RTM.
wi01230001	Cannot ping or delete the IPv6 static neighbour.

Security

Table 28: Resolved issues

Issue number	Issue description
wi01225228	No breakage of command output is available for the **`show macsec connectivity-association`** command.
wi01226584	The MACsec command execution fails on multiple interfaces if one of the interfaces throws an error.
wi01229278	Secondary CP did not sync with the primary CP, after the secondary CP slot reset.

SPBM and IS-IS

Table 29: Resolved issues

Issue number	Issue description
wi01222787	If you configure the IS-IS sys-name with a space character it can lead to a the switch returning to the default factory configuration upon a system reboot.

QoS and filters

Table 30: Resolved issues

Issue number	Issue description
wi01224933	When QoS policy peak-rate was configured to 40,000,000 for a one gigabit port, the system displayed BCM errors.

Appendix A: Features and hardware models by release

This section provides an overview of the features and hardware models introduced in Releases 3.x and 4.0.

Features for Release 3.x and 4.0

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

Features	New in this release		
	4.1	**4.0**	**3.x**
Operations and Management			
Avaya CLI (ACLI) For more information, see *ACLI Commands Reference for Avaya Virtual Services Platform 9000,* NN46250-104.			X
Enterprise Device Manager (EDM) For more information, see *Using ACLI and EDM on Avaya Virtual Services Platform 9000,* NN46250-103.			X
File Transfer Protocol (FTP) and Trivial File Transfer Protocol (TFTP) IPv4 addresses			X
File Transfer Protocol (FTP) and Trivial File Transfer Protocol (TFTP) IPv6 addresses			X
Key Health Indicators (KHI) For more information, see *Monitoring Performance on Avaya Virtual Services Platform 9000,* NN46250-701.			X
Media Access Control Security (MACsec) For more information, see *Administering Avaya Virtual Services Platform 9000,* NN46250-600.	X		
Packet Capture Tool (PCAP)			X

Table continues…

Features	New in this release		
	4.1	4.0	3.x
For more information, see *Troubleshooting Avaya Virtual Services Platform 9000,* NN46250-700.			
SLA Mon™ For more information, see *Monitoring Performance on Avaya Virtual Services Platform 9000,* NN46250-701.			X
Simple Network Management Protocol (SNMP) For more information, see *Configuring Security on Avaya Virtual Services Platform 9000,* NN46250-601.			X
SSH and secure copy (SCP) For more information, see *Administering Avaya Virtual Services Platform 9000,* NN46250-600.			X
SSH client support For more information, see *Administering Avaya Virtual Services Platform 9000,* NN46250-600.			X
VSP Talk For more information, see *Administering Avaya Virtual Services Platform 9000,* NN46250-600.			X
Layer 2			
Bridge Protocol Data Unit (BPDU) Filtering For more information, see *Configuring VLANs and Spanning Tree on Avaya Virtual Services Platform 9000,* NN46250-500.			X
IEEE 802.1D Mac Bridges/Spanning Tree IEEE 802.1w/s RSTP/MSTP IEEE 802.1p/Q Virtual LAN IEEE 802.3x Flow control (RX enabled/TX disabled) For more information, see *Configuring VLANs and Spanning Tree on Avaya Virtual Services Platform 9000,* NN46250-500.			X
Layer 2 remote mirroring For more information, see *Troubleshooting Avaya Virtual Services Platform 9000,* NN46250-700.			X
Link Aggregation Control Protocol (LACP) and Virtual LACP (VLACP)			X

Table continues…

Features	New in this release		
	4.1	4.0	3.x
For more information, see *Configuring Link Aggregation, MLT, and SMLT on Avaya Virtual Services Platform 9000,* NN46250-503.			
Lossless Ethernet For more information, see *Network Design Reference for Avaya Virtual Services Platform 9000,* NN46250-200 and *Configuring Ethernet Modules on Avaya Virtual Services Platform 9000,* NN46250-508.	Not supported on second generation I/O modules.	Not supported on second generation I/O modules.	X
Port, Source MAC, IP subnet, and Protocol-based VLANs For more information, see *Configuring VLANs and Spanning Tree on Avaya Virtual Services Platform 9000,* NN46250-500.			X
MultiLink Trunking (MLT), Split MultiLink Trunking (SMLT) For more information, see *Configuring Link Aggregation, MLT, and SMLT on Avaya Virtual Services Platform 9000,* NN46250-503.			X
Simple Loop Prevention Protocol (SLPP) for more information, see *Administering Avaya Virtual Services Platform 9000,* NN46250-600.			X
Layer 3			
Address Resolution Protocol (ARP), Reverse ARP (RARP) For more information, see *Configuring IP Routing on Avaya Virtual Services Platform 9000,* NN46250-505.			X
Border Gateway Protocol (BGP) For more information, see *Configuring BGP Services on Avaya Virtual Services Platform 9000,* NN46250-507.			X
BGP 4–byte AS For more information, see *Configuring BGP Services on Avaya Virtual Services Platform 9000,* NN46250-507.			X
Classless interdomain routing (CIDR)			X

Table continues…

Features	New in this release		
	4.1	**4.0**	**3.x**
For more information, see *Configuring IP Routing on Avaya Virtual Services Platform 9000,* NN46250-505.			
Circuitless IP (CLIP) For more information, see *Configuring IP Routing on Avaya Virtual Services Platform 9000,* NN46250-505.			X
Equal Cost Multipath (ECMP) For more information, see *Configuring IP Routing on Avaya Virtual Services Platform 9000,* NN46250-505.			X
Internet Control Message Protocol (ICMP) For more information, see *Configuring IP Routing on Avaya Virtual Services Platform 9000,* NN46250-505.			X
Internet Group Management Protocol (IGMP) For more information, see *Configuring IP Multicast Routing Protocols on Avaya Virtual Services Platform 9000,* NN46250-504.			X
IGMP Layer 2 Querier For more information, see *Configuring IP Multicast Routing Protocols on Avaya Virtual Services Platform 9000,* NN46250-504.			X
IGMP, virtualized For more information, see *Configuring IP Multicast Routing Protocols on Avaya Virtual Services Platform 9000,* NN46250-504.			X
Internet Protocol Flow Information eXport (IPFIX) For more information, see *Monitoring Performance on Avaya Virtual Services Platform 9000,* NN46250-701.			X
IPv6 (OSPFv3, VRRP, and RSMLT) For more information see *Configuring BGP Services on Avaya Virtual Services Platform 9000,* NN46250-507 and *Configuring IPv6 Routing on Avaya Virtual Services Platform 9000,* NN46250-509.	X All IPv6 features are supported in Release 4.1, except for BGP +, IPv6 tunnels, IPv6 Shortcuts, and IPv6 filters.	Not supported	X

Table continues…

Features	New in this release		
	4.1	4.0	3.x
Layer 3 remote mirroring For more information, see *Troubleshooting Avaya Virtual Services Platform 9000,* NN46250-700.			X
Open Shortest Path First (OSPF) For more information, see *Configuring OSPF and RIP on Avaya Virtual Services Platform 9000,* NN46250-506.			X
Protocol Independent Multicast–Sparse Mode (PIM-SM), PIM-Source Specific Mode (PIM-SSM) For more information, see *Configuring IP Multicast Routing Protocols on Avaya Virtual Services Platform 9000,* NN46250-504.			X
Routed Split MultiLink Trunking (RSMLT) For more information, see *Configuring IP Routing on Avaya Virtual Services Platform 9000,* NN46250-505.			X
Routing Information Protocol (RIP) For more information, see *Configuring OSPF and RIP on Avaya Virtual Services Platform 9000,* NN46250-506.			X
Virtual Router Redundancy Protocol (VRRP) For more information, see *Configuring IP Routing on Avaya Virtual Services Platform 9000,* NN46250-505.			X
Virtual Routing and Forwarding (VRF) For more information, see *Configuring IP Routing on Avaya Virtual Services Platform 9000,* NN46250-505.			X
Upper layers			
Extensible Authentication Protocol over LAN (EAPoL) For more information, see*Configuring Security on Avaya Virtual Services Platform 9000,* NN46250-601.			X
Dynamic Host Configuration Protocol (DHCP) Relay For more information, see *Configuring IP Routing on Avaya Virtual Services Platform 9000,* NN46250-505.			X

Table continues…

Features	New in this release		
	4.1	4.0	3.x
DHCP Relay Option 82 For more information, see *Configuring IP Routing on Avaya Virtual Services Platform 9000,* NN46250-505.			X
Domain Name Service (DNS) For more information, see *Administering Avaya Virtual Services Platform 9000,* NN46250-600.			X
Microsoft Network Load Balancing (NLB) For more information, see *Configuring VLANs and Spanning Tree on Avaya Virtual Services Platform 9000,* NN46250-500.			X
Microsoft NLB ARP multicast-MAC-flooding support For more information, see *Configuring VLANs and Spanning Tree on Avaya Virtual Services Platform 9000,* NN46250-500.			X
Network Time Protocol (NTP) For more information, see *Administering Avaya Virtual Services Platform 9000,* NN46250-600.			X
Remote Access Dial-In User Services (RADIUS) IPv4 For more information see, *Configuring Security on Avaya Virtual Services Platform 9000,* NN46250-601.			X
RADIUS IPv6 For more information see, *Configuring Security on Avaya Virtual Services Platform 9000,* NN46250-601.	X	Not supported	X
Terminal Access Controller Access Control System Plus (TACACS+) For more information, see *Configuring Security on Avaya Virtual Services Platform 9000,* NN46250-601.			X
User Datagram Protocol (UDP) For more information, see *Configuring IP Routing on Avaya Virtual Services Platform 9000,* NN46250-505.			X
Avaya Fabric Connect			
Connectivity Fault Management (CFM)			X

Table continues…

Features	New in this release		
	4.1	4.0	3.x
For more information, see *Configuring Avaya Fabric Connect on Avaya Virtual Services Platform 9000,* NN46250-510.			
IS-IS accept policies, see *Configuring Avaya Fabric Connect on Avaya Virtual Services Platform 9000,* NN46250-510.		X	
IS-IS adjacencies scaling Release 4.0 offers enhanced scaling for IS-IS adjacencies. Support increases to 128 adjacencies, up from 64 in prior releases.		X	
Shortest Path Bridging MAC For more information, see *Configuring Avaya Fabric Connect on Avaya Virtual Services Platform 9000,* NN46250-510.			X
Multicast over Fabric Connect For more information, see *Configuring Avaya Fabric Connect on Avaya Virtual Services Platform 9000,* NN46250-510.			X
Quality of Service and filtering			
Diffserv framework For more information, see *Configuring QoS and ACL-Based Traffic Filtering on Avaya Virtual Services Platform 9000,* NN46250-502.			X
Quality of Service (QoS) For more information, see *Configuring QoS and ACL-Based Traffic Filtering on Avaya Virtual Services Platform 9000,* NN46250-502.			X
Traffic filtering For more information, see *Configuring QoS and ACL-Based Traffic Filtering on Avaya Virtual Services Platform 9000,* NN46250-502.			X

Hardware models for Release 3.x and 4.0

The following table provides a list of the hardware models and components introduced in Releases 3.x and 4.0

Model or component	Part number	Release
Chassis		
Virtual Services Platform 9010 AC chassis, see *Installing the Avaya Virtual Services Platform 9000,* NN46250-304.	EC1402002-E6	3.4

Table continues…

Model or component	Part number	Release
Virtual Services Platform 9012 chassis, see *Installing the Avaya Virtual Services Platform 9000,* NN46250-304.	EC1402001- E6	3.0
Control Processor module		
9080CP Control Processor module, see *Installing Modules in Avaya Virtual Services Platform 9000,* NN46250-301.	EC1404007-E6	3.0
Cooling modules		
9012FCHS high-speed cooling module, see *Installing Cooling Modules in Avaya Virtual Services Platform 9000,* NN46250-302.	EC1411004 –E6	3.4.3
9010CM cooling module, see *Installing Cooling Modules in Avaya Virtual Services Platform 9000,* NN46250-302.	EC1411012-E6	3.4
9012RC Switch Fabric cooling module, see *Installing Cooling Modules in Avaya Virtual Services Platform 9000,* NN46250-302.	EC1411002- E6	3.0
9012FC IO cooling module, see *Installing Cooling Modules in Avaya Virtual Services Platform 9000,* NN46250-302.	EC1411001- E6	3.0
Input/Output modules		
9048XS-2, see *Installing Modules in Avaya Virtual Services Platform 9000,* NN46250-301.	EC1404005-E6	4.0
9012QQ-2, see *Installing Modules in Avaya Virtual Services Platform 9000,* NN46250-301. .	EC1404008-E6	4.0.1
9024XL, see *Installing Modules in Avaya Virtual Services Platform 9000,* NN46250-301.	EC1404001-E6	3.0
9048GB, see *Installing Modules in Avaya Virtual Services Platform 9000,* NN46250-301.	EC1404002-E6	3.0
9048GT, see *Installing Modules in Avaya Virtual Services Platform 9000,* NN46250-301.	EC1404003-E6	3.0
Power supply		
9006AC power supply, see *Installing AC Power Supplies in Avaya Virtual Services Platform 9000,* NN46250-303.	EC1405A01-E6	3.0
Switch Fabric module		
9095SF module, see *Installing Modules in Avaya Virtual Services Platform 9000,* NN46250-301.	EC1404009-E6	3.4
9090SF Switch Fabric module, see *Installing Modules in Avaya Virtual Services Platform 9000,* NN46250-301.	EC1404006- E6	3.0