Installing and Configuring Avaya Aura™ System Platform

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Downloading documents

For the most current versions of documentation, see the Avaya Support Web site: http://www.avaya.com/support

Contact Avaya Support

Avaya Inc. provides a telephone number for you to use to report problems or to ask questions about your product. The support telephone number is 1-800-242-2121 in the United States. For additional support telephone numbers, see the Avaya Web site: http://www.avaya.com/support

Contents

Chapter 1: System Platform installation

System Platform installation

The Avaya Aura™ System Platform installation has many parts to it. It requires

- installing the server(s) hardware
- connecting the server to the customer's network
- connecting two servers if using the high availability failover option
- installing the System Platform software on the server
- installing the solution template
- configure the Secure Access Link (SAL) gateway included in System Platform for remote support and alarming

Server installation and connectivity

System Platform is installed on either an Avaya S8510 Server or an Avaya S8800 Server. These servers arrive at the customer's site with all the appropriate components and memory. Nothing needs to be added to the servers on site.

The server or servers require CAT5 Ethernet cables to connect to the customer's network and to each other for System Platform High Availability Failover. Both the servers must be connected with a gigabit-crossover cable on the ports identified as eth2 on operating system for High Availability Failover.

System Platform software

You can install System Platform using two different methods:

- A laptop connected to the Services port on the server (this port is identified as eth1 in the server).
- A video monitor, keyboard, and mouse connected to the appropriate ports on the server.

Access the System Platform installer through either a DVD drive or a USB flash drive. Depending on the method chosen from which to install System Platform, you must either burn the ISO image to a blank DVD or copy the ISO images to a USB flash. In either installation scenario, Avaya recommends that you verify that the ISO image is not corrupted before starting the System Platform installation.

Use the provided worksheets and checklists during installation.

PLDS

The System Platform downloadable software, the solution templates to run on System Platform and the licenses for installing the solution templates are available in the PLDS (Product Licensing and Delivery System) Web site (http://plds.avaya.com).

Secure Access Link (SAL)

System Platform includes Avaya's Secure Access Link (SAL) gateway to manage service delivery (alarming and remote access). SAL requires upload bandwidth (customer to Avaya) of at least 90 KB/s (720 KB/s) with latency no greater than 150 ms (round trip.)

You must configure SAL with the customer's network and register during the installation process. For Avaya to provide support, Business Partners and/or their customers need to ensure that SAL is configured and registered properly. Avaya support will be delayed or not possible if SAL is not properly implemented.

Business Partners without a SAL Concentrator must provide their own B2B VPN connection (or other IP-based connectivity) to deliver remote services. SAL does not support modem connections.

Pre-installation checklist for System Platform

Being prepared for the installation makes it go faster. Before starting the installation make sure that you complete the following tasks.

Task	Notes	✔
Gather the required information relating to installation, such as IP configuration information, DNS addresses, NTP server addresses. See Installation worksheet for System Platform on page 20.		
Download the System Platform installer ISO image file from PLDS See Downloading the System Platform and solution template software from PLDS on page 13.		
Download the appropriate solution template software from PLDS See Downloading the System Platform and solution template software from PLDS on page 13.		
Verify that the downloaded ISO image matches the one on the PLDS Web site See Verifying the ISO image on a linux machine on page 23 and Verifying the ISO image on a Windows machine on page 24.		

Task	Notes	✔

Select the media that you will be using to install the System Platform software. You can install System Platform either from a DVD drive or from a USB flash drive. Perform the following tasks based on your selection:
 	
• If you are installing System Platform from a DVD, burn the ISO images to separate DVDs.
 	
• If you are installing System Platform from a USB flash drive, do the following:
 	
  - Set up the USB flash drive(s)
   See Setting up a USB flash drive for System Platform installation on page 23.
 	
  - Save the ISO image(s) to the USB flash drive(s)		

If you are installing System Platform through a laptop, do the following: • Ensure that a telnet and Secure Shell application is installed on the laptop. Avaya supports open source ssh/telnet client application PuTTy. • Set up the laptop See Laptop setup checklist on page 45. • Configure the laptop to bypass proxy servers See Laptop setup checklist on page 45.		

Chapter 2: Downloading the System Platform and solution template software from PLDS

You must download the System Platform software and the required solution template software to run on System Platform from the PLDS (Product Licensing and Delivery System) Web site. The downloadable System Platform software is available as an ISO image. After downloading the ISO image, burn it on a DVD or copy it to a USB flash drive for installation. The format of the downloadable solution template software depends on the solution template. See specific solution template documentation for more information.

1. Type http://plds.avaya.com in your web browser to open the Product Licensing and Delivery System Web site.

2. Click **Log in with my password**.

3. Enter your login and password details.

   Your login id is your e-mail address.

4. Click **Log In**.

5. On the **Home** page, expand **Asset Mgmt** and click **View Downloads**.

6. On the **Downloads** page, enter your company's name in the **%Company** field.

7. In the **Application** drop down menu, choose the template or application to run on System Platform, for example, **Midsize Business Template**.

8. Click **Search Downloads**.

9. On the **Software Downloads** list, locate **System Platform X.iso** (X stands for System Platform version, for example System Platform 1.1), and click **Download**.

10. On the **About the Download Manager** page, click **Click to download your file now**.

11. If you receive an error message asking you to install Active X, click on the message, and follow the instructions on the screen to install the latest version Active X, and then continue with the download.

12. When the security warning displays, click **Install**.

    When the install is complete, Product Licensing and Delivery System (PLDS) displays the downloads again with a checkmark next to the download which is successfully completed.

13. (Optional) If you are downloading solution template software, follow the steps that are specific to the solution template. See the relevant solution template documentation for more information.

14. Burn a DVD of the installer files or copy the installer files to a USB flash drive to use for installation.

Chapter 3: Installation Prerequisites for System Platform

What Avaya provides

Avaya provides the following items for installing System Platform:

- One or two servers. One is for standard configuration, and two are for high availability failover configuration.
- Equipment for mounting the server(s) in a rack.
- System Platform installation software, which includes Linux operating system.
- Other hardware as ordered, such as a uninterruptible power supply (UPS). UPS is a required component.

What customer provides

The customer must provide the following items for installing System Platform.

- Standard equipment rack properly installed and solidly secured.
- USB keyboard, USB mouse, video monitor, and associated cables or laptop PC with an Ethernet crossover cable.
- Gigabit ethernet crossover cable for high availability.
- Blank DVDs or FAT32-formatted, 2-GB USB flash drives for installing the software.
- A Web browser. System Platform supports Internet Explorer 7.
- Filled out worksheets with system and network information needed for installation and configuration.
- Access to the customer network.
- VPN Gateway, if needed for Business Partner remote access.

> 😊 **Note:**
> Business Partners must arrange for their own IP-based connectivity (for example, B2B VPN) to provide remote services. Modem connectivity is not supported.

S8510 Server

Avaya-provided equipment

> 🛈 **Important:**
> Starting December 2009, Avaya would provide only S8800 Servers. S8510 would be supported only for an upgrade operation.

Avaya provides the following equipment:

- Server and power cord
- Static rails rack kit, which contains
  - One pair of static mounting rails with brackets
  - One pair of chassis static rail modules
  - 10–32 x 0.5–in. flange-head cross-head screws (Phillips head)
  - Two, releasable tie wraps.
- Other hardware as ordered, such as a uninterruptible power supply (UPS).

Customer-provided equipment

The customer must provide the following equipment:

- Standard 19–in.4–post equipment rack properly installed and solidly secured. Rack must meet the following standards:
  - American National Standards Institute (ANSI) and Electronic Industries Association (EIA) standard ANSI/EIA-310–D-92.
  - International Electrotechnical Commission (IEC) 297.
  - Deutsche Industrie Norm (DIN) 41494.
- Screws that come with the racks for installing the rails.
- USB keyboard, USB mouse, and monitor (optional for configuration).
- AC power from a nonswitched electrical outlet.
- Access to the customer's network.

Recommended tools and supplies

You may need the following items to install the server in a 4–post rack:

- • #2 crosspoint (Phillips) screwdriver
- • Masking tape or felt-tip pen for marking the mounting holes.

Safety instructions

Use the following safety guidelines to ensure your own personal safety and to help protect your system and working environment from potential damage.

Observe the following precautions for rack stability and safety. Also refer to the rack installation documentation accompanying the rack for specific caution statements and procedures.

Systems are considered to be components in a rack. Thus, "component" refers to any system as well as to various peripherals or supporting hardware.

⚠ **Caution:**

Before installing systems in a rack, install front and side stabilizers on stand-alone racks or the front stabilizer on racks joined to other racks. Failure to install stabilizers accordingly before installing systems in a rack could cause the rack to tip over, potentially resulting in bodily injury under certain circumstances. Therefore, always install the stabilizer(s) before installing components in the rack.

After installing system/components in a rack, never pull more than one component out of the rack on its slide assemblies at one time. The weight of more than one extended component could cause the rack to tip over and may result in serious injury.

✳ **Note:**

Your system is safety-certified as a free-standing unit and as a component for use in a rack cabinet using the customer rack kit. It is your responsibility to ensure that the final combination of system and rack complies with all applicable safety standards and local electric code requirements.

System rack kits are intended to be installed in a rack by trained service technicians.

⚠ **Caution:**

Always load the rack from the bottom up, and load the heaviest item in the rack first.

Make sure that the rack is level and stable before extending a component from the rack.

Use caution when pressing the component rail release latches and sliding a component into or out of a rack; the slide rails can pinch your fingers.

Do not overload the AC supply branch circuit that provides power to the rack. The total rack load should not exceed 80 percent of the branch circuit rating.

Ensure that proper airflow is provided to components in the rack.

Do not step on or stand on any component when servicing other components in a rack.

S8800 Server

Avaya-provided equipment

Avaya provides the following equipment:

- Server and power cord
- Slide rails
- Cable management arm assembly
- Cable management arm stop bracket
- Cable management arm mounting bracket
- Cable management support arm
- Two 10–32 screws
- Four M6 screws
- Five small cable ties
- One large cable tie
- Other hardware as ordered, such as uninterruptible power source (UPS).

Customer-provided equipment

The customer must provide the following equipment:

- Standard 19–inch 4–post equipment rack that is properly installed and solidly secured. The rack must meet the following standards:
  - American National Standards Institute (ANSI) and Electronic Industries Association (EIA) standard ANSI/EIA-310–D-92.
  - International Electrotechnical Commission (IEC) 297
  - Deutsche Industrie Norm (DIN) 41494
- Screws that come with the racks for installing the rails
- #2 cross-point (Phillips) screwdriver or 3/8 inch flathead screwdriver
- USB keyboard, USB mouse, and monitor must be available on-site for advanced installation or troubleshooting.

• Power from a nonswitched electrical outlet

• Access to the network

Safety instructions

Use the following safety guidelines to ensure your own personal safety and to help protect your system and working environment from potential damage.

Observe the following precautions for rack stability and safety. Also refer to the rack installation documentation accompanying the rack for specific caution statements and procedures.

Systems are considered to be components in a rack. Thus, *component* refers to any system as well as to various peripherals or supporting hardware.

⚠️ **Danger:**

• Before installing systems in a rack, install front and side stabilizers on stand-alone racks or the front stabilizer on racks that are joined to other racks. Failure to install stabilizers before installing systems in a rack could cause the rack to tip over, potentially resulting in bodily injury.

• After installing components in a rack, never pull more than one component out of the rack on its slide assemblies at one time. The weight of more than one extended component could cause the rack to tip over and may result in serious injury.

✳️ **Note:**

• Your system is safety-certified as a free-standing unit and as a component for use in a rack cabinet using the customer rack kit. It is your responsibility to ensure that the final combination of system and rack complies with all applicable safety standards and local electric code requirements.

• System rack kits are intended to be installed in a rack by trained service technicians.

🛈 **Important:**

• Two or more people are required to install components that are 2U or larger in a rack cabinet.

• Always load the rack from the bottom up, and load the heaviest item in the rack first.

• Make sure that the rack is level and stable before extending a component from the rack.

• Do not overload the AC supply branch circuit that provides power to the rack. The total rack load should not exceed 80 percent of the branch circuit rating.

• Ensure that proper airflow is provided to components in the rack:

  - Do not block any air vents; usually 15 cm (6 in.) of space provides proper airflow.

  - Install the server only in a rack cabinet with perforated doors.

- Do not leave open spaces above or below an installed server in your rack cabinet. To help prevent damage to server components, always install a blank filler panel to cover the open space and to help ensure proper air circulation.

• Do not step on or stand on any component when servicing other components in a rack.

• Do not place any object on top of rack-mounted components.

⚠️ **Caution:**

Use caution when pressing the component rail release latches and sliding a component into or out of a rack; the slide rails can pinch your fingers.

Installation worksheet for System Platform

The System Platform installer application requires you to fill in several fields. Having the information available at the time of installation makes it go faster and ensures accuracy.

Print out the following tables and work with your network administrator to fill in the rows.

System Domain (dom-0) network

Field	Value	Notes
IP address		
Hostname		This is the hostname for System Domain (Dom 0)

Console Domain network

Field	Value/requirement	Notes
IP address		
Hostname		This is the hostname for Console Domain.

General network settings

Field	Value/requirement	Notes
Network mask		
Default gateway		It will be the default gateway for all the virtual machines, if you do not configure gateways for them.
Primary DNS		

Field	Value/requirement	Notes
Secondary DNS		Optional
NTP Server 1		Use of NTP server is optional. However, Avaya recommends its use.
NTP Server 2		Optional
NTP Server 3		Optional

eth1

This is a physical Ethernet interface (NICs) on the server. You must configure these interfaces for IP. The table shows the default settings for the Services port. Avaya recommends keeping these default settings.

Field	Value/requirement	Notes
Static IP	192.11.13.6	
Subnet mask	255.255.255.252	
Default gateway IP		

Passwords

Default passwords are provided. You should change these default passwords.

Field	Value/requirement	Notes
root		
admin		
cust		
ldap		

Preparing for installation

You can use a DVD or a USB flash drive for installing System Platform. After you decide your preferred media for installation, you must set up the DVD or the USB flash drive for the installation. You must also verify the ISO image after downloading from the PLDS site. The flow of tasks for preparing yourself for the installation is as follows:

- Set up the media to install the software. Do one of the following depending on your preferred media:

    -

    -

> ⊛ **Note:**
>
> If you are not familiar with Linux commands, Avaya recommends that you install System Platform using a DVD.

- Do one of the following depending on your system:

Verify the System Platform ISO image. Do one of the following depending on your operation system

- - Verifying the ISO image on a linux machine on page 23.
- - Verifying the ISO image on a Windows machine on page 24.

Setting up a DVD for System Platform installation

Prerequisites

Downloading the System Platform and solution template software from PLDS on page 13

Verifying the ISO image on a linux machine on page 23 or Verifying the ISO image on a Windows machine on page 24

If you want to use a DVD to install System Platform, perform the following tasks to set up the DVD.

Burn the ISO image of the System Platform installer on a DVD.

You can burn a DVD on any computer or server that has a DVD burner.

Setting up USB flash drive

System requirements for USB flash drive

The system requirements for installing System Platform using a USB flash drive are as follows:

- A FAT32 formatted USB flash drive with the bootable flag set. Avaya recommends a minimum 2-GB USB flash drive, but this minimum may change depending on the size of the installer image.
- A laptop or server that has Linux operating system installed, for example Red Hat 5.3 or CentOS 5.3.

Setting up a USB flash drive for System Platform installation

Prerequisites

[Downloading the System Platform and solution template software from PLDS](#) on page 13

[Verifying the ISO image on a linux machine](#) on page 23.

If you want to use a USB flash drive to install System Platform, perform the following tasks to set up the USB flash drive.

1. Open Command Line Interface on a 32bit or 64bit Linux workstation.

2. Type `mount -o loop /path/to/vsp-root.iso /path/to/mountpoint` to mount the System Platform installer ISO image on the server or on your laptop running Linux operating system, for example, Red Hat 5.3.

3. Type `cp -r /path/to/mountpoint /path/to/tempdir` to copy this mounted directory to a temporary work directory.

4. Type `cd /path/to/tempdir/usbkey` change directory to the usbkey directory in this temporary work directory.

5. Connect your USB flash drive to the USB port in the server or the laptop. Make a note of the device (typically, /dev/sdb) and the mountpoint (for example, /mnt/usbkey)

6. Type `./setup_usbkey.sh /dev/sdb /mnt/usbkey` to run the **setup_usbkey.sh** script, entering the device and usb key mountpoint as arguments.

7. Disconnect the USB flash drive and use it to install System Platform.

Verifying the ISO image on a linux machine

Perform the following tasks to verify the ISO image in a DVD or in a USB flash drive.

1. Enter **md5sum filename**, for example, md5sum sp1.1.iso.

2. Compare the ISO image with the `md5sum` number on the System Platform installer download page in the PLDS Web site.

3. Ensure that both the numbers are same.

4. (Optional) If the numbers are different, download the ISO image again and verify.

Verifying the ISO image on a Windows machine

Perform the following tasks to verify the ISO image in a DVD or in a USB flash drive.

1. Download the System Platform installer ISO image from the Avaya Product Licensing and Delivery System (PLDS) Web site.

2. Refer to one of the following links and follow the instructions to verify that the ISO image you have downloaded is not corrupted.

   - http://www.md5summer.org/

   - http://zero-sys.net/portal/index.php?kat=70

   - http://code.kliu.org/hashcheck/

   😊 **Note:**

   Avaya has no control over the content published on these external sites. Please use the content only as reference.

3. (Optional) If the ISO image is corrupted, download the image again and verify.

Chapter 4: Server installation and connectivity

System Platform is installed on either the Avaya S8510 Server or the Avaya S8800 Server. Servers are installed in customer-provided racks and connected to the customer's network.

The server installation process includes:

- attaching rails to the rack
- installing the server to the rails
- connecting the server to a power supply
- connecting the server to the customer network.

See Installing and connecting the S8510 Server and Installing and connecting the S8800 Server topics for more information.

Installing and connecting the S8510 Server

Server installation checklist

#	Task	Notes	✔
1	Verify that all equipment is on site	Compare the list of items that were ordered to the contents of the boxes. Use the inventory list provided by your project manager; do not rely on the packing slips inside the boxes for the correct information.	
2	Verify that rack is installed to code		
3	Verify that rack is grounded per local code	See *Approved Grounds* (555–245–772), available at http://support.avaya.com.	
4	Remove cabinet doors, if necessary	See cabinet manufacturer's documentation.	

#	Task	Notes	✔
5	Marking the rack on page 26		
6	Attaching rails to the server on page 27		
7	Attach the rails to the rack		
8	Installing the server in the rack on page 28		
9	Replace the cabinet doors, if necessary	See cabinet manufacturer's documentation.	
10	Turning on the server on page 28		
11	Troubleshoot the installation		

Marking the rack

Prerequisites

The rack must be installed. If installing the server in a cabinet, then the doors must be removed.

You must allow 1 U (44 mm, or 1.75 in.) of vertical space for each server you install in the rack.

Rack cabinets that meet EIA-310 standards have an alternating pattern of three holes per rack unit with center-to- center hole spacing (beginning at the top hole of a 1-U space) of 15.9 mm, 15.9 mm, and 12.7 mm (0.625 in., 0.625 in., and 0.5 in.) for the front and back vertical rails. Rack cabinets may have round or square holes.

Note:

The vertical rails may be marked by horizontal lines and numbers in 1-U increments. If you want, you can make a note of the number marking on the rack's vertical rail. It is not necessary to mark or place tape on the rack

Caution:
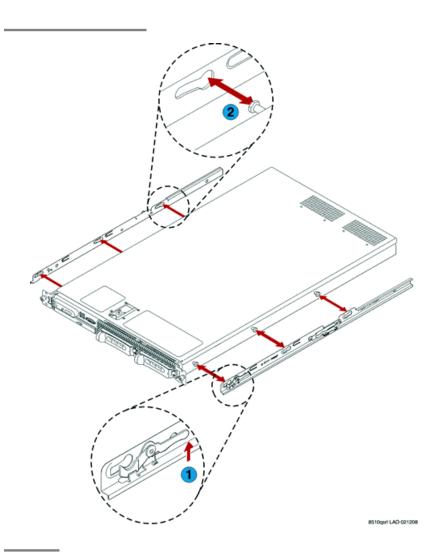
If you are installing more than one server, install the mounting rails so that the first server is installed in the lowest available position in the rack. If you are installing a UPS in the same rack as the server(s), install the UPS in the lowest available position in the rack and the servers above it.

1. Place a mark (or tape) on the rack's front vertical rails where you want to locate the bottom of the server.

The bottom of each 1-U space is at the middle of the narrowest metal area between holes (marked with a horizontal line on some rack cabinets).

2. Place a mark 1.75 in. (44 mm) above the original mark you made (or count up three holes in a rack) and mark the rack's front vertical rails with a felt-tipped pen or masking tape. If you counted holes, place a mark just above the top hole.

   This mark or piece of tape indicates where the system's upper edge will be located on the vertical rails.

Attaching rails to the server

8510qsrl LAO-021208

Installing the server in the rack
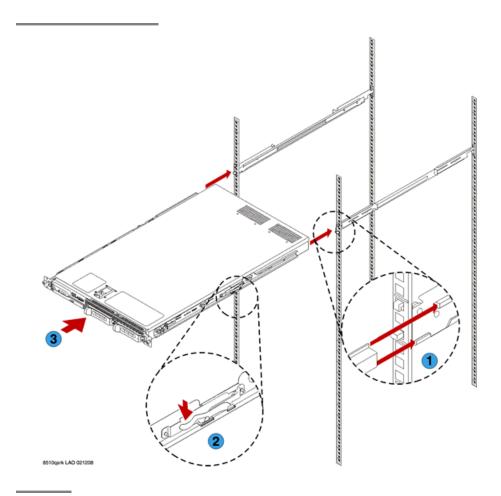
Prerequisites

The rails must be attached to the server and the rack before installing the server in the rack. If the server is being installed in a cabinet, remove the doors, following the cabinet manufacturer's instructions.

8510qark LAO 021208

Next steps

If the server is being installed in a cabinet, reattach the doors, following the cabinet manufacturer's instructions.

Turning on the server

Once the server is installed in the rack, you want to turn it on to make sure it is working. Once determined, turn it off again before inserting any software CD/DVD into the CD/DVD drive.

1. Plug one end of the power cord into the back of the power supply and the other end into a UPS or nonswitched outlet.

2. Press the power button on the front of the server.

   The green power button lights and the LCD displays Avaya when the power is on.
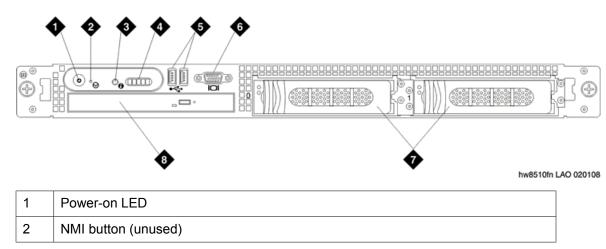
Next steps

Refer to specific product documentation for information on installing the operating system and software

Connecting to server and network

Perform the following tasks to connect to the server and to the network:

- Connect a monitor and a keyboard to the server, use the video connector and USB port in the server. See the *Front view of server* topic.

- Connect the server to the customer's network, connect the cable to Ethernet connector port (eth0, which is labelled as port 1). See the *Back view of server* topic.

- Connect the server for High Availability Failover, connect the eth cables to eth2, which is labelled as port 3 on the server. For High Availability, both the servers must be in close proximity, approximately 10 meters.

Front view of server

hw8510fn LAO 020108

1	Power-on LED
2	NMI button (unused)

3	System ID button
4	LCD display
5	USB ports
6	Video connector (unused)
7	Hard disk drives
8	Optical DVD/CD drive

Back view of server

hw8510bn L
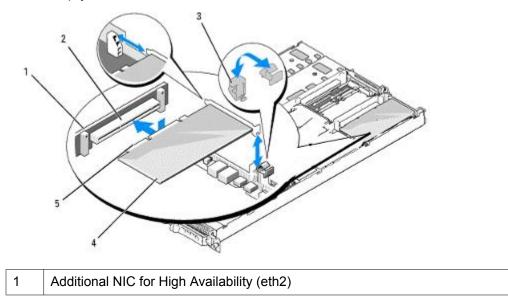
 Note:

SAMP cards must not be present in the Avaya System Platform servers. If you have
upgraded from a SAMP configuration, then you must remove the SAMP card.

1	Remote access controller (unused)
2	Serial connector
3	Video connector (for optional use of monitor)
4	USB ports (for optional use of mouse and keyboard)
5	GB-1/ eth 0
6	GB-2/ eth 1(services port)
7	System status indicator connector
8	System status LED
9	System ID button
10	Bay for optional redundant power supply
11	Power supply
12	NIC for Media Services (eth3)

13	NIC for High Availability (eth2)

The following picture shows the server, (the front of the server is on the bottom left). When facing the front of the server, the NIC card is installed in the back right corner. The middle PCI slot is empty.

1	Additional NIC for High Availability (eth2)

Installing and connecting the S8800 Server

Server installation checklist

#	Task	Notes	✔
1	Verify that all equipment is on site.	Compare the list of items that were ordered to the contents of the boxes. Use the inventory list provided by your project manager. Do not rely on the packing slips inside the boxes for the correct information.	
2	Verify that the rack is installed according to the manufacturer's instructions and in accordance with all local codes and laws.		

#	Task	Notes	✔
3	Verify that the rack is grounded in accordance with local electrical code.	See *Approved Grounds* (555–245–772), available at http://support.avaya.com.	
4	Remove the cabinet doors, if necessary.	See the cabinet manufacturer's documentation.	
7	Attaching rails to the rack on page 32		
8	Installing the server in the rack on page 34		
	Install the cable management arm (optional)		
9	Replace the cabinet doors, if necessary.	See the cabinet manufacturer's documentation.	
10	Turning on the server on page 36		
11	Troubleshoot the installation.		
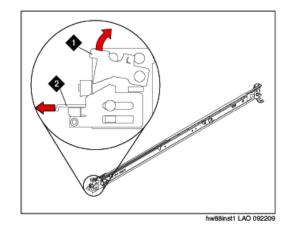
Attaching rails to the rack

Prerequisites

If the slide rails in your rack installation kit came with thumbscrews installed, remove them before you begin the following installation procedure.

Each slide rail is marked with either an R (right) or an L (left).
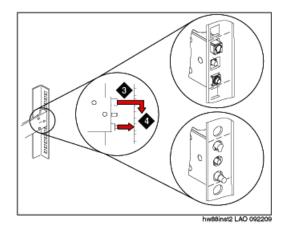
1. Select one of the slide rails and push up on the front moveable tab (1). See the following figure.

hw88inst1 LAO 092209
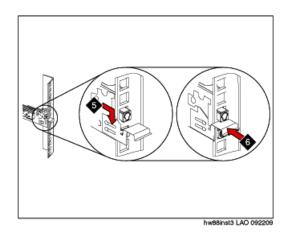
2. Pull out the front latch (2) to slide out the front side rail. See the preceding figure.

3. From the front of the rack, line up the three pins on the rear of the slide rail with the three holes in the selected U on the rear of the rack. Push the rails so that the pins go into the holes (3). See the following figure.

> ⓘ **Important:**
> When you install a 2U server, be sure to install the slide rails in the bottom U of the 2U area in the rack.

hw88inst2 LAO 092209

4. Drop the slide rail down (4) until it latches into place. See the preceding figure.

5. Pull the slide rail forward, and insert the two pins (5) on the front of the rail into the two lower holes in the U on the front of the rack. See the following figure. Drop the rail into place until it clicks.

hw88inst3 LAO 092209

6. Push the front latch (6) in all the way. See the preceding figure.

7. Repeat this procedure to install the other rail onto the rack.

8. Make sure that each front latch is fully engaged.

Next steps
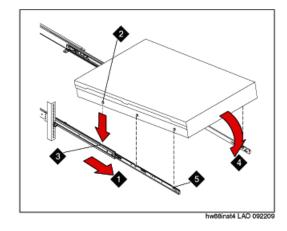
Install the server in the rack.

Installing the server in the rack
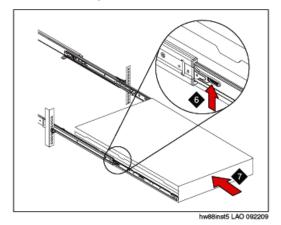
Prerequisites

Attach rails to the rack.
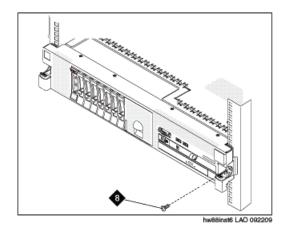
1. Pull the slide rails forward (1) until they click, two times, into place. See the following figure.

hw88inst4 LAO 092209

2. Carefully lift the server and tilt it into position over the slide rails so that the rear nail heads (2) on the server line up with the rear slots (3) on the slide rails. See the preceding figure.

3. Slide the server down until the rear nail heads slip into the two rear slots.

4. Slowly lower the front of the server (4) until the other nail heads slip into the other slots on the slide rails. See the preceding figure.

5. Make sure that the front latch (5) slides over the nail heads. See the preceding figure.

6. Lift the locking levers (6) on the slide rails. See the following figure.

hw88inst5 LAO 092209

7. Push the server (7) all the way into the rack until it clicks into place. See the preceding figure.

8. Insert the optional M6 screws (8) in the front of the server when you move the rack cabinet or if you install the rack cabinet in a vibration-prone area. See the following figure.

hw88inst6 LAO 092209

Next steps

Install the cable management arm if desired.

Turning on the server

After the server is installed in the rack, turn it on to make sure that it works. Once you determine that it works, turn it off before you start any software installation procedure.

> 🛑 **Important:**
> You must wait for the power-on LED to blink slowly (one flash per second) before pressing the power button. If you press the power button while the power-on LED is blinking quickly (three flashes per second), the server will not turn on.

1. Plug one end of the power cord into the back of the power supply and the other end into a UPS or nonswitched outlet.
   Approximately five seconds after the server is connected to power, one or more fans might start running to provide cooling, and the power-on LED will blink quickly (three flashes per second). Approximately three minutes after the server is connected to power, the power-on LED will blink slowly (one flash per second), and one or more fans might start running.

2. Once the power-on LED begins to blink slowly, press the power button on the front of the server.
   The power-on LED will stop blinking and stay lit. After you press the power button, the server takes approximately five minutes to initialize.

   > 🛑 **Important:**
   > Avaya recommends that users not change the default uEFI/BIOS settings.

Next steps
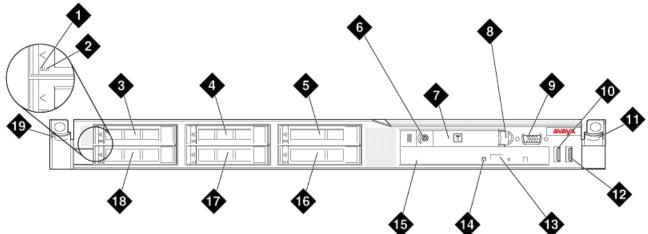
See the specific product documentation for information on installing the operating system and software.

Connecting to server and network

Perform the following tasks to connect to the server and to the network:

- Connect a monitor and a keyboard to the server, use the video connector and USB port in the server. See the *Front view of server* topic.

- Connect the server to the customer's network, connect the cable to Ethernet connector port (eth0, which is labelled as port 1). See the *Back view of server* topic.

- Connect the server for High Availability Failover, connect the eth cables to eth2, which is labelled as port 3 on the server. For High Availability, both the servers must be in close proximity, approximately 10 meters.

Front of server
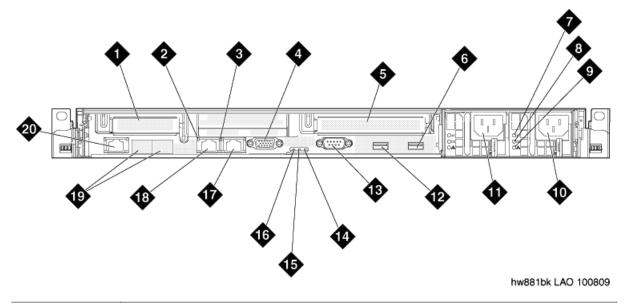
hw881fn LAO 092209

1	Hard disk drive activity LED (green)
2	Hard disk drive status LED (amber)
3	Drive bay 0
4	Drive bay 2

5	Drive bay 4
6	Power control button and LED
7	Operator information panel
8	Operator information panel release latch
9	Video connector
10	USB connector 1
11	Rack release latch
12	USB connector 2
13	DVD eject button
14	DVD drive activity LED
15	DVD drive
16	Drive bay 5
17	Drive bay 3
18	Drive bay 1
19	Rack release latch

Back of server

hw881bk LAO 100809

1	PCIe slot 1 (used for optional Ethernet connectors 5 and 6)
2	Ethernet activity LED

3	Ethernet link LED
4	Video connector
5	PCIe slot 2
6	USB connector 4
7	AC power LED (green)
8	DC power LED (green)
9	Power supply error LED (amber)
10	Power supply 2 (redundant power supply)
11	Power supply 1 (primary power supply)
12	USB connector 3
13	Serial connector
14	System error LED (amber)
15	System locator LED (blue)
16	Power LED (green)
17	Ethernet connector 2 , which is eth1.
18	Ethernet connector 1 , which is eth0.
19	eth2 NIC (for High Availability) is on the left side and eth3 NIC (for Media Services) is on the right side of the network card.
20	System management Ethernet connector (IMM)

Chapter 5: Getting started for System Platform installation

System Platform installation overview

Installation method:

You can install System Platform using one of the following methods:

Install through server console

In this method, you can connect a monitor and a keyboard to the respective ports in the server, and use the DVD-ROM drive or the USB port in the server to load the System Platform installer.

Install through laptop

If there is no console or KVM (keyboard, mouse, and monitor) connection available, you can install System Platform through a laptop connected to the services port in the server. After connecting your laptop to the server, use the DVD-ROM drive or the USB port in the server to load the System Platform installer. See Configuring the laptop on page 46 for more information on setting up the laptop and installing using the laptop.

> ✳ **Note:**
> It is possible to complete the installation using only a keyboard and monitor by navigating between fields using the tab key.

Installation media:

You can install System Platform either by inserting the DVD into the DVD-ROM drive or connecting the USB flash drive to the USB port in the server.

If you are using a USB flash drive for installing System Platform, then you must set the server to boot from the USB flash drive. See *Formatting a USB drive* topic for information on changing the boot device.

Verifying the System Platform image:

If you are installing through the server console, then the server boots up from the System Platform DVD or USB flash drive and loads the server to display the Avaya screen. At this stage, you can either press Enter to continue with the installation, or verify the System Platform image in the DVD or USB flash drive by typing `vsp mediacheck` at boot prompt. Ensure that

you perform either of the tasks within 30 seconds after the system displays the Avaya screen. Verify the System Platform image only if you did not verify the image after downloading from PLDS. See Verifying the System Platform image on page 43 for more information.

🛈 Important:

If you do not press Enter or type `vspmediacheck` within 30 seconds after the system displays the Avaya screen, the system disables the installation through the server console and enables installation through the services port. The system displays the Waiting for telnet connection screen, so that you can connect to the server through telnet. At this stage, you can also reset the server to go back to the earlier screen to continue installation through the server console.

If you are installing through the services port, you will not be able to connect through telnet until the system displays the Avaya screen and times out after receiving no input from you.

Installation checklist for System Platform

The flow of System Platform installation is as follows:

Task	Notes	✔
Turn on the server See Starting the installation on page 61.		
Insert the DVD or USB flash drive in the server See Starting the installation on page 61.		
Do one of the following: • Press Enter to continue with the installation See Starting the installation on page 61. • (Optional) If you did not verify the System Platform image earlier, verify the image. See Verifying the System Platform image on page 43		
If installing System Platform through the services port using a laptop, access the **Keyboard Type** screen through Putty See Accessing the Keyboard Type screen through PuTTY on page 49.		
Select the required keyboard type See Selecting the required keyboard type on page 50.		
Configure the network settings for System Domain (Domain-0) See Configuring network settings for System Domain (Domain-0) on page 50.		

Task	Notes	✔
Configure the network settings for Console Domain Configuring network settings for Console Domain on page 52.		
Configure the time zone for the System Platform server See Configuring the time zone for the System Platform server on page 53.		
Configure date and time for the System Platform server See Configuring date and time for the System Platform server on page 54.		
Configure System Platform passwords See Configuring System Platform passwords on page 56.		
Verify the System Platform installation See Verifying System Platform installation.		
Verify access to System Platform Management Console. See Accessing System Platform Management Console on page 58.		
Register system and configure the SAL gateway for remote access and alarming. See Registering system and configuring SAL gateway on page 73.		
Install a solution template. See Selecting a template to install on page 75.		
If applicable, configure System Platform High Availibility Failover. See Configuring System Platform High Availability Failover.		

Verifying the System Platform image

Use this procedure only if you did not verify the System Platform image after downloading from PLDS Website. You can view the CD Found screen only after the system displays the Keyboard Type screen.

1. Type `vspmediacheck` in the boot prompt and press Enter to verify that the image on the System Platform DVD or the USB flash drive is not corrupted.

2. The system displays the `CD Found` page. Use the **Tab** key to select **OK** to test the media, or select **Skip** to skip the test and begin the installation immediately.

If you choose to test the media then the system displays another page with a progress bar and the percentage completion. After the completion of the test, the system displays information whether the image has passed the verification test. At this stage you can continue with the installation.

Navigation rules for System Platform screens

Use the Tab key or Enter key to move to the next field. Once you are at the last field on a form, use the Tab key to highlight a button (such as the **OK** button) and press Enter or Space to select the button. Use the Space key to select or deselect check box items (for example, **Use NTP** on the Date/Time and NTP setup screen). You can use the Tab key to move across the buttons and back to the first field. You can also use the up arrow or down arrow key to go to the next or previous field.

In a scrolling list (for example, Keyboard Type screen), use the up or down arrow key to highlight the required choice, then use the Tab key to move to fields or buttons.

In the System Domain Network Configuration screen, you can use the down or up arrow key to select the device while in the **Physical Devices** field.

Chapter 6: Installing System Platform using laptop

Laptop setup

Laptop setup checklist

Use the procedures for setting up your laptop only if you are installing System Platform through a laptop connected to the services port in the server, if there is no console or KVM (keyboard, mouse, and monitor) connection available. The laptop setup procedure comprise the following tasks:

Task	Notes	✔
Configuring the laptop on page 46.		
Connecting a laptop to the server on page 46.		
Starting a telnet session on page 47.		
Disable or bypass proxy server in your Web browser by one of the following ways: • Disabling proxy servers in Firefox on page 47. • Disabling proxy servers in Internet Explorer on page 47.		

Related topics:

Configuring the laptop

To configure the laptop for direct connect to the services port, perform the following tasks:

a. Assign `192.11.13.5` as **IP address** for the laptop.

b. Assign `255.255.255.252` as **Subnet mask**.

c. Assign `192.11.13.6` as **Default gateway**.

Connecting a laptop to the server

Prerequisites

Make sure that you have a Secure Shell (SSH) application such as PuTTY installed on your laptop.

1. Connect the laptop to the services port (eth1). See [Back view of server](#) on page 30 for S8510 Server or [Back of server](#) for S8800 Server.

   If you do not have a crossover cable, you can use an IP hub.

   The system assigns the IP address 192.11.13.6 to eth1 by default. eth1 is the second interface on the server.

2. Start a PuTTy session.

3. In the Host Name (or IP Address) field, type **`192.11.13.6`**

4. For Connection type, select **Telnet**.

5. In the Port field, type **`22`**

6. Click **Open**.

   😊 **Note:**
   The system displays the PuTTY Security Alert window the first time you connect to server.

7. Click **Yes** to accept the server's host key and display the PuTTY window.

8. Log on as **craft** or **admin**.

9. Type **`Exit`** and press **Enter** to close PuTTY.

Starting a telnet session

1. Start a PuTTy session.

2. Under **Host Name**, enter `192.11.13.6` as the IP address.

3. Under **Connection type**, select **telnet**.

4. Under **Window**, select **Translation**.

5. Under **Received data assumed to be in which character set** in the drop-down menu, select **UTF-8** from the list.

6. Click **Open** to open a PuTTy session.

Disabling proxy servers in Firefox

To connect directly to the Services port, you must disable the proxy server that exist within your Firefox Web browser.

1. Open your Internet browser.

2. Click **Tools** > **Options**.

3. Select the **Advanced** option.

4. Click the **Network** tab.

5. Click **Settings**.

6. Select the **No proxy** option. Deselect the option when you are done to enable the proxy server.

7. Click **OK** to close each dialog box.

Disabling proxy servers in Internet Explorer

To connect directly to the Services port, you must disable the proxy server that exist within your Internet Explorer Web browser.

1. Open your Internet browser.

2. Click **Tools** > **Internet Options**.

3. Click the **Connections** tab.

4. Click **LAN Settings**, then click **Advanced**.

5. Deselect the **Use a proxy server for your LAN** option. Select the option when you are done to enable the proxy server.

6. Click **OK** to close each dialog box.

Installing System Platform software

Starting the installation

1. Turn on the server.

2. Perform one of the following tasks:

   • Insert the System Platform DVD into the DVD-ROM drive.

   • Connect the System Platform USB flash drive to the USB port.

   If USB flash drive is selected for installing System Platform, the boot up sequence must be changed for the server to boot from the USB flash drive. Therefore, monitor and keyboard are required. The server boots up from the System Platform DVD or USB flash drive and displays the Avaya screen. Wait till the system disables the installation through the server console and enables installation through the services port. At this stage the system displays the Waiting for telnet connection screen, so that you can connect to the server through telnet.

— To install the Avaya VSP system, press the <ENTER> key.

Next steps

Access the Keyboard Type screen through PuTTY.

Accessing the Keyboard Type screen through PuTTY

Use this procedure only if you are installing System Platform through a laptop. Otherwise proceed to select the required keyboard type. See <u>Selecting the required keyboard type</u> on page 50.

Open a PuTTY session to display the Keyboard Type screen.

> **Important:**
> If you use a telnet client other than PuTTY, or if you forget to set the proper terminal emulation for the PuTTY client, the system may not display the Keyboard Type screen correctly. This screen problem does not impact the installation.

Next steps

Select the required keyboard type.

Selecting the required keyboard type

Select the required keyboard type from the list in the Keyboard Type screen.

The system displays the System Domain Network Configuration screen after a few minutes.

Next steps

Configure the network settings for System Domain (Domain-0).

Configuring network settings for System Domain (Domain-0)

1. On the System Domain Network Configuration screen, complete the following fields:

   • Hostname

   • Primary DNS

   • (Optional) Secondary DNS

2. To configure eth0 or eth1 or both, perform the following tasks:

   • Use the Tab key to highlight the **Physical Devices** field.

   • Use the down arrow or the up arrow key to highlight **eth0** or **eth1** in the **Physical Devices** field.

   • Complete the **Static IP** field.

   The server displays a default value for the **Subnet mask** field. You can modify this field.

   ✴ **Note:**

   Avaya recommends that you use the default value of 192.11.13.6 for eth1.

3. Complete the **Default gateway IP** field.

   ✴ **Note:**

   Although you can enter default gateway for each interface, you should specify only one default gateway. Specifying more than one default gateway may result in an unusable internal networking configuration. Specifying one valid default gateway is mandatory for the System Platform installation.

   🛈 **Important:**

   Be careful not to use the Tab key on other ethernet interfaces. Set eth0 to the customer IP address and set eth1 to the services IP address. Do not configure eth2 and eth3.

4. Use the Tab key to highlight **OK** and press Enter to accept the configuration and display the System Platform Console Domain Network Configuration screen.

Next steps

Configure network settings for Console Domain.

System Domain Network Configuration field descriptions

Names	Descriptions
Hostname	The host name for System Domain (Dom-0). This must be a fully qualified domain name (FQDN).
Primary DNS	The primary DNS server address.
Secondary DNS	(Optional) The secondary DNS server address.
Physical Devices	**eth0** and **eth1** These are the physical Ethernet interfaces (NICs) on the server. You must configure these interfaces for IP.
Static IP	The static IP address for the **eth0** option.
Subnet Mask	The subnet mask address for the Ethernet interface. You can modify the default value of **Subnet Mask**, if required. The default value is 255.255.255.0.
Default gateway IP	The default gateway IP address for each Ethernet interface. This default gateway IP address will be used for all the virtual machines, if you do not specify gateway IP addresses for them. 😊 **Note:** Although you can enter default gateway for each interface, you should specify only one default gateway. Specifying more than one default gateway may result in an unusable internal networking configuration.

Configuring network settings for Console Domain

1. On the System Platform Console Domain Network Configuration screen, complete the following fields to set up the console domain network:

   • **Hostname**

   • **Static IP**

2. Select **OK** and press Enter to accept the configuration and display the Time Zone Selection screen.

Next steps

Configure the time zone for the System Platform server.

System Platform Console Domain Network Configuration field descriptions

Names	Descriptions
Hostname	The host name for the Console Domain.
Static IP	The IP address for the Console Domain. 😊 **Note:** The Console Domain does not have a physical interface; it has a virtual interface that uses the physical interface in System Domain (Domain-0). As System Domain acts like a bridge, the IP address you enter here must be a valid IP address. Further, the Console Domain must be on the same network as eth0 in the System Domain (Domain-0).

Configuring the time zone for the System Platform server

1. On the Time Zone Selection screen, select the time zone in which the server is located.

2. Select **OK** and press Enter to accept the configuration and display the Date/Time and NTP setup screen.

Next steps

Configure date and time for the System Platform server.

Configuring date and time for the System Platform server

1. On the Date/Time and NTP setup screen, set the current date and time.

   ➕ **Tip:**

   Avaya recommends that you use an NTP server within your network to synchronize the time of the System Platform server.

   ✳️ **Note:**

   Ensure that the time set here is correct. Changing the time in a virtual machine environment requires rebooting the virtual machines. Therefore, Avaya recommends setting the time correctly on this screen during the installation

2. Select **Use NTP** if you are using one or more NTP (Network Time Protocol) servers.

3. In the **NTP server** field, enter the DNS name or the IP address of your preferred NTP server(s).

4. Select **OK** and press Enter to accept the configuration and display the Passwords screen.

Next steps

Configure System Platform passwords.

NTP daemon

The NTP daemon reads its configuration from a file named ntp.conf. The ntp.conf file contains at least one or more lines starting with the keyword *server*. Each of those lines specify one reference time source, that is, time server, which can be either another computer on the network, or a clock connected to the local computer.

Reference time sources are specified using IP addresses, or host names which can be resolved by a name server. NTP uses the pseudo IP address 127.127.1.0 to access its own system clock, also known as the local clock. You must not mix this IP address with 127.0.0.1, which is the IP address of the local host, that is the computer's loopback interface. The local clock will be used as a fallback resource if no other time source is available. That is why the system does not allow you to remove the local clock.

Configuring System Platform passwords

Prerequisites

Ensure that you have configured the date and time for the System Platform server. See

1. On the Passwords screen, enter the default passwords for all of the logins.

   ### 🛈 Important:

   You must enter each password twice to ensure that you are not making any
   mistake in typing. The default logins/passwords for System Platform are root/
   root01, admin/ admin01, and cust/cust01, and for ldap, the default password is
   manager/root01. The root and admin logins have advanced administrator
   capabilities, while cust login has normal administrator capabilities. Avaya
   recommends that you change these default passwords after your first login.
   Passwords must be at least six characters long. Avaya recommends using only
   alphanumeric characters.

   The craft login uses ASG feature. If you are using craft login, you must have ASG
   tool on your desktop to generate a response based on the request generated by
   the login page.

2. Select **OK** and press `Enter` to accept the passwords and continue the installation.

Result

The installation takes approximately 5 minutes. During this time, you can see the Package
Installation page with progress bars, followed by the Running page, as the system completes
running the post-install scripts. After the installation is completed, the system ejects the DVD

automatically and reboots the server. After the reboot, the system displays the Linux login page for System Domain (Domain-0).

Next steps

Verify System Platform installation.

Passwords field descriptions

> ✱ **Note:**
> Passwords must be at least six characters long. Avaya recommends using only alphanumeric characters.

Name	Descriptions
root Password	The password for the root login.
admin Password	The password for the admin login.
cust Password	The password for the cust login.
ldap Password	The password for the ldap login. System Platform uses an LDAP server to store logins and passwords details. The LDAP server requires a manager login/password.

Accessing System Platform through services port

You must enable IP forwarding on System Domain (Dom-0) to access System Platform through services port. You can set IP forwarding status as enabled or disabled during System Platform installation. If you set the status as disabled during installation, and want to change the status later, perform the following steps:

1. To enable IP forwarding:
   a. Log on to System Domain (Dom-0) as admin.
   b. In the command line, type **`ip_forwarding enable`** and press `Enter`.

2. For security reasons, you should always disable IP forwarding after finishing your task. Perform the following tasks to disable IP forwarding:
   a. Log on to System Domain (Dom-0) as admin.
   b. In the command line, type **`ip_forwarding disable`** and press `Enter`.

Accessing System Platform Management Console

You can view the System Platform information by accessing the System Platform Management Console from a Web browser on your laptop or another computer connected to the same network as the System Platform server.

1. On a Web browser, type the following URL: https://*ipaddress*/webconsole, where ipaddress is the IP address for the Console Domain that you configure during the System Platform installation.

   😊 **Note:**

   This is a secure site. If you get a certificate error, then follow the instructions in your browser to install a valid certificate on your computer.

2. Enter a valid User ID.

   🛈 **Important:**

   The standard login/passwords are root/ root01, admin/ admin01, and cust/ cust01. The root and admin logins have advanced administrator capabilities, while the cust login has normal administrator capabilities. The root login is not allowed for general login.

   Avaya recommends that you change these default passwords after your first login. Passwords must be at least six characters long. Avaya recommends using only alphanumeric characters.

   The craft login uses ASG feature. If you are using craft login, you must have the ASG tool on your desktop to generate a response based on the request generated by the login page.

3. Click **Continue**.

4. Enter a valid Password.

5. Click **LogOn**.

   The system displays the License Terms page when you log in for the first time.

License Terms

Avaya Global Software License Terms (2009) - English

AVAYA GLOBAL SOFTWARE LICENSE TERMS (2009) - English

THIS END USER LICENSE AGREEMENT ("SOFTWARE LICENSE TERMS")GOVERNS THE USE OF AVAYA'S PROPRIETARY SOFTWARE and Third-partyproprietary software. READ THESE SOFTWARE LICENSE TERMS CAREFULLY, INTHEIR ENTIRETY, BEFORE INSTALLING, DOWNLOADING OR USING THE AVAYASOFTWARE (AS DEFINED BELOW). BY INSTALLING, DOWNLOADING OR USING THEAVAYA SOFTWARE, OR AUTHORIZING OTHERS TO DO SO, YOU, ON BEHALF OFYOURSELF AND THE ENTITY FROM WHOM YOU ARE INSTALLING, DOWNLOADING ORUSING THE SOFTWARE (HEREINAFTER REFERRED TO INTERCHANGEABLY AS "YOU"AND "END USER"), AGREE TO THESE TERMS AND CONDITIONS ANDCREATE A BINDING CONTRACT BETWEEN YOU AND AVAYA INC. OR THEAPPLICABLE AVAYA AFFILIATE ("AVAYA"). IF YOU ARE ACCEPTINGTHESE TERMS ON BEHALF OF A COMPANY OR OTHER LEGAL ENTITY, YOUREPRESENT THAT YOU HAVE THE AUTHORITY TO BIND SUCH ENTITY TO THESESOFTWARE LICENSE TERMS. ANY USE OF THE SOFTWARE WILL CONSTITUTE YOURASSENT TO THESE SOFTWARE LICENSE TERMS (OR RATIFICATION OF PREVIOUSCONSENT). IF YOU DO NOT HAVE SUCH AUTHORITY OR DO NOT WISH TO BEBOUND BY THESE SOFTWARE LICENSE TERMS, YOU MUST RETURN OR DELETE THESOFTWARE WITHIN TEN (10) DAYS OF DELIVERY FOR A REFUND OF THE FEE, IFANY, YOU PAID FOR THE LICENSE OR IF SOFTWARE IS ACCESSEDELECTRONICALLY, SELECT THE "DECLINE" BUTTON AT THE END OFTHESE SOFTWARE LICENSE TERMS.

[I Accept] [Decline] [Print]

6. Click **I Accept** to accept the end user license agreement.

   The system displays the Virtual Machine List page in the System Platform Management Console. The various administrative options are located in the left navigation menu.

Chapter 7: Installing System Platform using server console

Starting the installation

1. Turn on the server.

2. Perform one of the following tasks:

    • Insert the System Platform DVD into the DVD-ROM drive.

    • Connect the System Platform USB flash drive to the USB port.

    The server boots up from the System Platform DVD or USB flash drive and displays the Avaya screen.

    ✳ **Note:**

    If you are using a USB flash drive for installing System Platform, then you must set the server to boot from the USB flash drive. See *Formatting a USB drive* topic for information on changing the boot device.

3. Perform one of the following tasks within 30 seconds after the system displays the Avaya screen:

   • Press `Enter`.

     The system displays the Keyboard Type screen, prompting you to select the keyboard type.

   • Type `vspmediacheck` in the boot prompt and press `Enter` to verify that the image on the System Platform DVD or the USB flash drive is not corrupted.

Next steps

Select the required keyboard type.

Selecting the required keyboard type

Select the required keyboard type from the list in the Keyboard Type screen.

The system displays the System Domain Network Configuration screen after a few minutes.

Next steps

Configure the network settings for System Domain (Domain-0).

Configuring network settings for System Domain (Domain-0)

1. On the System Domain Network Configuration screen, complete the following fields:

   • Hostname

   • Primary DNS

   • (Optional) Secondary DNS

2. To configure eth0 or eth1 or both, perform the following tasks:

   • Use the Tab key to highlight the **Physical Devices** field.

   • Use the down arrow or the up arrow key to highlight **eth0** or **eth1** in the **Physical Devices** field.

   • Complete the **Static IP** field.

     The server displays a default value for the **Subnet mask** field. You can modify this field.

   ✳ **Note:**
   Avaya recommends that you use the default value of 192.11.13.6 for eth1.

3. Complete the **Default gateway IP** field.

   ✳ **Note:**
   Although you can enter default gateway for each interface, you should specify only one default gateway. Specifying more than one default gateway may result in an unusable internal networking configuration. Specifying one valid default gateway is mandatory for the System Platform installation.

   🛈 **Important:**
   Be careful not to use the Tab key on other ethernet interfaces. Set eth0 to the customer IP address and set eth1 to the services IP address. Do not configure eth2 and eth3.

4. Use the Tab key to highlight **OK** and press Enter to accept the configuration and display the System Platform Console Domain Network Configuration screen.

Next steps

Configure network settings for Console Domain.

System Domain Network Configuration field descriptions

Names	Descriptions
Hostname	The host name for System Domain (Dom-0). This must be a fully qualified domain name (FQDN).
Primary DNS	The primary DNS server address.
Secondary DNS	(Optional) The secondary DNS server address.
Physical Devices	**eth0** and **eth1** These are the physical Ethernet interfaces (NICs) on the server. You must configure these interfaces for IP.
Static IP	The static IP address for the **eth0** option.
Subnet Mask	The subnet mask address for the Ethernet interface. You can modify the default value of **Subnet Mask**, if required. The default value is 255.255.255.0.
Default gateway IP	The default gateway IP address for each Ethernet interface. This default gateway IP address will be used for all the virtual machines, if you do not specify gateway IP addresses for them. ✱ **Note:** Although you can enter default gateway for each interface, you should specify only one default gateway. Specifying more than one default gateway may result in an unusable internal networking configuration.

Configuring network settings for Console Domain

1. On the System Platform Console Domain Network Configuration screen, complete the following fields to set up the console domain network:

   • **Hostname**

   • **Static IP**

2. Select **OK** and press Enter to accept the configuration and display the Time Zone Selection screen.

Next steps

Configure the time zone for the System Platform server.

System Platform Console Domain Network Configuration field descriptions

Names	Descriptions
Hostname	The host name for the Console Domain.
Static IP	The IP address for the Console Domain. ⭐ **Note:** The Console Domain does not have a physical interface; it has a virtual interface that uses the physical interface in System Domain (Domain-0). As System Domain acts like a bridge, the IP address you enter here must be a valid IP address. Further, the Console Domain must be on the same network as eth0 in the System Domain (Domain-0).

Configuring the time zone for the System Platform server

1. On the Time Zone Selection screen, select the time zone in which the server is located.

2. Select **OK** and press Enter to accept the configuration and display the Date/Time and NTP setup screen.

Next steps

Configure date and time for the System Platform server.

Configuring date and time for the System Platform server

1. On the Date/Time and NTP setup screen, set the current date and time.

   Tip:
   Avaya recommends that you use an NTP server within your network to synchronize the time of the System Platform server.

> ⊛ **Note:**
> Ensure that the time set here is correct. Changing the time in a virtual machine environment requires rebooting the virtual machines. Therefore, Avaya recommends setting the time correctly on this screen during the installation

```
                  ┤ Date/Time and NTP setup ├

              Please set the date and time. If you wish
              to use an NTP server replace defaults on
              the list and select the checkbox

     Date: Day (1-31) 02_ Month (1-12) 11_ Year (yyyy) 2009_
     Time: Hour (0-23) 05_ Minute (0-59) 13_ Second (0-59) 27_


     [ ] Use NTP
              NTP server 1: _____
              NTP server 2: _____
              NTP server 3: _____

           ┌────────┐                    ┌────────┐
           │   OK   │                    │  Back  │
           └────────┘                    └────────┘
```

2. Select **Use NTP** if you are using one or more NTP (Network Time Protocol) servers.

3. In the **NTP server** field, enter the DNS name or the IP address of your preferred NTP server(s).

4. Select **OK** and press `Enter` to accept the configuration and display the Passwords screen.

Next steps

Configure System Platform passwords.

NTP daemon

The NTP daemon reads its configuration from a file named ntp.conf. The ntp.conf file contains at least one or more lines starting with the keyword *server*. Each of those lines specify one reference time source, that is, time server, which can be either another computer on the network, or a clock connected to the local computer.

Reference time sources are specified using IP addresses, or host names which can be resolved by a name server. NTP uses the pseudo IP address 127.127.1.0 to access its own system clock, also known as the local clock. You must not mix this IP address with 127.0.0.1,

which is the IP address of the local host, that is the computer's loopback interface. The local clock will be used as a fallback resource if no other time source is available. That is why the system does not allow you to remove the local clock.

Configuring System Platform passwords

Prerequisites

Ensure that you have configured the date and time for the System Platform server. See Configuring date and time for the System Platform server on page 54.

1. On the Passwords screen, enter the default passwords for all of the logins.

   🛈 **Important:**

   You must enter each password twice to ensure that you are not making any mistake in typing. The default logins/passwords for System Platform are root/ root01, admin/ admin01, and cust/cust01, and for ldap, the default password is manager/root01. The root and admin logins have advanced administrator capabilities, while cust login has normal administrator capabilities. Avaya recommends that you change these default passwords after your first login. Passwords must be at least six characters long. Avaya recommends using only alphanumeric characters.

   The craft login uses ASG feature. If you are using craft login, you must have ASG tool on your desktop to generate a response based on the request generated by the login page.

2. Select **OK** and press Enter to accept the passwords and continue the installation.

Result

The installation takes approximately 5 minutes. During this time, you can see the Package Installation page with progress bars, followed by the Running page, as the system completes running the post-install scripts. After the installation is completed, the system ejects the DVD automatically and reboots the server. After the reboot, the system displays the Linux login page for System Domain (Domain-0).

Next steps

Verify System Platform installation.

Passwords field descriptions

> **Note:**
> Passwords must be at least six characters long. Avaya recommends using only alphanumeric characters.

Name	Descriptions
root Password	The password for the root login.
admin Password	The password for the admin login.
cust Password	The password for the cust login.
ldap Password	The password for the ldap login. System Platform uses an LDAP server to store logins and passwords details. The LDAP server requires a manager login/password.

Accessing System Platform through services port

You must enable IP forwarding on System Domain (Dom-0) to access System Platform through services port. You can set IP forwarding status as enabled or disabled during System Platform installation. If you set the status as disabled during installation, and want to change the status later, perform the following steps:

1. To enable IP forwarding:
   a. Log on to System Domain (Dom-0) as admin.
   b. In the command line, type `ip_forwarding enable` and press `Enter`.
2. For security reasons, you should always disable IP forwarding after finishing your task. Perform the following tasks to disable IP forwarding:
   a. Log on to System Domain (Dom-0) as admin.

b. In the command line, type `ip_forwarding disable` and press `Enter`.

Accessing System Platform Management Console

You can view the System Platform information by accessing the System Platform Management Console from a Web browser on your laptop or another computer connected to the same network as the System Platform server.

1. On a Web browser, type the following URL: https://*ipaddress*/webconsole, where ipaddress is the IP address for the Console Domain that you configure during the System Platform installation.

   ⊛ **Note:**

   This is a secure site. If you get a certificate error, then follow the instructions in your browser to install a valid certificate on your computer.

2. Enter a valid User ID.

   ❶ **Important:**

   The standard login/passwords are root/ root01, admin/ admin01, and cust/ cust01. The root and admin logins have advanced administrator capabilities, while the cust login has normal administrator capabilities. The root login is not allowed for general login.

   Avaya recommends that you change these default passwords after your first login. Passwords must be at least six characters long. Avaya recommends using only alphanumeric characters.

   The craft login uses ASG feature. If you are using craft login, you must have the ASG tool on your desktop to generate a response based on the request generated by the login page.

3. Click **Continue**.

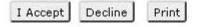4. Enter a valid Password.

5. Click **LogOn**.

   The system displays the License Terms page when you log in for the first time.

License Terms

Avaya Global Software License Terms (2009) - English

AVAYA GLOBAL SOFTWARE LICENSE TERMS (2009) - English

THIS END USER LICENSE AGREEMENT ("SOFTWARE LICENSE TERMS")GOVERNS THE USE OF AVAYA'S PROPRIETARY SOFTWARE and Third-partyproprietary software. READ THESE SOFTWARE LICENSE TERMS CAREFULLY, INTHEIR ENTIRETY, BEFORE INSTALLING, DOWNLOADING OR USING THE AVAYASOFTWARE (AS DEFINED BELOW). BY INSTALLING, DOWNLOADING OR USING THEAVAYA SOFTWARE, OR AUTHORIZING OTHERS TO DO SO, YOU, ON BEHALF OFYOURSELF AND THE ENTITY FROM WHOM YOU ARE INSTALLING, DOWNLOADING ORUSING THE SOFTWARE (HEREINAFTER REFERRED TO INTERCHANGEABLY AS "YOU"AND "END USER"), AGREE TO THESE TERMS AND CONDITIONS ANDCREATE A BINDING CONTRACT BETWEEN YOU AND AVAYA INC. OR THEAPPLICABLE AVAYA AFFILIATE ("AVAYA"). IF YOU ARE ACCEPTINGTHESE TERMS ON BEHALF OF A COMPANY OR OTHER LEGAL ENTITY, YOUREPRESENT THAT YOU HAVE THE AUTHORITY TO BIND SUCH ENTITY TO THESESOFTWARE LICENSE TERMS. ANY USE OF THE SOFTWARE WILL CONSTITUTE YOURASSENT TO THESE SOFTWARE LICENSE TERMS (OR RATIFICATION OF PREVIOUSCONSENT). IF YOU DO NOT HAVE SUCH AUTHORITY OR DO NOT WISH TO BEBOUND BY THESE SOFTWARE LICENSE TERMS, YOU MUST RETURN OR DELETE THESOFTWARE WITHIN TEN (10) DAYS OF DELIVERY FOR A REFUND OF THE FEE, IFANY, YOU PAID FOR THE LICENSE OR IF SOFTWARE IS ACCESSEDELECTRONICALLY, SELECT THE "DECLINE" BUTTON AT THE END OFTHESE SOFTWARE LICENSE TERMS.

[I Accept] [Decline] [Print]

6. Click **I Accept** to accept the end user license agreement.

The system displays the Virtual Machine List page in the System Platform Management Console. The various administrative options are located in the left navigation menu.

Chapter 8: Configuring the SAL Gateway

Registering system and configuring SAL gateway

You must enable the SAL Gateway on System Platform for Avaya/Partner services delivery of alarming and remote support. Register the system to obtain the information for entering through SAL administrative interface. Registering System Platform and the associated solution template ensures that Avaya has a record of the system and it is ready for remote support delivery in the event it is required.

1. a. To administer the SAL gateway on System Platform, follow the instructions provided in *Administering SAL on Avaya Aura™ System Platform*. This document is available on http://www.avaya.com/support> Documentation > Administration & System Programming > S > System Platform.

   b. For an understanding of how to administer the customer's network to support SAL, follow the instructions provided in *Secure Access Link 1.5 SAL Gateway Implementation Guide*. This document is available on http://www.avaya.com/support > Documentation > View all documents > S > Secure Access Link.

2. To register the system, download and follow the instructions in the registration form. This form is available on the Avaya Support Web site: http://www.avaya.com/support > Documentation > View all documents > S > Secure Access Link.

   Important:
   Business Partners and/or their customers must ensure that SAL is configured and registered properly to receive Avaya support. Avaya support will be delayed or not possible if SAL is not properly implemented.

Chapter 9: Installing a solution template

Template installation

After installing System Platform, install the solution templates such as Midsize Business Template, Modular Messaging and so on.

After installing the templates, manage the templates from the System Platform Management Console.

> **Note:**
> The procedures for installing a template can be different depending on the template. See respective template documentation to verify the template installation steps.

Selecting a template to install

> **Note:**
> This operation is not supported on the system running in High Availability Failover Mode. To proceed to install, stop the High Availability Failover Mode.
>
> See System Platform High Availability Failover overview on page 83 for more information.

1. Log on to System Platform Management Console.

2. Click **Virtual Machine Management** > **Solution template**.

   The system displays the **Virtual Machine Management** page. Use this page to select a template that you want to run on System Platform, for example, Midsize Business Template.

Virtual Machine Management

Search Local and Remote Template

Current template installed: No Template Installed

Install Template From:
- Avaya Downloads (PLDS)
- HTTP
- SP Server
- SP CD/DVD
- SP USB Disk

SSO Login: [   ]

SSO Password: [   ]

[Search]

🛈 **Important:**

System Platform creates an internal, private bridge that allows virtual machines to communicate with each other. This private bridge does not have any connection to your LAN. During installation, System Platform runs an algorithm to find a set of IP addresses that do not conflict with the addresses configured on the System Domain Network Configuration screen. However, it is still possible that the addresses selected conflict with other addresses in your network. Since this private bridge is not connected to your LAN, this address conflict could result in the failure of System Platform or an installed template to route packets correctly.

Before installing a template, check the Network Configuration page on the System Platform Management console (**Server Management > Network Configuration**) to view the addresses allocated on the bridge named "avprivate". Keep in mind that the template you install may take additional addresses on the private bridge. The range of addresses start with System Domain's (Dom-0) interface on "avprivate".

3. Select a location from the list in the **Install Templates From** box. See Search Local and Remote Template field descriptions on page 77 for more information on the available location options.

   (Optional) If the template installation files are located in a different server (for example, Avaya PLDS or HTTP), you may be required to configure a proxy depending on your network.

4. Click **Search** to display a list of template descriptor files (each available template has exactly one template descriptor file).

5. On the Select Template page, click the required template, and then click **Select** to continue.
   The system displays the Template Details page with information on the selected template and its Virtual Appliances.

6. Click **Install** to start the template installation.

If the template you selected supports an Electronic Pre-installation Worksheet (EPW), the system prompts you to continue without an EPW or to provide an EPW file. The system also prompts you with pages that require your input such as IP addresses for the applications included in the template. These pages vary depending on the template you are installing. If you provided an EPW file, some of these pages may be pre-populated with data from the EPW.

See respective template documentation for detailed instructions.

Search Local and Remote Template field descriptions

Names	Descriptions
Install Template From	Lets you select from the available options to locate a template and install on System Platform. The available options are as follows: **Avaya Downloads (PLDS)** The template files are located in the Avaya Product Licensing and Delivery System (PLDS) Web site. You must enter an Avaya SSO login and password. The list will contain all the templates to which your company is entitled. Each line in the list begins with the "sold-to" number to allow you to select the appropriate template for the site where you are installing. You may hold the mouse pointer over the selection to view more information about the "sold-to" number. **HTTP** The template files are located in a HTTP server. You must enter the template URL information. **SP Server** The template files are located in the `/vsp-template` file system in the Console Domain of the System Platform server. **SP CD/DVD** The template files are located in the System Platform server on a CD or DVD. **SP USB Disk** The template files are located in the System Platform Server on a USB flash drive.
SSO Login	Active only when you select the **Avaya Downloads (PLDS)** option to search for a template. Login id for logging on to Single Sign On.
SSO Password	Active only when you select the **Avaya Downloads (PLDS)** option to search for a template. Password for Single Sign On.

Search Local and Remote Template button descriptions

Name	Description
Upgrade	Upgrades the installed solution templates from the selected template location option.
Configure Proxy	Active only when you select the HTTP option to search for a solution template. Lets you configure a proxy for the HTTP address.
Install	Installs the solution template.
Delete Installed Template	Deletes the currently installed template.

Chapter 10: Troubleshooting the installation

Avaya and customer equipment is missing

Troubleshooting steps

Contact your project manager.

The server has no power

Troubleshooting steps

- Make sure that the power cord is plugged into the back of the server and into a nonswitched outlet or UPS. If the server has a redundant power supply, make sure that both power supplies are plugged in.

- If the server has a single power supply, it must be installed in power-supply bay 1. See "Back of server."

- Make sure that the UPS is plugged into a nonswitched outlet.

- Make sure that the outlet has power.

- Push the power button on the front of the server. See Turning on the server on page 36.

- Check the power supply LEDs on the back of the server. During normal operation, the AC LED and DC LED are both lit.

SAL does not work

Troubleshooting steps

1. Ping DNS IP address.
2. Ping proxy IP address.
3. Ping support.avaya.com to check DNS is working.
4. Try a `wget` using proxy from the command line to check that proxy is working.

DVD does not mount

The DVD does not mount automatically.

Troubleshooting steps

1. Log on to Console Domain as admin.
2. Type `su-`
3. Enter the root password.
4. Run the following commands:

```
> ssh dom0.vsp /opt/avaya/vsp/template/scripts/udom

AttachCd > mount /dev/xvde /cdrom/
```

Cannot ping or get Web access to Console Domain

Troubleshooting steps

1. Log on to System Domain (Dom-0) as admin.

2. Enter su - to login as root.

3. At the prompt, type `xm list.`

   Important:

   The *xm list* command shows information about the running virtual machines in a Linux screen. You can see two virtual machines running at this time: System Domain (Domain-0) and Console Domain (shown as udom in xm list). The screen looks similar to the following:

   ```
   CentOS release 5.2 (Final)
   Kernel 2.6.18-92.1.10.el5xen on an x86_64

   dillon login: root
   Password:
   Last login: Tue Oct 21 20:49:23 on tty1
   [root@dillon ~]# xm list
   Name                               ID Mem(MiB) VCPUs State   Time(s)
   Domain-0                            0    3498     4 r-----   199.3
   udom                               1     511     1 -b----   543.7
   [root@dillon ~]# _
   ```

4. On the Linux screen, type exit to log off from the System Domain (Domain-0) server.

Chapter 11: System Platform High Availability Failover

System Platform High Availability Failover overview

The System Platform High Availability Failover is an optional feature. This feature offers the following capabilities:

Node scores

System Platform High Availability Failover uses node score to compute the ability of every machine to run the resources and decide on which node resources should be running for each particular situation. In the case there is no issue with the system and resources could be running on any node, both machines have the same score. Thus System Platform uses a term of "preferred node" – machine that is supposed to run the resources in the case there is no issue with the system. This preferred node has a small score benefit. So if both machines are booted up at the same time, this node will run resources.

No auto-failback

System Platform High Availability Failover does not use a feature called auto-failback that migrates resources back to the preferred node in case it reappears again and resources are currently running on the standby node. This is because there is a service impact to switching servers and if both servers are healthy then running on the preferred node offers no increased benefit. If the user wants to migrate resources back to the preferred node after a failover or a switchover, the user can do so using the **Manual Switchover** option in Failover menu during the best suitable time.

> ✴ **Note:**
> Remote reboot (also called STONITH) is disabled by default and not supported in the current version of System Platform High Availability. Remote reboot should not be configured when using High Availability.

Expected failover/switchover times

System Platform High Availability Failover uses 30 seconds as a timeout interval of lost ping replies upon which standby node will declare active node as dead (although it can be not accessible, not running or blocked). When that period expires, the standby node executes a takeover (that is, starts resources). Note that System Platform does not provide any web interface to modify this interval.

In case of manual switchover or in case there is some state of the system that initiates preemptive failover, the total time between start of the command and time when all resources

are running on the standby node includes graceful shutdown of all resources and start of all the resources:

- stop of resources - up to 5 minutes

- start of resources - up to 5 minutes

- resulting longest switchover time - up to 10 minutes

In case of failover due to total failure of the active node, the total time between the start of the outage and time when all resources are running on the standby node includes detection interval timeout and start of all the resources:

- detect active node failure - 30 seconds

- start of resources - up to 5 minutes

- resulting longest switchover time - up to 5.5 minutes

  ✱ **Note:**

  Switchover time will vary depending on hardware in use and the specific template installed on the system. Templates with more virtual machines will take slightly longer to switch over due to multiple virtual machines booting simultaneously.

See *How System Platform High Availability Failover works* for more information.

Prerequisites

The prerequisites for configuring System Platform High Availability Failover are as follows:

- Two servers with exactly the same configuration.

- Hardware supported by System Platform.

- The servers must have a spare Gigabit network interface to be used as a crossover connection dedicated exclusively to High Availability Failover services (heartbeat health checks and DRBD (Distributed Replicated Block Device) sync propagation)

- Both the servers must be in the same subnet.

- Both the servers in close proximity, approximately 10 meters.

- The same version of System Platform installed on both the active and standby nodes.

- Both the servers must be connected with a gigabit-crossover cable on the ports detected as eth2 on operating system.

- If you want to install a template on a preferred node, you must do it before starting HA.

- The standby server cannot have less memory, number of processors, and total or free disk space than the primary server.

- The standby server cannot have installed template. If present, the failover configuration will fail with an error. If you are using the bundled System Platform installation (with solution template), disable template installation on the standby server.

- Default network gateway is the System Platform High Availability Failover heartbeat's ping target and it is not a configurable parameter. Ensure that your network gateway replies to ICMP requests coming from the System Platform nodes. Heartbeat sets payload with node-identifying data and checks that the data in replied packet payload is correct. The size of these ICMP ping packets is in the range of 132-256 Bytes. If you apply firewall rules against the ping service (at the gateway), specifically packet size restriction, you must allow for packet sizes up to 256 bytes.

Configuring System Platform High Availability Failover

Prerequisites

- Two servers with exactly the same configuration.

- Hardware supported by System Platform.

- The servers must have a spare Gigabit network interface to be used as a crossover connection dedicated exclusively to High Availability Failover services (heartbeat health checks and DRBD (Distributed Redundant Block Device) sync propagation)

- Both the servers in close proximity, approximately 10 meters.

- System Platform installed on both the active and standby nodes.

✴ **Note:**

There is no need to install template virtual machines on both machines. If any template is already installed, the system uses all virtual machines from the preferred node; otherwise you can install a template on a system already running High Availability Failover.

1. Log on to System Platform Management Console on the active server as an advanced administrator.

2. Click **Configure Failover**.

3. On the Failover – Current status of failover components page, fill up the fields. See

Failover - Current status of failover components

Configure failover:

Preferred active node:	aspen.dr.avaya.com
Remote node IP address:	
Secondary node password for user 'root':	
Domain IP address:	135.9.184.232
udom domain password for user 'root':	
Primary network interface:	eth0 ⌄
Crossover network interface:	eth2 ⌄

Create | Cancel

fields.

4. Click **Create**.

5. Click **Start Failover** only after the system completes the failover creation operation.

   The start failover operation blocks all the connections to the System Platform Management Console, and so you must log in again after the start failover operation is complete.

6. Log on to System Platform Management Console

7. Click **Server Management** > **Failover**.

   You can check the status of the failover components in the Failover – Current status of failover components page and ensure that DRDB (Distributed Redundant Block Device) is synchronizing the hard disks of the two servers.

   ➕ **Tip:**

   When the system finishes the disk synchronization process, you can increase or decrease the speed of the sync with a slider bar provided on the console. The default value of this rate is 30 MB. If you set the value too high, it may affect the performance of the virtual machines running on the active server.

Configure Failover field descriptions

Name	Description
Remote cdom IP address	The secondary Console Domain IP address.
Remote cdom user name	User name for Console Domain.
Remote cdom password	The password for Console Domain.
Primary network interface	The required Ethernet NIC.
Crossover network interface	The required Ethernet NIC.

Appendix A: Using USB drive for System Platform installation

Using USB drive for installation

You can use a USB drive to install System Platform. This section covers the following:

1. , to check the format and then format the USB drive if required.

2.

3.

> **Note:**
> If you are not familiar with the Linux commands, Avaya recommends that you install System Platform using a DVD.

Requirements

1. A FAT32 formatted USB drive with the bootable flag set. 2GB size is currently recommended. This size requirement may change depending on the size of the installer image. If your drive is already partitioned and marked as bootable (most drives are already marked bootable) and there is at least 2GB free space, you do not have to erase the data on the drive. The System Platform installer software can fit alongside your other data.

   > **Note:**
   > Avaya recommends that you backup the contents of the USB drive as data could be lost. If you require a bundled template, you will require a larger amount of free space on the USB drive.

2. A monitor and USB keyboard to be able to select the USB flash drive as the Avaya server (S8510 or S8800) boots. For the S8510, press F11 after powering on the system to set boot device. For the S8800, press F12 after the system initializes and select **USB Storage** device.

3. The ISO image of the System Platform installer and enough free space to temporarily store it on the hard disk.

4. Certain packages that the setup script requires to run.

   > **Note:**
   > Ensure that you have dosfstools and mtools installed. mtools also requires the tcsh package to be installed. As different distros and architectures require

different versions of these packages or have other dependencies, Avaya recommends that you install these packages using yum.

Checking the USB drive format and suitability

1. Insert the USB drive.

2. Type the command `dmesg`.

   This command can produce quite a lot of output so you may wish to pipe the output to `less`.

3. Scroll to the end of the output and search for a block of lines beginning with `usb-storage: device found at`.

   A typical screen output can appear as shown below:

   ```
   usb-storage: device found at 40
   usb-storage: waiting for device to settle before scanning
   usb-storage: device scan complete
   scsi 42:0:0:0: Direct-Access          Flash Disk      5.00 PQ: 0 ANSI: 2
   sd 42:0:0:0: [sdb] 1980416 512-byte hardware sectors (1014 MB)
   sd 42:0:0:0: [sdb] Write Protect is off
   sd 42:0:0:0: [sdb] Mode Sense: 0b 00 00 08
   sd 42:0:0:0: [sdb] Assuming drive cache: write through
   sd 42:0:0:0: [sdb] 1980416 512-byte hardware sectors (1014 MB)
   sd 42:0:0:0: [sdb] Write Protect is off
   sd 42:0:0:0: [sdb] Mode Sense: 0b 00 00 08
   sd 42:0:0:0: [sdb] Assuming drive cache: write through
    sdb: sdb1
   sd 42:0:0:0: [sdb] Attached SCSI removable disk
   sd 42:0:0:0: Attached scsi generic sg3 type 0
   ```

4. Run the command `fdisk -l /dev/sdb` on the USB drive found in the output of the `dmesg` command to find the partition information.

   The system displays output similar to the one shown below:

   ```
   Disk /dev/sdb: 1013 MB, 1013972992 bytes
   32 heads, 61 sectors/track, 1014 cylinders
   Units = cylinders of 1952 * 512 = 999424 bytes
   Disk identifier: 0xde8e7bb0

      Device Boot      Start         End      Blocks   Id  System
   /dev/sdb1   *           1        1014      989633+   b  W95 FAT32
   ```

   ✴ **Note:**

   Ensure that the bootable flag is set on the partition. This is shown with a * in the `Boot` column. The format of the partition must be W95 FAT 32. If the output is not similar to the above one, follow the task <u>Formatting a USB drive</u> on page 89.
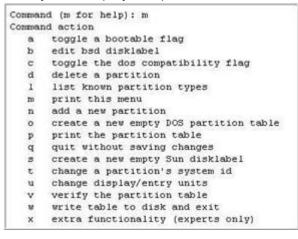
Formatting a USB drive

1. Insert your USB drive and note the assigned device (typically **/dev/sdb**) by typing
   dmesg.
   The system displays output similar to the one shown below:

   ```
   usb-storage: device found at 40
   usb-storage: waiting for device to settle before scanning
   usb-storage: device scan complete
   scsi 42:0:0:0: Direct-Access                Flash Disk        5.00 PQ: 0 ANSI: 2
   sd 42:0:0:0: [sdb] 1980416 512-byte hardware sectors (1014 MB)
   sd 42:0:0:0: [sdb] Write Protect is off
   sd 42:0:0:0: [sdb] Mode Sense: 0b 00 00 08
   sd 42:0:0:0: [sdb] Assuming drive cache: write through
   sd 42:0:0:0: [sdb] 1980416 512-byte hardware sectors (1014 MB)
   sd 42:0:0:0: [sdb] Write Protect is off
   sd 42:0:0:0: [sdb] Mode Sense: 0b 00 00 08
   sd 42:0:0:0: [sdb] Assuming drive cache: write through
    sdb: sdb1
   sd 42:0:0:0: [sdb] Attached SCSI removable disk
   sd 42:0:0:0: Attached scsi generic sg3 type 0
   ```

2. Run the command **fdisk** on the device.

3. Enter m to get a list of commands.
   The system displays output similar to the one shown below:

   ```
   Command (m for help): m
   Command action
      a    toggle a bootable flag
      b    edit bsd disklabel
      c    toggle the dos compatibility flag
      d    delete a partition
      l    list known partition types
      m    print this menu
      n    add a new partition
      o    create a new empty DOS partition table
      p    print the partition table
      q    quit without saving changes
      s    create a new empty Sun disklabel
      t    change a partition's system id
      u    change display/entry units
      v    verify the partition table
      w    write table to disk and exit
      x    extra functionality (experts only)
   ```
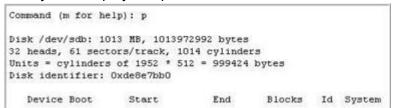
4. If required, type **d** to delete a partition on the USB drive.
   The system displays output similar to the one shown below:

   ```
   Command (m for help): d
   Selected partition 1
   ```

5. If required, type **p** to print the USB drive information.

The system displays output similar to the one shown below:
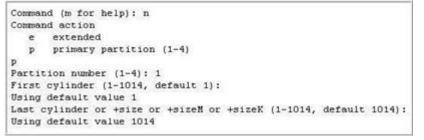
```
Command (m for help): p

Disk /dev/sdb: 1013 MB, 1013972992 bytes
32 heads, 61 sectors/track, 1014 cylinders
Units = cylinders of 1952 * 512 = 999424 bytes
Disk identifier: 0xde8e7bb0

   Device Boot      Start         End      Blocks   Id  System
```

6. Create a new primary partition by typing **n**

   Select primary partition by typing **p**.

   Give partition number **1**.
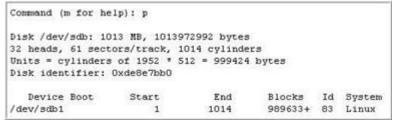
   Accept the defaults for the cylinder information (the partition takes up the whole drive space.)

   The system displays output similar to the one shown below:

```
Command (m for help): n
Command action
   e   extended
   p   primary partition (1-4)
p
Partition number (1-4): 1
First cylinder (1-1014, default 1):
Using default value 1
Last cylinder or +size or +sizeM or +sizeK (1-1014, default 1014):
Using default value 1014
```

7. Verify the partition information by typing **p**.
   The system displays output similar to the one shown below:

```
Command (m for help): p

Disk /dev/sdb: 1013 MB, 1013972992 bytes
32 heads, 61 sectors/track, 1014 cylinders
Units = cylinders of 1952 * 512 = 999424 bytes
Disk identifier: 0xde8e7bb0

   Device Boot      Start         End      Blocks   Id  System
/dev/sdb1               1        1014      989633+  83  Linux
```

8. Change the partition type from default of Linux to W95 FAT32 by typing **t**.

   Give partition number **1**.

   Type partition type **L** to list the partition type codes.

   Type **b** as the required partition type code.

The system displays output similar to the one shown below:

```
Command (m for help): t
Selected partition 1
Hex code (type L to list codes): L

 0  Empty            1e  Hidden W95 FAT1 80  Old Minix        be  Solaris boot
 1  FAT12            24  NEC DOS         81  Minix / old Lin  bf  Solaris
 2  XENIX root       39  Plan 9          82  Linux swap / So  c1  DRDOS/sec (FAT-
 3  XENIX usr        3c  PartitionMagic  83  Linux            c4  DRDOS/sec (FAT-
 4  FAT16 <32M       40  Venix 80286     84  OS/2 hidden C:   c6  DRDOS/sec (FAT-
 5  Extended         41  PPC PReP Boot   85  Linux extended   c7  Syrinx
 6  FAT16            42  SFS             86  NTFS volume set  da  Non-FS data
 7  HPFS/NTFS        4d  QNX4.x          87  NTFS volume set  db  CP/M / CTOS / .
 8  AIX              4e  QNX4.x 2nd part 88  Linux plaintext  de  Dell Utility
 9  AIX bootable     4f  QNX4.x 3rd part 8e  Linux LVM        df  BootIt
 a  OS/2 Boot Manag  50  OnTrack DM      93  Amoeba           e1  DOS access
 b  W95 FAT32        51  OnTrack DM6 Aux 94  Amoeba BBT       e3  DOS R/O
 c  W95 FAT32 (LBA)  52  CP/M            9f  BSD/OS           e4  SpeedStor
 e  W95 FAT16 (LBA)  53  OnTrack DM6 Aux a0  IBM Thinkpad hi  eb  BeOS fs
 f  W95 Ext'd (LBA)  54  OnTrackDM6      a5  FreeBSD          ee  EFI GPT
10  OPUS             55  EZ-Drive        a6  OpenBSD          ef  EFI (FAT-12/16/
11  Hidden FAT12     56  Golden Bow      a7  NeXTSTEP         f0  Linux/PA-RISC b
12  Compaq diagnost  5c  Priam Edisk     a8  Darwin UFS       f1  SpeedStor
14  Hidden FAT16 <3  61  SpeedStor       a9  NetBSD           f4  SpeedStor
16  Hidden FAT16     63  GNU HURD or Sys ab  Darwin boot      f2  DOS secondary
17  Hidden HPFS/NTF  64  Novell Netware  b7  BSDI fs          fd  Linux raid auto
18  AST SmartSleep   65  Novell Netware  b8  BSDI swap        fe  LANstep
1b  Hidden W95 FAT3  70  DiskSecure Mult bb  Boot Wizard hid  ff  BBT
1c  Hidden W95 FAT3  75  PC/IX
Hex code (type L to list codes): b
Changed system type of partition 1 to b (W95 FAT32)
```

9. Verify the partition information by typing **p**.
   The system displays output similar to the one shown below:

```
Command (m for help): p

Disk /dev/sdb: 1013 MB, 1013972992 bytes
32 heads, 61 sectors/track, 1014 cylinders
Units = cylinders of 1952 * 512 = 999424 bytes
Disk identifier: 0xde8e7bb0

   Device Boot      Start         End      Blocks   Id  System
/dev/sdb1               1        1014      989633+   b  W95 FAT32
```

10. Set the bootable flag on partition 1 by typing **a**.

    Type **1** for partition number 1.

11. Verify the partition information by typing **p**.
    The system displays output similar to the one shown below:

```
Command (m for help): p

Disk /dev/sdb: 1013 MB, 1013972992 bytes
32 heads, 61 sectors/track, 1014 cylinders
Units = cylinders of 1952 * 512 = 999424 bytes
Disk identifier: 0xde8e7bb0

   Device Boot      Start         End      Blocks   Id  System
/dev/sdb1    *          1        1014      989633+   b  W95 FAT32
```
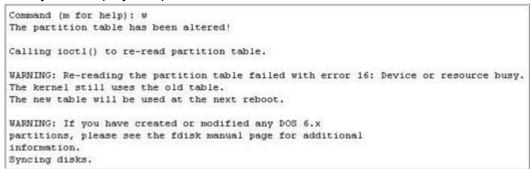
12. Write the changes to the USB drive by typing **w**.

The system displays output similar to the one shown below:

```
Command (m for help): w
The partition table has been altered!

Calling ioctl() to re-read partition table.

WARNING: Re-reading the partition table failed with error 16: Device or resource busy.
The kernel still uses the old table.
The new table will be used at the next reboot.

WARNING: If you have created or modified any DOS 6.x
partitions, please see the fdisk manual page for additional
information.
Syncing disks.
```

13. Format the USB drive by typing the command **mkfs -t vfat /dev/sdb1**.

Setting up a USB drive

Prerequisites

The user is logged in as root and is currently in the **/root** directory.

⊛ **Note:**

If you are not familiar with Linux commands, Avaya recommends that you install System Platform using a DVD.

1. Create a directory for the System Platform build by typing the following command:
   mkdir /root/sp-builds

   ⊛ **Note:**

   In this example, the directory **/root/sp-builds** is created and used.

2. Copy the ISO image to this directory.

3. Create a directory in sp-builds for temporarily mounting the ISO image by typing the command **mkdir /root/sp-builds/isotemp**.

4. Mount the ISO image on your system by typing the following command:
   mount -o loop /root/sp-builds/vsp-1.1.0.0.10.iso /root/sp-builds/isotemp

5. Type the following command to copy the mounted directory (and the ISO image) to another directory for running the script.
   cp -r /root/sp-builds/isotemp /root/sp-builds/isocopy

The new directory in this example is **isocopy**.

6. Change directory to the **usbkey** directory by typing the following command:

   cd /root/sp-builds/isocopy/usbkey

7. Insert the USB drive that you are going to use for installing System Platform.

   > **Note:**
   >
   > Newer Linux distros (later than RHEL/CentOS5) will often automatically mount a USB drive, if possible. In this case the system will typically mount the device in a directory under **/media**. The directory name is based on the volume label. Therefore, a Corsair USB drive may be mounted under **/media/CORSAIR**. An icon will appear on the desktop representing the device. Make a note of the device (typically **/dev/sdb**) and the mountpoint (for example, **/media/CORSAIR** or **/media/disk**).

   > **Warning:**
   >
   > If the device is not automatically mounted, type the command **dmesg** and check the output (see Formatting a USB drive on page 89) to know how the USB drive is represented in the operating system. Typically, the device representation should be similar to **/dev/sdb**. Mount the USB drive manually using the device representation and a mountpoint by typing the command **mount /dev/sdb1 /mnt/myusbkey**. If this command fails, please check that the device is formatted as per the task Formatting a USB drive on page 89.

8. Run the script **setup_usbkey.sh** by entering the device and USB drive mountpoint as arguments. This command can take a few minutes to run depending on the speed of your system. If the command is successful it will exit without an error. If there is any error running the command it will be displayed to the user on screen.

   > **Note:**
   >
   > In this example, it is assumed that the USB drive is found at **/dev/sdb** and the mountpoint is **/media/disk**. Therefore, the command to run the script will be **./setup_usbkey.sh /dev/sdb /media/disk**. If the system did not automatically mount the device and it was manually mounted at **/mnt/myusbkey**, the command to run the script will be
   >
   > **./setup_usbkey.sh /dev/sdb /mnt/myusbkey**

9. Unmount the USB drive and use it to install System Platform by typing the command **umount /media/disk** (for automatic mounting of the USB drive) or

   umount /mnt/myusbkey (for manual mounting of the USB drive).
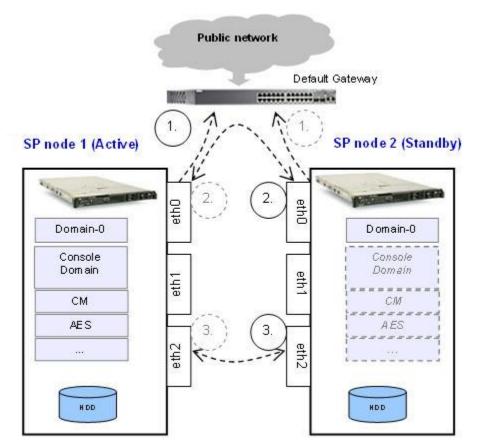
Appendix B: How System Platform High Availability Failover works

Ping targets

System Platform High Availability Failover uses a node scoring to decide which node resources should run in each particular situation. Every node uses the following 3 ping targets:

1. Default network gateway as a public ping target.

2. eth0 network interface of the peer.

3. eth2 network interface of the peer.

Every successful ping result gives a machine the same score amount for every ping target. Therefore, if both machines can reach all the 3 ping targets, they both have the same score and resources run on the preferred node. The following image depicts the overview of the machines with their 3 ping targets:

As a consequence of ping targets, one of the following things may happen:
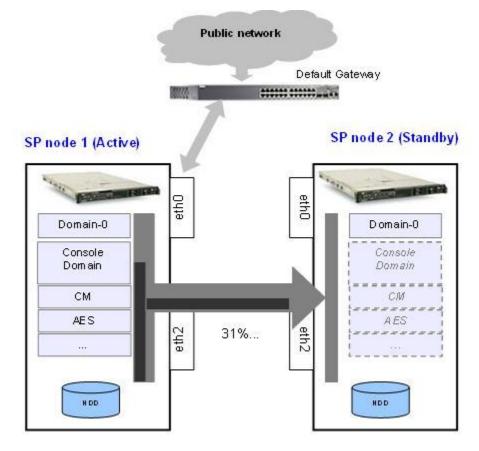
1. If the crossover link is interrupted on any node, no action will result because both machines have the same score.

2. If the public link is interrupted on the standby node, no action will result because the active node still has the full score while the standby node has lost 2 ping sources.

3. If the public link is interrupted on the active node, heartbeat will initiate failover because active node has lost 2 ping sources while the standby has the full score.

😊 **Note:**

The default gateway is the ping target and it is not a configurable parameter. Ensure that your gateway replies to ICMP pings which have payloads larger that the defaults and come from the System Platform nodes.

DRBD initial data synchronization

System Platform High Availability Failover uses the Distributed Replicated Block Device (DRBD) component to propagate online changes that are made on the active node. Each Logical Volume that is propagated by DRBD uses separate DRBD resource. List of these DRBD resources and their states can be checked on the System Platform Failover page. However, before the initial synchronization of the DRBD resources is completed, the standby node does not have the reliable data that could be used to start the virtual machines. The time interval during initial data block synchronization is called initial data synchronization. The following image depicts the initial data synchronization from the active node to the standby node:
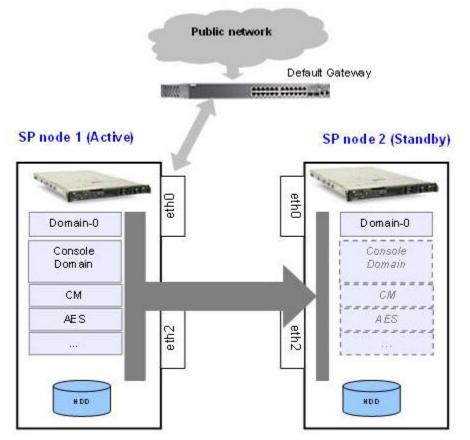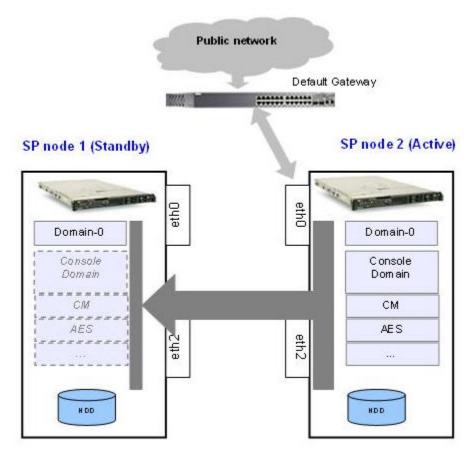
> ✳ **Note:**
> During the initial synchronization, the online changes are also propagated. It is essential to provide enough network throughput for the successful completion of the online changes. Thus the System Platform sets the DRBD initial synchronization rate to 30MB/s. You can modify this value from the Failover page in case system is not overloaded.

DRBD online propagation of data changes

System Platform High Availability Failover uses the Distributed Replicated Block Device component to propagate online changes that are made on the active node. It uses its protocol "C" which ensures that writing to the local hard disk is only confirmed when the same write is acknowledged on the remote node. This ensures that the machines are kept in consistent state to enable the standby node to takeover when required. The following image depicts the data propagation from active node to the standby node:
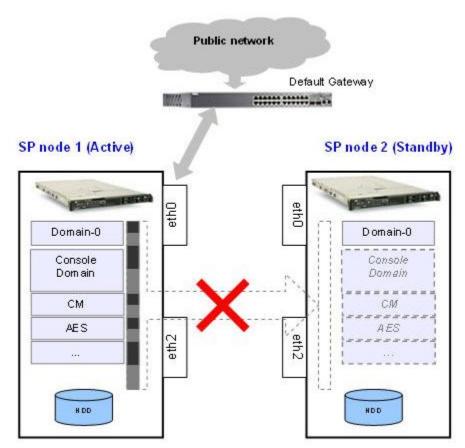
In the event of failover or switchover when the node roles are changed (that is, the active node becomes the standby node and vice versa), the propagation direction swaps to ensure that the changes on the active node are propagated to the current standby node. The following image depicts data propagation after a failover/switchover:

Data changes during disconnection

In case of the replication link interruption, DRBD uses its own metadata to keep the history of modified data blocks since the connection break up. Later when the connection is reestablished, the missing data blocks are synchronized on the standby node in parallel with the online changes propagation. The following image depicts the data changes history marked in the DRBD metadata during the propagation link disconnection:

Automatic Split-Brain resolution

In case there is no communication path between the nodes, Cluster Resource Manager can activate resources on both nodes at the same time. This situation is called Split-Brain. After both nodes appear on the network again, the data changes that occurred on the nodes must be discarded on one of them. System Platform High Availability Failover uses a DRBD feature to recognize which node became active as the last one. This node is rebooted immediately and its data changes are discarded. After successful reboot, it will synchronize the changes that occurred on the survival node since the disconnection before split-brain.

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