Avaya Aura® System Manager Overview and Specification

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Contents

Chapter 1: Introduction

Purpose

This document describes tested characteristics and capabilities of System Manager, including feature descriptions, interoperability, performance specifications, security, and licensing requirements.

This document is intended for anyone who wants to gain a high-level understanding of System Manager features, functions, capacities, and limitations within the context of solutions and verified reference configurations.

Change history

The following changes have been made to this document since the last issue:

Issue	Date	Summary of changes
5	November 2019	For Release 8.0.1, updated the following sections: • Supported applications in Virtualized Environment on page 47 • Supported applications in Infrastructure as a Service Environment on page 52
4	October 2019	For Release 8.0.1, updated the following sections: • Supported footprints for System Manager on Appliance Virtualization Platform on page 33 • Virtualized Environment footprint flexibility on page 34 • Supported footprints for System Manager on VMware on page 34

Table continues…

Issue	Date	Summary of changes
3	December 2018	For Release 8.0.1, added the following sections: • New in System Manager Release 8.0.1 on page 9 For Release 8.0.1, updated the following sections: • Supported servers on page 24 • Overview of Infrastructure as a Service environment on page 49 • Software-only environment overview on page 52
2	October 2018	For Release 8.0, updated the following sections: • New in System Manager Release 8.0 on page 11 • Trust Management on page 59
1	July 2018	Release 8.0 document.

Chapter 2: System Manager overview

Avaya Aura® System Manager is a central management system that provides a set of shared management services and a common console. All shared and element-specific management for Avaya Aura® applications that System Manager supports is performed from the common console. System Manager provides the following key capabilities:

- Centralized software management solution to support deployments, migrations, upgrades, and updates to the suite of Avaya Aura® applications.
- Avoid duplicate data entry through shared management services.
- Centralized access to all Avaya Aura® applications through a browser-based management console with single sign on.
- Optimization of IT skill sets with consistency of management functions across Avaya solutions.
- Integration with enterprise IT infrastructure, such as identity management, authentication, authorization, security, and enterprise directory

You can download the System Manager artifacts from the Avaya Support website at http://support.avaya.com or order the System Manager software DVD.

New in System Manager Release 8.0.1

Avaya Aura® System Manager Release 8.0.1 supports the following new features and enhancements:

Support for Geographic Redundancy in mixed deployment environment

From Release 8.0.1, System Manager also supports Geographic Redundancy in a mixed deployment environment. The deployment environment can be any of the following:

- Avaya Aura® Virtualized Appliance (VA): Avaya-provided server, Avaya Aura® Appliance Virtualization Platform, based on the customized OEM version of VMware® ESXi 6.0.
- Avaya Aura® Virtualized Environment (VE): Customer-provided VMware infrastructure and Kernel-based Virtual Machine (KVM).
- Avaya Aura® on Infrastructure as a Service: Amazon Web Services, Microsoft Azure, and Google Cloud Platform.
- Software-only environment: Deployment on the Red Hat Enterprise Linux operating system.

For example, the primary System Manager server can be on Appliance Virtualization Platform and the secondary System Manager server can be on a customer-provided virtualized environment.

Support for new Avaya Converged Platform 120 Server

From Release 8.0.1, Avaya Aura® applications support the Avaya Converged Platform 120 server (Dell PowerEdge R640) in the Avaya Aura® Virtualized Appliance offer.

Support for new Avaya Converged Platform 130 Server

From Release 8.0.1, Application Enablement Services supports the Avaya Converged Platform 130 server on VMware in the Avaya Aura® Virtualized Environment offer.

Enhancements to the CPU resources

With Release 8.0.1, applications support enhanced CPU resources in the Appliance Virtualization Platform and VMware environments. For more information, see the product-specific deployment guide on the Avaya Support website.

Support for Hyper-V

With the Release 8.0.1, Avaya Aura® applications support deployment in the software-only environment on Hyper-V. Hyper-V is a virtualized platform that allows you to run multiple operating systems as virtual machines on Windows.

For more information about deployment in the software-only environment, see the product specific software-only deployment guide.

Software-only offer supports third-party software

With the software-only (ISO) offer, customers can install third-party applications on the system and get more control on the system. For the list of supported third-party software applications in Release 8.0.1, see the Avaya Product Support Notice at PSN020360u.

Support for new CS 1000 endpoints

With the Release 8.0.1, Avaya Device Adapter Snap-in supports new CS 1000 endpoints. The following are the supported newCS 1000 endpoints:

Set type	Endpoints
CS1k-IPCC	1110 [default], 1120, 1140, 1150, 1165, 1210, 1220, 1230, 2001, 2002, 2004, 2050 (softphone)
CS1k-ana	500 [default]

The new endpoints support the following functions from System Manager:

- Creating custom templates to Add, Edit, View, Delete, Duplicate, and Upgrade using the **Services > Template** page.
- Administering CS1k endpoints from the **Manage Endpoint** page.
- Configuring endpoints as part of Communication Manager Endpoint Communication Profile from **User Management**.
- Bulk Importing/Exporting of Endpoint as part of User import/export using XML and Excel data.

For more information, see Avaya Device Adapter Snap-in Reference.

Support for Avaya B199 conference phones

System Manager 8.0.1 and later provide the support for Avaya B199 conference phones. Avaya B199 are SIP-based conference phones that enhance collaboration and provide superior user experience and audio quality performance.

System Manager provides a default endpoint template corresponding to the Avaya B199 set type. You can create and manage new station types of Avaya B199 conference phones by using these templates.

For more information about the features of Avaya B199 conference phones, see “Avaya B199 Conference Phones Overview and Specifications”.

Note:

- Communication Manager internally maps the Avaya B199 set type as 9630 SIP set type.
- You cannot configure the Avaya B199 stations from the Communication Manager System Access Terminal (SAT). You can configure and manage Avaya B199 conference phones from the System Manager user interface only.

Support for virtual phone

From System Manager Release 8.0.1, you can create and manage virtual phones by using the default endpoint template of virtual set type.

Support for bulk export and import of agents

Use the **Elements** > **Communication Manager** > **Call Center** > **Agents** page of System Manager to:

- Download a pre-loaded excel `AgentList.xlsx` file from **More Actions** > **Download Excel Template** for adding and importing the agents in bulk.
- Export one or more agents by using **More Actions** > **Export Selected Agents** or **More Actions** > **Export All Agents**

New in System Manager Release 8.0

Avaya Aura® System Manager Release 8.0 supports the following new features and enhancements:

System Manager dashboard

System Manager dashboard displays the following widgets:

- Alarms
- Application State
- Notifications
- System Resource Utilization
- Information
- Shortcuts

Removal of CallPilot

CallPilot is not supported.

Customer root account

During deployment or upgrade of the application, the customer can enable or disable the root user account.

Enhancements to Upgrade Management in System Manager

- Supports upgrade from VMware-based Release 6.x applications to Release 8.0.
- Enhanced the Add Element page to add the VMware-based system details.

Preserve security hardening modes on upgrade

When you upgrade an application from Release 7.1.x to Release 8.0, the system preserves the security hardening modes that are configured on the Release 7.1.x application.

Extended Hostname Validation

With the Extended Hostname Validation (EHV) feature, the system validates the host name or domain name of the server with the value in the **subject** or **subjectAltName** (SAN) field in the identity certificate for establishing the SSL connection.

On the System Manager web console, on the **Services** > **Security** > **Configuration** > **Security Configuration** page, added a new Extended hostname validation section that has the **Extended Hostname Validation** check box.

Additional certificate for a service

For adding additional certificate for a service, making a certificate as a default certificate for a service, and removing an additional identity certificate, on the Manage Identity Certificates page, the following buttons are added: Add, Make default, and Remove.

Product Initiated Registration

On the System Manager web console, on the **Services** > **Inventory** > **Manage Elements** page, following options are added:

- **More Actions** > **SAL Gateway configuration**.
- **More Actions** > **Avaya Services Registration**.

Support for new endpoints

Supports the following new endpoints:

- Avaya J129 IP Phone
- Avaya J169 IP Phone
- Avaya J179 IP Phone

For information about the features supported by Avaya J100 Series IP Phones, see *Avaya J100 Series IP Phones Overview and Specifications* on the Avaya Support website.

Support for 16-digit extension

System Manager supports configuration of 16-digit extension in dial plan analysis. The following Communication Manager objects support 16-digit extension:

- Coverage Path
- Dialplan Analysis
- Dialplan Parameters
- Locations
- Registered IP Stations
- Stations
- Station with Off-PBX Telephone Integration
- Uniform Dial Plan
- Vector Directory Numbers

Support for a software-only deployment

Avaya Aura® Release 8.0 and later supports software-only installation. In a software-only installation, the customer owns the operating system and must provide and configure the operating system for use with Avaya Aura® application. With the software-only offer, the customer can install and customize the operating system to meet the requirements to install the Avaya Aura® application.

The software-only offer allows the customer to install third party application on the system and provides more control on the system.

You must run the software-only offer on the supported environments to enable the use of Avaya approved third party applications for Antivirus, backup, and monitoring.

Customers must procure a server that meets the recommended hardware requirements as well as the appropriate version of Red Hat Enterprise Linux (RHEL) Operating System.

The software-only offer is supported on the following platforms:

- VMware
- Kernel-based Virtual Machine
- Amazon Web Services
- Microsoft Azure
- Google Cloud
- IBM Bluemix

For more information about software-only deployment, see product-specific deployment guide for Software-Only Environment.

Support for new Infrastructure as a Service platform

With Release 8.0, you can deploy the applications on the following Infrastructure as a Service platform:

- Google Cloud

- Microsoft Azure

For more information about Infrastructure as a Service installation, see product-specific deployment guide for Infrastructure as a Service Environment.

Supported browsers

- Internet Explorer 11
- Mozilla Firefox 59, 60, and 61

Multiple Appearance Directory Number

To support migration of CS 1000 users to Avaya Aura®, the Multiple Appearance Directory Number (MADN) feature is now implemented in Communication Manager Release 8.0. The MADN feature was originally implemented on Nortel CS 1000. This feature is almost similar to the existing Communication Manager bridging feature.

As implemented on Nortel CS 1000, MADN has two flavors:

- Single call arrangement
- Multiple call arrangement
- The Single call arrangement feature operation is similar to the existing Communication Manager bridging feature with exclusion enabled. To enable single call arrangement like operation on Communication Manager, configure traditional per-call appearance bridges and enable exclusion by using Class of Service for the principal. For more information on bridging, see *Avaya Aura® Communication Manager Feature Description and Implementation*.
- The Multiple call arrangement feature defines a new form of bridge alerting that associates a bridge button to a principal extension, and not to a specific call appearance of a principal extension. A multiple call arrangement bridge allows an alerting bridge user to answer a call alerting on any call appearance of the principal, or even a call that does not alert at the principal because all principal call appearances are in use.
- Traditional per-call appearance bridge button: brdg-appr B:1 E:1000
- MAC per principal bridge button: brdg-appr B:`a` E:1000

By specifying the bridge button identifier (B) with the value `a`, this allows any call to principal 1000 to alert at this bridge button. An MAC bridge button may be used on any multi-call appearance DCP, H.323, or SIP station.

Traditional per-call appearance bridge buttons for station 1000 may exist on stations like 1001, 10002, 1003. While MAC bridge buttons for station 1000 may exist on stations like 2001, 2002, 2003. It is not valid for a station to have both per-call appearance and multiple call arrangement bridges for the same principal. Which means, station 1001 cannot have brdg-appr B:1 E:1000 and brdg-appr B:`a` E:1000.

Multiple call arrangement operation differs significantly on call answer. For an incoming call to a principal station, Communication Manager alerts all stations that have per-call appearance bridge matching a principal and for the particular call appearance. Additionally, Communication Manager alerts all stations that have an idle multiple call arrangement bridge for that principal.

If the call is answered on single call arrangement bridge, the principal and other per-call appearance bridges get a simulated bridge appearance. But, all multiple call arrangement bridge appearances are dropped.

However, if the call is answered at the multiple call arrangement bridge appearance, then:

- The principal gets dropped
- All the alerting single call arrangement bridge stations are dropped
- All the alerting multiple call arrangement bridge stations that did not answer the call gets dropped

Avaya Device Adapter Snap-in

Avaya Device Adapter Snap-in is a modular, reusable solution that enables IP phones working with Avaya Communication Server 1000 (CS 1000) to migrate to Avaya Aura® without significant investment on the existing infrastructure. Device Adapter offers a feasible solution to CS 1000 customers to take advantage of Avaya Aura® features with minimum expense on the cables and hardware.

Device Adapter is deployed on the Avaya Breeze® platform platform. A Device Adapter instance runs on an Avaya Breeze® platform cluster that might have one or more Avaya Breeze® platform servers. A standard deployment solution has one or more Avaya Breeze® platform clusters. Implementing Device Adapter does not introduce any new hardware. Device Adapter works as a part of the Avaya Breeze® platform solution.

Cluster Session Manager

Using the Cluster Session Manager, you can administer a list of unique node names having Session Manager IPs that are configured on Communication Manager. This eliminates the need for provisioning trunks for redundancy. This feature frees up trunks so that the available trunks can be used by SIP agents, SIP stations, or PSTN bound SIP trunk calls. You can also can generate reports for displaying the status of active and idle trunks.

With Cluster Session Manager, you can manage up to 10 clusters, and each cluster can manage up to 28 Session Managers. From the Manage Users page, you can define the Primary Session Manager and the Secondary Session Manager. If the call to the SIP station is routed to a SIP trunk that has a clustered signaling group, then the Invite is sent to the station on primary Session Manager. If the primary Session Manager is not reachable, then the Invite is sent to the station on secondary Session Manager.

Using the Signaling Groups page, you can access the Communication Manager CLI and administer the Clustered and Cluster ID fields. These fields appear for SIP signaling groups only. For more information, see “Cluster Session Manager” chapter in *Avaya Aura® Communication Manager Screen Reference* and “SIP trunk optimization” chapter in *Avaya Aura® Communication Manager Feature Description and Implementation*.

Utility Services is replaced with AVP Utilities

In Avaya Aura® Release 8.0, Utility Services is replaced with AVP Utilities. While some of the Utility Services features are migrated to other Avaya Aura® applications, the following features of Utility Services are migrated to AVP Utilities:

- Services Port access for virtual machines
- Appliance Virtualization Platform log collection and alarming
- Enabling SSH access for Appliance Virtualization Platform

Following features of Utility Services are migrated to other Avaya Aura® applications:

Features of Utility Services 7.x	Migrated to	Description
Enterprise System Directory (ESD)	Avaya Aura® System Manager Release 8.0	Only LDAP integration with Avaya Aura® System Manager is supported. Searching the LDAP directory is supported for SIP phones only.
Enterprise System Directory (ESD)	Avaya Aura® System Manager Release 8.0	Only LDAP integration with Avaya Aura® System Manager is supported. Searching the LDAP directory is supported for SIP phones only.
File Server	Avaya Aura® Device Services Release 7.1.3.1	Avaya Aura® Device Services will provide this feature for IP Phones. The Firmware download capability is moved to Avaya Aura® Device Services starting with Release 7.1.3.1. Avaya Aura® Device Services Release 7.1.3.1 can run on Appliance Virtualization Platform Release 8.0. Avaya Aura® Device Services will not provide this feature for Gateway Firmware.
MyPhone	Avaya Aura® Unified User Portal 8.0	Existing configurations must be re-applied, if any.

The following features of Utility Services are no longer supported by an Avaya Aura® application. Third-party applications must be used for the following features:

Features of Utility Services 7.x	Description
Call Detail Recordings (CDR) collection	You must use third-party applications. However, you can use the Call Detail Recordings data with the third-party solutions.
Dynamic Host Configuration Protocol (DHCP)	You must use a separate DHCP server.

Feature description

Overview

The following sections provide a brief description of the functionality of the feature that System Manager provides in support for various Avaya products. For detailed information on the services available for a specific Avaya product, see the interoperability table in the *System Manager 7.x Product Offer Definition* on the Avaya Support website at http://support.avaya.com.

Common console

The common console is a common management interface for managing various applications in System Manager. It is a framework for the aggregation of management presentation views and supports dynamic extendibility and contraction as you add or remove management applications. You can use the web management console in a variety of scenarios ranging from product-specific management to suite management. The different scenarios can leverage the common look-and-feel and common components.

Solution Deployment Manager

Solution Deployment Manager overview

Solution Deployment Manager is a centralized software management solution in System Manager that provides deployments, upgrades, migrations, and updates to Avaya Aura® applications. Solution Deployment Manager supports the operations on the customer's Virtualized Environment and the Avaya Aura® Virtualized Appliance model.

Solution Deployment Manager provides the combined capabilities that Software Management, Avaya Virtual Application Manager, and System Platform provided in earlier releases.

From Release 7.1 and later, Solution Deployment Manager supports migration of Virtualized Environment-based 6.x, 7.0.x, and 7.1.x applications to Release 8.0 and later in the customer's Virtualized Environment. For migrating to Release 8.0, you must use Solution Deployment Manager Release 8.0.

Release 7.0 and later support a standalone version of Solution Deployment Manager, the Solution Deployment Manager client. For more information, see *Using the Solution Deployment Manager client*.

System Manager with Solution Deployment Manager runs on:

- Avaya Aura® Virtualized Appliance: Contains a server, Appliance Virtualization Platform, and Avaya Aura® application OVA. Appliance Virtualization Platform includes a VMware ESXi 6.0 hypervisor.
- Customer-provided Virtualized Environment solution: Avaya Aura® applications are deployed on customer-provided, VMware® certified hardware.

- Software-Only environment: Avaya Aura® applications are deployed on the customer-owned hardware and the operating system.

With Solution Deployment Manager, you can do the following in Virtualized Environment and Avaya Aura® Virtualized Appliance models:

- Deploy Avaya Aura® applications.
- Upgrade and migrate Avaya Aura® applications.

  Note:

  When an application is configured with Out of Band Management, Solution Deployment Manager does not support upgrade for that application.

  For information about upgrading the application, see the application-specific upgrade document on the Avaya Support website.
- Download Avaya Aura® applications.
- Install service packs, feature packs, and software patches for the following Avaya Aura® applications:
  - Communication Manager and associated devices, such as gateways, media modules, and TN boards.
  - Session Manager
  - Branch Session Manager
  - AVP Utilities
  - Appliance Virtualization Platform, the ESXi host that is running on the Avaya Aura® Virtualized Appliance.

The upgrade process from Solution Deployment Manager involves the following key tasks:

- Discover the Avaya Aura® applications.
- Refresh applications and associated devices, and download the necessary software components.
- Run the preupgrade check to ensure successful upgrade environment.
- Upgrade Avaya Aura® applications.
- Install software patch, service pack, or feature pack on Avaya Aura® applications.

For more information about the setup of the Solution Deployment Manager functionality that is part of System Manager 8.0, see *Avaya Aura® System Manager Solution Deployment Manager Job-Aid*.

Capability comparison between System Manager Solution Deployment Manager and the Solution Deployment Manager client

Centralized Solution Deployment Manager	Solution Deployment Manager Client
Manage virtual machine lifecycle.	Manage virtual machine lifecycle.

Table continues…

Centralized Solution Deployment Manager	Solution Deployment Manager Client
Deploy Avaya Aura® applications.	Deploy Avaya Aura® applications.
Deploy hypervisor patches only for Appliance Virtualization Platform.	Deploy hypervisor patches only for Appliance Virtualization Platform.
Upgrade Avaya Aura® applications. Release 7.x and later support upgrades from Linux-based or System Platform-based applications to Virtualized Environment or Appliance Virtualization Platform. Release 7.1 and later support Virtualized Environment to Virtualized Environment upgrades.	Upgrade System Platform-based and Virtualized Environment-based System Manager.
Install software patches for Avaya Aura® applications excluding System Manager application.	Install System Manager patches.
Discover Avaya Aura® applications.	Deploy System Manager.
Analyze Avaya Aura® applications.	-
Create and use the software library.	-

Solution Deployment Manager Client

For the initial System Manager deployment or when System Manager is inaccessible, you can use the Solution Deployment Manager client. The client must be installed on the computer of the technician. The Solution Deployment Manager client provides the functionality to deploy the OVAs or ISOs on an Avaya-provided server, customer-provided Virtualized Environment, or Software-only environment.

A technician can gain access to the user interface of the Solution Deployment Manager client from the web browser.

Use the Solution Deployment Manager client to:

- Deploy System Manager and Avaya Aura® applications on Avaya appliances, VMware-based Virtualized Environment, and Software-only environment.
- Upgrade System Platform-based System Manager.
- Upgrade VMware-based System Manager from Release 7.0.x to Release 7.1 and later.
- Upgrade VMware-based System Manager from Release 6.x or 7.x to Release 8.0 and later.
- Install System Manager software patches, service packs, and feature packs.
- Configure Remote Syslog Profile.
- Create the Appliance Virtualization Platform Kickstart file.
- Install Appliance Virtualization Platform patches.
- Restart and shutdown the Appliance Virtualization Platform host.
- Start, stop, and restart a virtual machine.
- Change the footprint of Avaya Aura® applications that support dynamic resizing. For example, Session Manager and Avaya Breeze® platform.

Note:

- You can deploy or upgrade the System Manager virtual machine only by using the Solution Deployment Manager client.
- You must always use the latest the Solution Deployment Manager client for deployment.
- You must use Solution Deployment Manager Client 7.1 and later to create the kickstart file for initial Appliance Virtualization Platform installation or recovery.

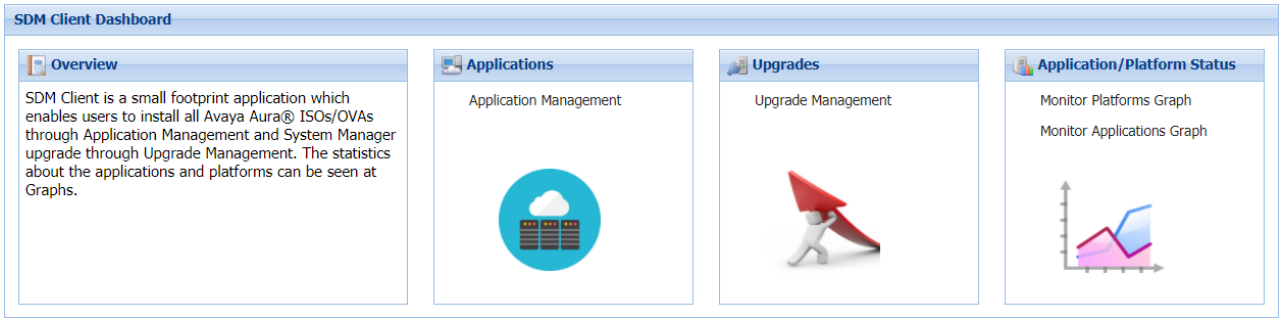


Figure 1: Solution Deployment Manager Client dashboard

Solution Deployment Manager client capabilities

The Solution Deployment Manager client provides the following capabilities and functionality:

- Runs on the following operating systems:
  - Windows 7, 64-bit Professional or Enterprise
  - Windows 8.1, 64-bit Professional or Enterprise
  - Windows 10, 64-bit Professional or Enterprise
- Supports the same web browsers as System Manager.
- Provides the user interface with similar look and feel as the central Solution Deployment Manager in System Manager.
- Supports deploying the System Manager OVA. The Solution Deployment Manager client is the only option to deploy System Manager.
- Supports the Flexible footprint feature. The size of the virtual resources depends on the capacity requirements of the Avaya Aura® applications.
- Defines the physical location, Appliance Virtualization Platform or ESXi host, and discovers virtual machines that are required for application deployments and virtual machine life cycle management.
- Manages lifecycle of the OVA applications that are deployed on the Appliance Virtualization Platform or ESXi host. The lifecycle includes start, stop, reset virtual machines, and establishing trust for virtual machines.

  Note:

  For the Avaya Aura® Messaging element, Trust re-establishment is not required.

- Deploys the Avaya Aura® applications that can be deployed from the central Solution Deployment Manager for Avaya Aura® Virtualized Appliance and customer Virtualized Environment. You can deploy one application at a time.

  Note:

  - System Manager must be on the same or higher release than the application you are upgrading to. For example, you must upgrade System Manager to 7.1.3.2 before you upgrade Communication Manager to 7.1.3.2.

    All the applications that are supported by System Manager do not follow the general Avaya Aura® Release numbering schema. Therefore, for the version of applications that are supported by System Manager, see Avaya Aura® Release Notes on the Avaya Support website.

  - Solution Deployment Manager Client must be on the same or higher release than the OVA you are deploying. For example, if you are deploying Communication Manager 7.1.3 OVA, Solution Deployment Manager Client version must be on Release 7.1.3, 7.1.3.1, 7.1.3.2, or 8.0. Solution Deployment Manager Client cannot be on Release 7.1.

- Configures application and networking parameters required for application deployments.
- Supports selecting the application OVA file from a local path or an HTTPS URL. You do not need access to PLDS.
- Supports changing the hypervisor network parameters, such as IP Address, Netmask, Gateway, DNS, and NTP on Appliance Virtualization Platform.
- Supports installing patches for the hypervisor on Appliance Virtualization Platform.
- Supports installing software patches, service packs, and feature packs only for System Manager.

  Note:

  To install the patch on System Manager, Solution Deployment Manager Client must be on the same or higher release as the patch. For example, if you are deploying the patch for System Manager Release 7.1.1, you must use Solution Deployment Manager Client Release 7.1.1 or higher.

  However, to install the patch on System Manager Release 7.0.x, Solution Deployment Manager Client must be on Release 7.0.x.

  Avaya Aura® applications use centralized Solution Deployment Manager from System Manager to install software patches, service packs, and feature packs. The applications that cannot be patched from centralized Solution Deployment Manager, use the application Command Line Interface or web console.

  For more information about supported releases and patching information, see Avaya Aura® Release Notes on the Avaya Support website.

- Configures Remote Syslog Profile.
- Creates the Appliance Virtualization Platform Kickstart file.

Solution Deployment Manager

Solution Deployment Manager simplifies and automates the deployment and upgrade process.

With Solution Deployment Manager, you can deploy the following applications:

- AVP Utilities 8.0.1
- System Manager 8.0.1
- Session Manager 8.0.1
- Branch Session Manager 8.0.1
- Communication Manager 8.0.1
- Application Enablement Services 8.0.1
- WebLM 8.0.1
- Communication Manager Messaging 7.0

For information about other Avaya product compatibility information, go to https://support.avaya.com/CompatibilityMatrix/Index.aspx.

With Solution Deployment Manager, you can migrate, upgrade, and update the following applications:

- Linux-based Communication Manager 5.x and the associated devices, such as Gateways, TN boards, and media modules.

  Note:

  In bare metal Linux-based deployments, the applications are directly installed on the server and not as a virtual machine.

- Hardware-based Session Manager 6.x
- System Platform-based Communication Manager
  - Duplex CM Main / Survivable Core with Communication Manager
  - Simplex CM Main / Survivable Core with Communication Manager, Communication Manager Messaging, and Utility Services
  - Simplex Survivable Remote with Communication Manager, Branch Session Manager, and Utility Services
  - Embedded CM Main with Communication Manager, Communication Manager Messaging, and Utility Services
  - Embedded Survivable Remote with Communication Manager, Branch Session Manager, and Utility Services
- System Platform-based Branch Session Manager
  - Simplex Survivable Remote with Communication Manager, Branch Session Manager, and Utility Services
  - Embedded Survivable Remote with Communication Manager, Branch Session Manager, and Utility Services

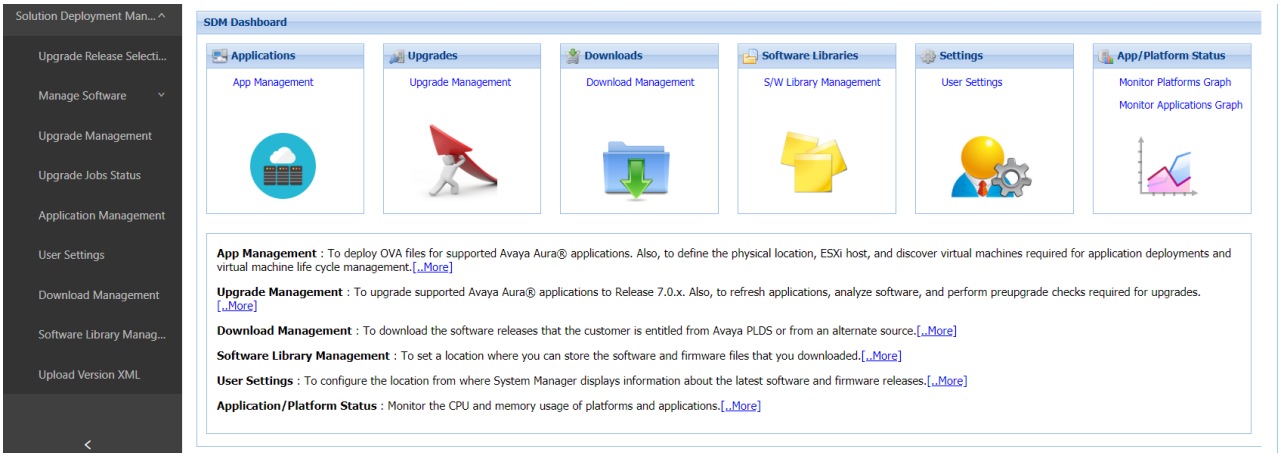
Note:

You must manually migrate the Services virtual machine that is part of the template.

The centralized deployment and upgrade process provides better support to customers who want to upgrade their systems to Avaya Aura® Release 8.0.1. The process reduces the upgrade time and error rate.

Solution Deployment Manager dashboard

You can gain access to the Solution Deployment Manager dashboard from the System Manager web console or by installing the Solution Deployment Manager client.



Solution Deployment Manager capabilities

With Solution Deployment Manager, you can perform deployment and upgrade-related tasks by using the following links:

- **Upgrade Release Setting**: To select **Release 7.x Onwards** or **6.3.8** as the target upgrade. Release 8.0.1 is the default upgrade target.
- **Manage Software**: To analyze, download, and upgrade the IP Office, Unified Communications Module, and IP Office Application Server firmware. Also, you can view the status of the firmware upgrade process.
- **Application Management**: To deploy OVA files for the supported Avaya Aura® application.
  - Configure Remote Syslog Profile.
  - Generate the Appliance Virtualization Platform Kickstart file.
- **Upgrade Management**: To upgrade Communication Manager that includes TN boards, media gateways and media modules, Session Manager, Communication Manager Messaging, Utility Services, Branch Session Manager, and WebLM to Release 8.0.1.
- **User Settings**: To configure the location from where System Manager displays information about the latest software and firmware releases.
- **Download Management**: To download the OVA files and firmware to which the customer is entitled. The download source can be the Avaya PLDS or an alternate source.
- **Software Library Management**: To configure the local or remote software library for storing the downloaded software and firmware files.

- **Upload Version XML**: To save the `version.xml` file to System Manager. You require the `version.xml` file to perform upgrades.

Automated upgrades and migrations of Avaya Aura® applications

From System Manager Release 7.0 and later, several Avaya Aura® applications support an automated migration path by using System Manager Solution Deployment Manager. The migration process can include the following tasks:

- Changing the server, operating system, and the hypervisor.
- Creating and restoring a backup in addition to the normal upgrade process for the application.

The key objectives of the automated upgrade and migration are:

- Move from a manual procedure on the application server to an automated migration procedure on a centralized System Manager.
- Eliminate the time spent in waiting for each migration step. With an automated sequencing of tasks, the application migration events run automatically in the background.
- Move from multiple manual tasks that require human intervention and assessment that might be error prone to reliable integrated checks that assess and confirm migration readiness.

Release 7.0 and later support automated migrations for:

- System Platform-based Communication Manager Release 6.x and Branch Session Manager Release 6.x
- Linux-based Session Manager Release 6.x and Communication Manager Release 5.2.1

The automated migration functionality applies to the:

- Avaya-provided virtual appliance offer Appliance Virtualization Platform.
- Customer-provided Virtualized Environment.

Supported servers

In the Avaya Aura® Virtualized Appliance model, Solution Deployment Manager supports the following servers for deployments and upgrades to Release 8.0 and later:

- Dell™ PowerEdge™ R620
- HP ProLiant DL360p G8
- Dell™ PowerEdge™ R630
- HP ProLiant DL360 G9
- S8300E, for Communication Manager and Branch Session Manager
- Avaya Converged Platform 120 Server: Dell PowerEdge R640
- Avaya Converged Platform 130 Server, for Application Enablement Services

Note:

- Release 8.0 and later does not support S8300D, Dell™ PowerEdge™ R610, and HP ProLiant DL360 G7 servers.
- Release 7.0 and later does not support S8510 and S8800 servers.

For fresh installations, use Dell™ PowerEdge™ R630 or HP ProLiant DL360 G9.

Dual stack support

System Manager Release 7.1 and later support dual stack. In dual stack, the system can handle both IPv4 and IPv6 addresses simultaneously. For applications with management interface over both IPv4 and IPv6, System Manager supports only IPv4 addresses until explicitly configured to support IPv6 addresses.

IPv6 Support

System Manager Release 7.1 and later support IPv6 addresses with dual stack capabilities. The System Manager administrator can configure IPv6 addresses for features such as Geographic Redundancy, Certificates with IPv6 address, System Upgrade, and Discovery of network elements.

Out of Band Management in System Manager

Out of Band Management is two physically or logically separated network connections or both that connects to a private management network of the customer. The network connection provides secure management and administration of Avaya products. With Out of Band Management, you can separate the management network and data network traffic to System Manager.

System Manager provides the following network interfaces:

- The regular eth0 interface that was present in releases earlier than System Manager Release 8.0.1, is called the Management interface or Out of Band Management interface. The IP address is called as the Management IP address. The Management interface is mandatory for configuration.

  The following are the examples of System Manager Management network traffic:

  - Database replication with Session Manager
  - Element management. For example, Session Manager, Communication Manager, and Avaya Breeze® platform.
  - User management
  - Solution deployment, upgrades, and software patch install
- If Out of Band Management is enabled, then the public interface is configured with Public IP address and used for the nonmanagement traffic. This is an optional configuration.

The following are the examples of System Manager nonmanagement or public network traffic:

- End-user self-provisioning
- Client devices getting certificates through SCEP
- Tenant Management

Out of Band Management configuration persists across System Manager upgrades, updates, and restarts.

For configuring Out of Band Management in System Manager, System Manager must be installed on an Appliance Virtualization Platform host that is configured with Out of Band Management. Out of Band Management is enabled during the deployment of Appliance Virtualization Platform.

Note:

Once OOBM is enabled on System Manager, public interface eth1 is no longer reachable using ping command from other systems that are present in a public network. However, System Manager can reach other systems on a public interface.

Out of Band Management in a Geographic Redundancy setup

When you configure Geographic Redundancy, provide Management network details only. Validation fails if you configure Geographic Redundancy with Public network details. In Geographic Redundancy setup, you do not disable or enable Out of Band Management on both primary and secondary System Manager virtual machine. You can enable Out of Band Management on the primary System Manager virtual machine and disable Out of Band Management on the secondary System Manager virtual machine, and vice versa.

Restoring System Manager backup

While restoring backup on System Manager with different Out of Band Management network details, the restore operation fails at validation phase.

Tenant Management on Out of Band Management-enabled System Manager

By default, the Multi Tenancy feature is disabled on System Manager when Out of Band Management is enabled. You must enable Multi Tenancy on Out of Band Management-enabled System Manager for the Tenant Management administrator to manage tenant users.

Geographic Redundancy

The System Manager Geographic Redundancy service replicates the Avaya Aura® element support for two geographically distant System Manager sites with separate subnetworks and across a WAN so that the System Manager management services can change from one site to another when one of the sites or servers fails. The System Manager Geographic Redundancy sites are set up in pairs with each site in a System Manager standalone or System Manager HA configuration. You can designate one server from the pair as the primary System Manager server and the other as the secondary System Manager server.

In normal operation also called sunny-day scenario, the primary System Manager provides all element administration and automatically replicates the administrative changes made on the primary System Manager server to the secondary System Manager server on a batch transaction

basis. The secondary System Manager functions in the warm standby mode or the read-only mode and provides a subset of System Manager services, such as the System Manager Geographic Redundancy status or statistics, Inventory, and Authentication and Authorization.

In the event of catastrophic failure or split network, also called rainy-day scenario, you can activate the System Manager server that you designated as secondary to assume full management of all supported Avaya Aura® elements. The elements that support the Active-Standby mode include Avaya Aura® Session Manager and Avaya Aura® Communication Manager. Geographic Redundancy-unaware elements might require manual intervention to gain services from the secondary System Manager server that is active.

The primary and the secondary System Manager servers can be in active mode in the split network scenarios.

After deactivation of the secondary System Manager server, the system administrator selects the database of the primary or the secondary System Manager server as the master database. The System Manager feature provides tools to select the database. After the database recovery and replication, the System Manager Geographic Redundancy servers revert to the normal operation mode, Active-Standby.

Geographic Redundancy configuration prerequisites

With System Manager 7.1, the System Manager administrator must perform the following in sequence before enabling and configuring Geographic Redundancy:

1. Adding the primary System Manager server as Certificate Revocation List (CRL) in the secondary System Manager server.
2. Adding trusted certificate of primary System Manager server to secondary System Manager server.

Data Replication Service

Data Replication Service (DRS) replicates data stored on the System Manager server to other element nodes or the slave nodes. DRS uses and extends SymmetricDS as the underlying mechanism for data replication.

SymmetricDS is an asynchronous data replication software that supports multiple subscribers and bi-directional synchronization. SymmetricDS uses Web and database technologies to replicate tables between relational databases in near real time. The system provides several filters while recording the data, extracting the data that has to be replicated to a slave node, and loading the data on the slave node.

Databases provide unique transaction IDs to rows that are committed as a single transaction. SymmetricDS stores the transaction ID along with the data that changed, so that it can play back the transaction at the destination node exactly the way it happened. This means that the target database maintains the same integrity as the source.

DRS provides a mechanism wherein elements can specify their data requirements in an XML document. On the basis of the XML document, DRS creates database triggers on the specified application tables and captures the database events for delivery to other element nodes. The client nodes then fetch these database events.

Data replication happens in two distinct phases:

- Full-sync. This is the initial replication phase, wherein whatever data the replica node requests is replicated to the client node.
- Regular-sync. This is the phase after full-sync, wherein subsequent change events are replicated to the replica node.

DRS supports the following modes of replication:

- Replication in Repair mode. In the repair mode, DRS replicates all of the requested data from the master database to the database of the replica node. Repair should only be necessary if there is a post-install failure of DRS.
- Automatic synchronization mode. After the database of the replica node is loaded with the requested data, the subsequent synchronizations of the master database and the replica database occur automatically. DRS replicates only the data that has been updated since the last replication. Automatic synchronization is a scheduled activity and occurs after each fixed interval of time as set in the configuration files.

The data from the master database is sent to the replica node in batches. DRS creates replication batches whenever the data in the master database is added, modified, and deleted.

Using DRS, you can:

- View replica nodes in a replica group.
- Repair the replica nodes that are not synchronized. The repair action replicates the required data from System Manager.

Management of users, public contacts, and shared address

Management of users

User Profile Management (UPM) is a shared service that supports a logically centralized data store. Through the System Manager web console, applications can gain access to the data store and obtain the user information that applications require. Administrators or end users do not need to provide user information for each application.

UPM uses data synchronization to achieve a single-point user administration. UPM synchronizes a user data event that is generated at the application level with the central user space and other connected applications.

If an enterprise directory is connected, then UPM maintains synchronization at the enterprise level. UPM adapts to the changes that occur in the enterprise directory, specifically additions, deletions, and modifications.

Management of public contacts

As an administrator, you can:

- Define public contacts of users in System Manager for an enterprise.
- Share the public contacts with all the users in System Manager.

Management of shared address

You can manage the shared address of the users in the enterprise. All users in the enterprise share the common addresses. As an administrator, you can:

- Create a new shared address.
- Modify and delete an existing shared address.

Fault management

The Fault management service presents the status of alarms, traps, and notifications received by System Manager and its components, and the other elements that are integrated with the System Manager SAL agent. The Fault management service maps events to alarms and tracks the state of alarms. Using the Fault Management service, you can acknowledge and clear alarms.

The Alarm management service provides a central point for receiving alarms that System Manager and other components generate. The service supports alarm monitoring, acknowledgement, configuration, clearing, and retiring. You can also browse System Manager for historical alarm events.

Logging service

The Logging service provides configuration capabilities and overall management of logs. It receives and stores log events and harvests file-based logs or local database logs.

The log viewer is integrated with the common console to provide consistent presentation of log messages for System Manager and the adopters. It displays a list of logs where you can view the details of each log, search for logs, and filter specific logs. Log details include information about the event that generates the log and the severity level of the log. You can search logs based on search conditions and set filters to view logs that match the filter criteria.

Log Harvester

The Log Harvester service manages the retrieval, archival, and analysis of harvested log files stored in hosts or elements on which Serviceability Agent is enabled. The Serviceability Agent harvests the logs and sends the harvested logs to the Logging service through HTTPS. The logging service does the following:

- Identifies a successful harvest request related to a harvest profile.
- Accepts the file segments.
- Creates a well-defined file structure, and saves the request in the System Manager node.

You can harvest log files for one or more products of the same or different types running on the same or different computers. The system displays the list of file archives and respective profiles on the log harvesting user interface, and the status of each archive is available in the user interface table.

Audit Logging

System Manager Release 7.1 and later support the Audit Logging configuration. By using this configuration, System Manager can notify the administrator and perform the configured action during one or all of the following events:

- Audit failure
- 75% occupation of audit partition
- 90% occupation of audit partition

Scheduler

The Scheduler service provides a generic job scheduling service for System Manager and the adopting products. It provides an interface to execute a task on demand or on a periodic basis. So you can schedule a job to generate an output immediately or set the frequency of the task execution to run on a periodic basis. You can also modify the frequency for a periodic job. After you define a task or a job, System Manager creates instances of the task, monitors the execution of the task, and updates the status of the task.

Scheduled jobs can be of following three types:

- system scheduled
- admin scheduled
- on-demand

Bulk import and export

In System Manager, you can import and export user profiles and global settings in bulk. To import data in bulk, you must provide an XML file or an Excel file as input file. System Manager validates any file that you upload during the bulk import operation.

System Manager filters uploaded files based on the file extension and mime type or bytes in the file.

The system exports the data to an XML file and an Excel file. The System Manager database stores the imported user profiles and global settings data.

You can import and export the following user attributes in bulk:

- Identity data
- Communication profile set
- Handles
- Communication profiles

The supported communication profiles are CM Endpoint, CM Agent, Messaging, Session Manager, CS 1000 Endpoint, Conferencing, IP Office, Presence, Avaya Breeze® platform, Work Assignment, Officelinx, and Avaya Equinox®.

You can import and export the following global settings attributes in bulk:

- Public Contact Lists
- Shared Addresses
- Default access control list (ACLs)

Important:

System Manager does not support import and export of roles in bulk.

Bulk import and export using the Excel file

In System Manager, you can import and export user profiles in bulk by using an Excel file and an XML file. To import data in bulk, provide an XML file or an Excel file as input that System Manager supports. When you export the data from the System Manager web console, the system exports the data to an XML file and an Excel file that System Manager supports.

Microsoft Office Excel 2007 and later support bulk import and export in the `.xlsx` format. You can download the Excel file from the User Management page.

Importing and exporting in bulk by using the Excel template provides the following features:

- Supports the following types of user information:
  - Basic. The identity attributes of the user that include user provisioning rule name for the user, the tenant, and organization hierarchy details
  - Profile Set. Entries for all communication profile sets for all users

    The Profile Set sheet contains an entry for each communication profile set for a user. The user must set only one communication profile set as *true* for a user in the **Is Default** column. The value *true* indicates that the communication profile set of the user is the default.
  - Handle. The communication address of the user
  - Session Manager profile
  - Avaya Breeze® platform profile
  - CM Endpoint profile with all attributes of the station communication profile
  - CM Agent profile with all attributes.
  - Messaging profile
  - Officelinx profile
  - IP Office Endpoint profile
  - CS 1000 Endpoint profile
  - Presence profile

  - Conferencing profile
  - Work Assignment profile
  - Avaya Equinox® profile
- Supports more than one communication profile set.
- Supports the creation, updation, and deletion of the user by using the same Excel file. However, you can only perform one operation at a time.
- For updation, supports only the partial merge operation.

  Bulk import and export by using Excel does not support complete or partial replace of the user for imports in bulk.

Bulk import and export by using Excel supports a subset of user attributes that XML supports. For example, Excel does not support user contacts, address, and roles.

The Excel file

The sample Excel file contains the sample data of some key attributes of the user. The Excel file provides a description of header fields. When you download the Excel template from the User Management page, the values remain blank. To use the Excel file, export some users for reference in an Excel file.

The login name in the **Basic** worksheet is the key attribute that you use to link the user records in other worksheets.

The login name of the user and the profile set name in the **Profile Set** worksheet are used to link to the user records in other worksheets for that user profile.

- Although you can edit the header fields in the Excel template, do not change any details of any headers in the worksheets. The import or export might fail if you change the details of the header.
- Do not change the column position in the Excel file or the structure of the Excel template.
- Do not sort the data in worksheets.

CM Endpoint communication profile

The Excel file contains all attributes for the CM station endpoint profile that are spread in different worksheets. The parent sheet provides a link to the same user profile record in the child worksheet. The link points to the first record in the child sheet if the user profile contains multiple records in the child worksheet.

Multi Tenancy

Using the Multi Tenancy feature, tenants can share the same instance of the application, while allowing the tenants to manage users to fit the customer needs as if the application runs on a dedicated environment.

You can manage Multi Tenancy from the System Manager web console. System Manager supports the following capabilities:

- Administer the tenant.

- Administer tenant administrators for a tenant.
- Administer the organization hierarchy of the tenant.
- View the tenant hierarchy on the Tenant Management and User Management pages.
- View the tenant associated with a user.
- Create and edit the user associated with a tenant from the User Management page.

System Manager provides a tenant administration dashboard that requires administrator credentials.

By default, the Multi Tenancy feature is disabled. To use the Multi Tenancy feature, you must manually enable it. After enabling the Multi Tenancy feature, you cannot disable the feature.

System Manager supports maximum 250 tenant partitions as part of System Manager Multi Tenant Management.

User provisioning rule

The administrator can create users by using the user provisioning rule. When the administrator creates a user, the system displays the default values, the communication addresses, and the communication profiles that are defined in the rule. The administrator must provide minimal user information.

The administrator can:

- provision the user by using the user provisioning rules from the System Manager web console, web services, directory synchronization, and bulk import services.
- assign only one user provisioning rule to a user.

System Manager supports creating, editing, duplicating, and deleting the user provisioning rule. You can use the User Management link on the System Manager web console to associate the user provisioning rule with users while creating and editing users.

Supported footprints of System Manager

Supported footprints for System Manager on Appliance Virtualization Platform

The following table describes the resource requirements to support different profiles for System Manager on Appliance Virtualization Platform Avaya-Appliance offer.

Resource	Profile 2	Profile 3
vCPU Reserved	6	8
Minimum vCPU Speed	2185 MHz	2185 MHz

Table continues…

Resource	Profile 2	Profile 3
CPU reservation	13110 MHz	17480 MHz
Virtual RAM	12 GB	18 GB
Virtual Hard Disk	105 GB	250 GB
Number of users	>35000 to 250000 users with up to 250 Branch Session Manager and 12 Session Manager	>35000 to 250000 users with up to 500 Branch Session Manager and 28 Session Manager
Common Server R2 and R3 support	Yes	Yes

- From Release 8.0 and later, System Manager Profile 1 is not supported. If System Manager is on a pre Release 8.0 and using the Profile 1, ensure that the server has the required resources to configure Profile 2 on Release 8.0 and later.
- System Manager Release 8.0 and later profile 2 does not support CSR2 Small Appliance Virtualization Platform Server. Therefore, if you are upgrading from System Manager Release 7.1 to Release 8.0 and later on Appliance Virtualization Platform, you must use CSR2 Medium Appliance Virtualization Platform Server. For more information about the Appliance Virtualization Platform CSR2 server types, see *Avaya Aura® Communication Manager Hardware Description and Reference*.

Virtualized Environment footprint flexibility

Virtualized Environment applications provide a fixed profile based on the maximum capacity requirements. Based on the number of supported users, System Manager offers a flexible footprint profile for customers who do not require the maximum capacity.

The customer can configure VMware CPU and RAM of the System Manager application based on the following capacity size categories:

- Profile 2, SMGR Profile 2 Max User 250K, supports 250,000 users.
- Profile 3, SMGR Profile 3 Max User 500K, supports 250,000 users.

Supported footprints for System Manager on VMware

The following table describes the resource requirements to support different profiles for System Manager on VMware customer-provided Virtualized Environment.

Resource	Profile 2	Profile 3
vCPU Reserved	6	8
Minimum vCPU Speed	2185 MHz	2185 MHz
CPU reservation	13110 MHz	17480 MHz
Virtual RAM	12 GB	18 GB
Memory reservation	12288 MB	18432 MB
Virtual Hard Disk	105 GB	250 GB
Shared NICs	1	1

Table continues…

Resource	Profile 2	Profile 3
IOPS	44	44
Number of users	>35000 to 250000 users with up to 250 Branch Session Manager and 12 Session Manager	>35000 to 250000 users with up to 500 Branch Session Manager and 28 Session Manager

Note:

From Release 8.0 and later, System Manager Profile 1 is not supported. If System Manager is on a pre Release 8.0 and using the Profile 1, ensure that the server has the required resources to configure Profile 2 on Release 8.0 and later.

Configuration management

Configuration management provides a configuration repository for System Manager services. Configuration management is responsible for storing configuration data, also called as profiles, for System Manager services and notifying the services of configuration changes.

You can view and edit a profile of a service using Configuration management.

Security features

OVA Signing

OVA signing is a security feature where OVA files are digitally signed to ensure file integrity. The system verifies the digital signature of the OVA, feature pack, and service pack before deploying, upgrading, and patching operations.

Security hardening

Using the security hardening feature, you can enable or disable military grade hardening or commercial grade hardening for System Manager. Enabling military grade hardening in System Manager enables commercial grade hardening by default.

It also facilitates a system with higher security and restricts unauthorized access and changes to the system settings.

Certificate-based authentication

With System Manager 7.1, you can disable the password-based login and configure the certificate-based authentication for system login.

The certificates for this authentication can be issued by System Manager as the certificate authority or by a third-party certificate authority.

To authenticate the user, the system provides the option to retrieve only the selected fields from the certificate.

Backup encryption

With System Manager 7.1, you can encrypt system backups using a password. Encrypted backups of a military grade hardened system can be restored to a matching type of hardened system: military grade, commercial grade, and standard.

Encrypted backups of a commercial grade hardened system can be restored only on a commercial grade hardened system or a standard hardened system. Likewise, encrypted backups of standard hardened system can be restored only on a standard hardened system.

Enhanced Access Security Gateway (EASG) overview

EASG provides a secure method for Avaya services personnel to access the Avaya Aura® application remotely and onsite. Access is under the control of the customer and can be enabled or disabled at any time. EASG must be enabled for Avaya Services to perform tasks necessary for the ongoing support, management and optimization of the solution. EASG is also required to enable remote proactive support tools such as Avaya Expert Systems® and Avaya Healthcheck.

Element management

Inventory maintains a repository that records elements deployed on System Manager, including their runtime relationships. An element in the Inventory refers to a single or clustered instance of a managed element. Inventory provides a mechanism for creating, modifying, searching, and deleting elements and the access point information from the repository. Inventory retrieves information about elements that are added or deleted from the repository.

Inventory integrates the adopting products with the common console of System Manager. Through Inventory, element type can provide a link that can redirect to the Web page of the element manager. System Manager Web Console displays the links for only specific element types.

Inventory supports the creation and updation of application systems by importing data from an XML file. You can import elements only through the Web console.

Group management

Group and Lookup Service (GLS) is a shared service that provides group administration and lookup service for managed resources. GLS encapsulates the mechanisms for creating, changing, searching, and deleting groups and group memberships. Use GLS to group resources in ways that work best for the business, such as organizing resources by location, organization, and function.

On the System Manager web console, with GLS, you can assign different roles to administrators and allow administrators to perform only limited tasks on group of resources. For example, you can create a user group so that only an authorized user can manage the user group.

GLS supports group administration for the following common resources:

- Shared across elements, such as roles and users
- Unshared element-specific resources

GLS contains a repository of groups and memberships from System Manager and other applications that use the GLS service. GLS synchronizes the resources with other Avaya applications and services that manage these resources. GLS maintains resource IDs and their group memberships. With GLS, you can search for one or more resources based on their attribute values and get resource attributes for one or more resources.

With GLS, you can perform the following operations:

- Create groups.
- View and change groups.
- Create duplicate groups by copying properties of existing groups.
- Move groups across hierarchies.
- Assign and remove resources for groups.
- Delete groups.
- Synchronize groups.

As a shared service, GLS reduces the time and effort involved by defining reusable groups of managed resources that more than one application or service requires. For example, you can use the group of resources to assign permissions through Role Based Access Control (RBAC).

License management

System Manager provides Web-based license manager (WebLM) to centrally manage licenses for one or more Avaya software products for your organization. All Avaya applications that use WebLM for license management use WebLM that System Manager provides instead of WebLM on System Platform.

System Manager WebLM supports the Centralized licensing feature for Avaya Aura® Communication Manager.

To track and manage licenses in an organization, WebLM requires a license file from the Avaya Product Licensing and Delivery System (PLDS) website at https://plds.avaya.com.

System Manager Communication Manager capabilities overview

System Manager provides a common, central administration of some IP Telephony products. With the central administration feature, you can consolidate the key capabilities of Integrated Management administration products with other Avaya Management tools on a common software platform. With System Manager, you can administer Avaya Aura® Communication Manager,

Communication Manager Messaging, Avaya Aura® Messaging, and Modular Messaging. The following sections provide some features of System Manager.

Managing Communication Manager objects

System Manager displays a collection of Communication Manager objects under **Communication Manager**. With System Manager, you can add, edit, view, or delete objects through Communication Manager.

Endpoint management

Using endpoint management you can create and manage endpoint objects and add, change, remove, and view endpoint data.

Template management

Using Templates, you can specify specific parameters of an endpoint or a subscriber once and reuse the template for subsequent tasks of adding endpoints or subscribers. You can use default templates or add your own custom templates.

The two categories of templates are: default templates and user-defined templates. You cannot edit or delete the default templates. However, you can modify or remove user-defined templates at any time.

Subscriber management

Using Subscriber Management, you can manage, add, change, remove, and view subscriber data. Subscriber management supports Avaya Aura® Messaging, Communication Manager Messaging, and Modular Messaging objects.

Discovery Management

You can discover specific devices within the network using the Discovery Management capability of System Manager. You can also manage the Simple Network Management Protocol (SNMP) access parameters used for the discovery process. Device discovery discovers your network, including subnets and nodes.

Element Cut Through

Using the Element Cut-Through link, you can gain access to the Communication Manager cut through the Element Cut-Through page. As an administrator, you have permission to gain access to the Communication Manager cut through.

Granular role-based access control

With the Granular role-based access control feature, you can restrict access to Communication Manager resources, such as gateways and servers, and objects on resources, such as Agent Login ID.

Based on the role that a user has, System Manager supports range permissions along with the operation permissions assigned to the user. You can assign permissions or a combination of permissions to users. The permissions include adding, editing, deleting, and duplicating objects. For example, if you assign a range of 1000:4000 and define permissions for Add, Edit, and Delete operations, the user can create, edit, and delete extensions within the range of 1000:4000.

The default value in the specific **Range** field is asterisk (*). If you retain this value, the user has access to the entire defined range.

You can define range-level granular permissions for the following Communication Manager objects:

- Endpoints
- Agent Login ID
- Announcement
- Audio Group
- Best Service Routing Pickup Group
- Holiday Table
- Variables
- Vector
- Vector Directory Number (VDN)
- Vector Routing Table
- Service Hours Table
- Coverage Answer Group
- Coverage Path
- Coverage Remote
- Coverage Time-of-Day
- Group-Page
- Hunt-Group
- Intercom Group
- Pickup Group
- Terminating Extension Group
- Route-Pattern
- Class of Restriction (COR)

Communication Manager feature concurrency enhancements

- Improve navigation speed on User management and Endpoint management webpages on System Manager.
- Feature concurrency with new Communication Manager and SIP Phone features:
  - Service observing from SIP Phone support, new **sip-sobsv** button and **listen-only** sub-field within the **sip-sobsv** button available

- VOA Repeat or Interrupt for SIP CC Phone support, new **voa-repeat** button available
- Add or Remove Agent Skill from SIP Phone support, new **add-rem-skill** button available
- Auxiliary Agents Considered Idle support, new **AUX Agent Considered Idle** field to administer on the Agent LoginId object
- Forced Agent Logout from Auxiliary Work by Aux Reason Code Support, new fields available
- Streaming Music-on-Hold from an external source, such as cloud, new **LiveStreamSource** field available
- Hunt Position Busy Button support, new **hntpos-bsy** button available.

Certification validation

With System Manager Solution Deployment Manager and Solution Deployment Manager client, you can establish a certificate-based TLS connection between the Solution Deployment Manager service and a host that is running Avaya Aura® 7.x and later applications. This provides secure communications between System Manager Solution Deployment Manager or the Solution Deployment Manager client and Appliance Virtualization Platform or ESXi hosts or vCenter.

The certificate-based sessions apply to the Avaya Aura® Virtualized Appliance offer using host self-signed certificates and the customer-provided Virtualization Environment using host self-signed or third-party certificates.

You can check the following with certificate-based TLS sessions:

- Certificate valid dates
- Origin of Certificate Authority
- Chain of Trust
- CRL or OCSP state
- Log Certificate Validation Events

Solution Deployment Manager checks the certificate status of hosts. If the certificate is incorrect, Solution Deployment Manager does not connect to the host.

For the correct certificate:

- The fully qualified domain or IP address of the host to which you are connecting must match the value in the certificate SAN or the certificate Common Name and the certificate must be in date.
- Appliance Virtualization Platform and VMware ESXi hosts do not automatically regenerate their certificates when host details such as IP address or hostname and domain changes. The certificate might become incorrect for the host.

If the certificate is incorrect:

- For the Appliance Virtualization Platform host, Solution Deployment Manager regenerates the certificate on the host and then uses the corrected certificate for the connection.
- For the VMware ESXi host or vCenter, the system denies connection. The customer must update or correct the certificate on the host or vCenter.

For more information about updating the certificate, see “Updating the certificate on the ESXi host from VMware”.

Note:

Solution Deployment Manager:

- Validates certificate of vCenter
- Validates the certificates when a virtual machine is deployed or upgraded on vCenter managed hosts

With Solution Deployment Manager, you can only accept certificate while adding vCenter. If a certificate changes, the system gives a warning that the certificate does not match the certificate in the trust store on Solution Deployment Manager. You must get a new certificate, accept the certificate as valid, and save the certificate on the system.

To validate certificates, you can open the web page of the host. The system displays the existing certificate and you can match the details.

Bulk import and export enhancements

System Manager provides the following bulk import and export enhancements:

- An option to export user data by using Excel or XML files.
- Time zone field for Avaya Aura® Messaging subscribers.

  The value must be in the standardized name format. For example, America/Phoenix. Otherwise, the system sets the Avaya Aura® Messaging subscriber time zone to the System Manager server time zone.

Avaya Aura® Device Services element

System Manager supports Avaya Aura® Device Services as an element.

With Avaya Aura® Device Services, clients and endpoints can store centrally and retrieve data such as configuration and deployment data. You can manage the data from any device.

Avaya Aura® Device Services supports the following services for devices:

- Contact Services: The service provides the following end user-focused services that are centrally located:
  - Directory Service: Manages your contacts from any of your devices. Performs an enterprise search of existing sources of contacts such as System Manager through PPM, and exchange local contacts, enterprise directory.

    Only a provisioned user can use Contact Services.
  - User Service: Sets and retrieves information such as your preferred names, picture, and other preferences.

  - Picture Service: Supports creating (overrides default enterprise), deleting, and updating a picture of user and provides a centralized, firewall-friendly interface to present picture URLs in the contact information or search results.
- Notification Service: Provides a common infrastructure for a client or endpoint to subscribe to receive events from a number of service resources with a single connection.
- Dynamic Configuration Service: Provides discovery of configuration settings to UC Clients that can be customized on a global, group, individual or platform basis. This simplifies the configuration process of users, and skips manual configuration and makes ready for use. Clients only need to only provide identity information such as email address or Windows userid and enterprise credentials.
- Web Deployment Service: Supports publishing and deploying UC client updates for end users.

Virtual machine report

You can generate a report of virtual machines that are installed on the Appliance Virtualization Platform host.

The script to generate the virtual machine report is in the `/swlibrary/reports/generate_report.sh` folder.

Important:

If you run the report generation script when an upgrade is in progress on System Manager, the upgrade might fail.

Security hardening options

System Manager provides the following security hardening options:

- selinux
- audit
- fips
- aide
- TLSv1, TLSv1.1, and TLSv1.2

You can enable or disable one or more security hardening options. While you can enable all the options, you can only disable selinux, audit, and aide.

Third-party certificate support

With support for third-party certificates, you can use third-party signed certificates in System Manager. A Certificate Signing Request (CSR) needs to be generated and shared with the third-party.

After the third party signs the CSR, the certificate is valid. Third-party certificates can be used for application on Avaya Virtualization Platform. These certificates can also be used for certificate—based and common access card-based authentications.

Extended Hostname Validation

With the Extended Hostname Validation (EHV) feature, the system validates the host name or domain name of the server with the value in the **subject** or **subjectAltName** (SAN) field in the identity certificate for establishing the SSL connection.

Customer root account

With Release 8.0 and later, for accessing the root account, you can select the **Enable Customer Root Account for this Application** check box on the **Configuration Parameters** tab at the time of deploying or upgrading the application.

Preserve security hardening modes on upgrade

When you upgrade an application from Release 7.1.x to Release 8.0 and later, the system preserves the security modes that are configured on the Release 7.1.x application.

Chapter 3: Avaya Aura® overview

Avaya Aura® applications deployment offers

Avaya Aura® supports the following deployment offers:

- Avaya Aura® Virtualized Appliance (VA): Avaya-provided server, Avaya Aura® Appliance Virtualization Platform, based on the customized OEM version of VMware® ESXi 6.0.
- Avaya Aura® Virtualized Environment (VE): Customer-provided VMware infrastructure and Kernel-based Virtual Machine (KVM).
- Avaya Aura® on Infrastructure as a Service: Amazon Web Services, Microsoft Azure, and Google Cloud Platform.
- Software-only environment: Deployment on the Red Hat Enterprise Linux operating system.

Avaya Aura® Virtualized Appliance overview

Avaya Aura® Virtualized Appliance is a turnkey solution. Avaya provides the hardware, all the software including the VMware hypervisor and might also offer the customer support of the setup. Virtualized Appliance offer is different from Avaya Aura® Virtualized Environment, where Avaya provides the Avaya Aura® application software and the customer provides and supports the VMware hypervisor and the hardware on which the hypervisor runs.

Deployment considerations

- Deployment on the Appliance Virtualization Platform server is performed from the System Manager Solution Deployment Manager or the Solution Deployment Manager standalone Windows client.
- Avaya provides the servers, Appliance Virtualization Platform, which includes the VMware ESXi hypervisor.

Appliance Virtualization Platform overview

From Release 7.0, Avaya provides the VMware®-based Avaya Aura® Appliance Virtualization Platform to provide virtualization for Avaya Aura® applications.

Avaya Aura® Virtualized Appliance offer includes:

- Common Servers: Dell™ PowerEdge™ R620, Dell™ PowerEdge™ R630, HP ProLiant DL360p G8, and HP ProLiant DL360 G9
- Avaya S8300E

Note:

- With WebLM Release 7.x and later, you cannot deploy WebLM on S8300E Server running on Appliance Virtualization Platform.
- Common Servers using ESXi 6.0 can require more memory than System Platform or ESXi 5.5. For memory validation process, see PSN027060u or the Release Notes.

- Avaya Converged Platform 120 Server: Dell PowerEdge R640

Appliance Virtualization Platform is the customized OEM version of VMware® ESXi 6.0. With Appliance Virtualization Platform, customers can run any combination of supported applications on Avaya-supplied servers. Appliance Virtualization Platform provides greater flexibility in scaling customer solutions to individual requirements.

From Avaya Aura® Release 7.0 and later, Appliance Virtualization Platform replaces System Platform.

You can deploy the following applications on Appliance Virtualization Platform:

- AVP Utilities 8.0.1
- System Manager 8.0.1
- Session Manager 8.0.1
- Branch Session Manager 8.0.1

- Communication Manager 8.0.1
- Application Enablement Services 8.0.1
- WebLM 8.0.1
- Communication Manager Messaging 7.0

For information about other Avaya product compatibility information, go to https://support.avaya.com/CompatibilityMatrix/Index.aspx.

Note:

For deploying Avaya Aura® applications on Appliance Virtualization Platform only use Solution Deployment Manager.

Virtual Appliance components

Software component	Description
ESXi Host	The physical machine running the ESXi Hypervisor software.
Appliance Virtualization Platform	Avaya-provided virtualization turnkey solution that includes the hardware and all the software including the VMware hypervisor.
Solution Deployment Manager	Centralized software management solution of Avaya that provides deployment, upgrade, migration, and update capabilities for the Avaya Aura® virtual applications.
Open Virtualization Appliance (OVA)	The virtualized OS and application packaged in a single file that is used to deploy a virtual machine.

Virtualized Environment overview

You can deploy the Avaya Aura® applications in one of the following Virtualized Environment:

- VMware in customer-provided Virtualized Environment
- Kernel-based Virtual Machine Virtualized Environment

Avaya Aura® Virtualized Environment overview

Avaya Aura® Virtualized Environment integrates real-time Avaya Aura® applications with VMware® and Kernel-based Virtual Machine (KVM).

Kernel-based Virtual Machine overview

Kernel-based Virtual Machine (KVM) is a virtualization infrastructure for the Linux kernel that turns the Linux kernel into a hypervisor. You can remotely access the hypervisor to deploy applications on the KVM host.

KVM virtualization solution is:

- Cost effective for the customers.
- Performance reliable and highly scalable.

- Secure as it uses the advanced security features of SELinux.
- Open source software that can be customized as per the changing business requirements of the customers.

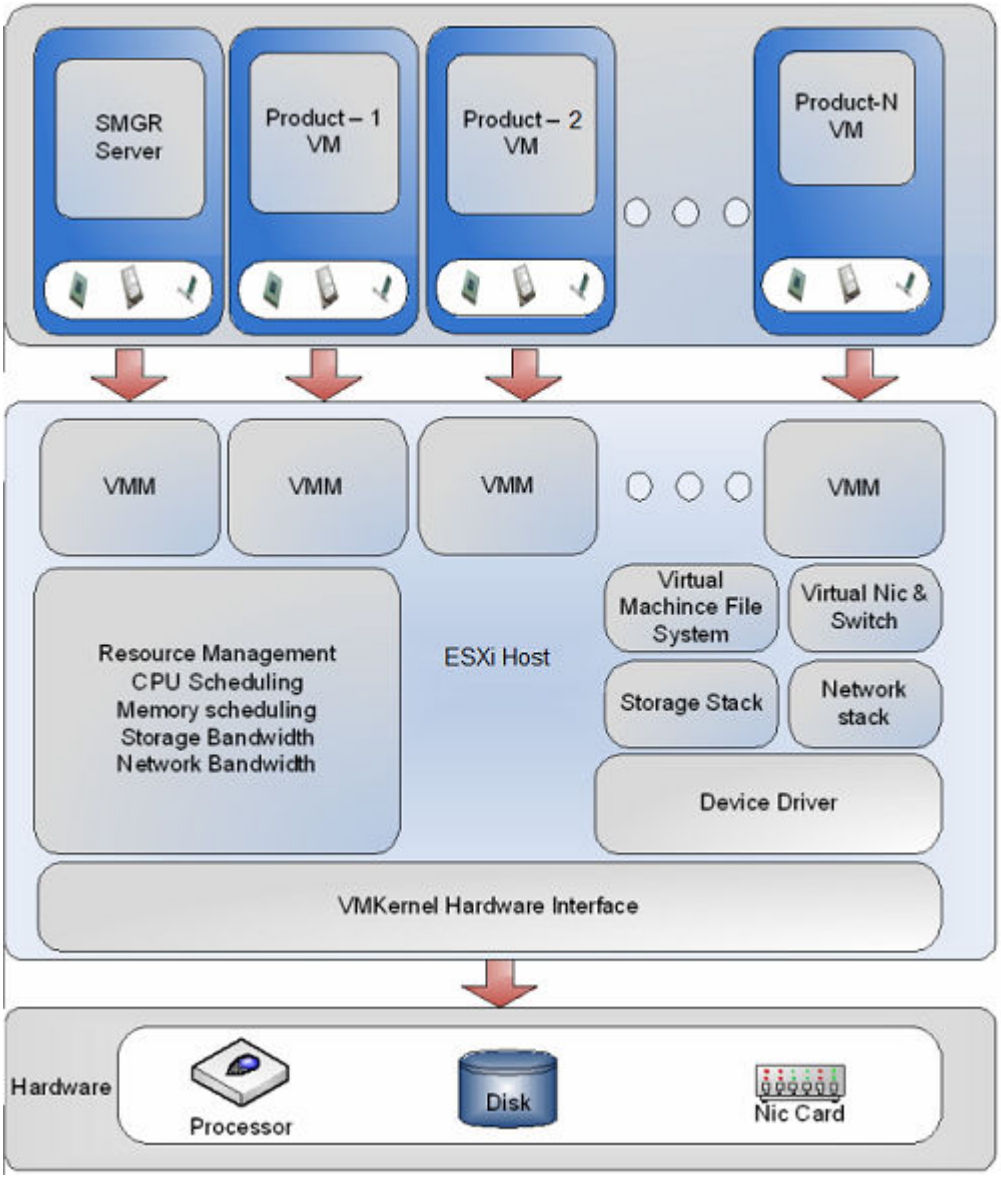
Supported applications in Virtualized Environment

Application	Release	VMware	KVM
Avaya Aura® System Manager	Release 8.0.1	Y	Y
Avaya WebLM	Release 8.0.1	Y	Y
Avaya Aura® Session Manager	Release 8.0.1	Y	Y
Avaya Aura® Communication Manager	Release 8.0.1	Y	Y
Avaya Aura® AVP Utilities	Release 8.0.1	—	—
Avaya Aura® Application Enablement Services	Release 8.0.1	Y	Y
Avaya Aura® Media Server (Software only)	Release 8.0.1	Y	Y

For information about other Avaya product compatibility information, go to https://support.avaya.com/CompatibilityMatrix/Index.aspx.

Topology

The following is an example of a deployment infrastructure for System Manager on VMware.



Virtualized Environment components

Virtualized component	Description
Open Virtualization Appliance (OVA)	The virtualized OS and application packaged in a single file that is used to deploy a virtual machine.
VMware	
ESXi Host	The physical machine running the ESXi Hypervisor software.
ESXi Hypervisor	A platform that runs multiple operating systems on a host computer at the same time.

Table continues…

Virtualized component	Description
vSphere Web Client	Using a Web browser, vSphere Web Client connects to a vCenter server or directly to an ESXi host if a vCenter Server is not used.
vSphere Client (HTML5)	vSphere Client (HTML5) is available in vSphere 6.5. Using a Web browser, it connects to a vCenter server or directly to an ESXi host if a vCenter Server is not used. This is the only vSphere client administration tool after the next vSphere release.
vCenter Server	vCenter Server provides centralized control and visibility at every level of the virtual infrastructure. vCenter Server provides VMware features such as High Availability and vMotion.
KVM	
KVM hypervisor	A platform that runs multiple operating systems on a host computer at the same time.

Overview of Infrastructure as a Service environment

Infrastructure as a Service (IaaS) environment enables enterprises to securely run applications on the virtual cloud. The supported Avaya Aura® applications on IaaS can also be deployed on-premises. Avaya Aura® application supports the following platforms within this offer:

- Amazon Web Services
- Microsoft Azure
- Google Cloud Platform
- IBM Bluemix

  For information about Bluemix, see IBM Bluemix product documentation.

Supporting the Avaya Aura® applications on the IaaS platforms provide the following benefits:

- Minimizes the capital expenditure on infrastructure. The customers can move from capital expenditure to operational expense.
- Reduces the maintenance cost of running the data centers.
- Provides a common platform for deploying the applications.
- Provides a flexible environment to accommodate the changing business requirements of customers.
- Allows you to pay per-use licensing.
- Allows you to upgrade at a minimal cost.
- Supports mobility to move from one network to another.
- Allows you to stay current with latest security updates provided by the service provider.

You can connect the following applications to the Avaya Aura® IaaS instances from the customer premises:

- Avaya Aura® Conferencing Release 8.0 and later

- Avaya Aura® Messaging Release 6.3 and later
- G430 Branch Gateway, G450 Branch Gateway, and G650 Media Gateway

Supported third-party applications

With the software-only (ISO) offer, you can install third-party applications on the system and get more control on the system. For the list of supported third-party software applications in Release 8.0 and later, see the Avaya Product Support Notice at PSN020360u.

Amazon Web Services overview

Amazon Web Services is an Infrastructure as a Service platform that enables enterprises to securely run applications on the virtual cloud. The key components of Amazon Web Services are Amazon Elastic Compute Cloud (EC2) and Amazon Simple Storage Service (S3).

Microsoft Azure overview

Microsoft Azure is an Infrastructure as a Service platform that enables enterprises to securely deploy and manage applications through a global network of Microsoft-managed data centers.

Google Cloud Platform overview

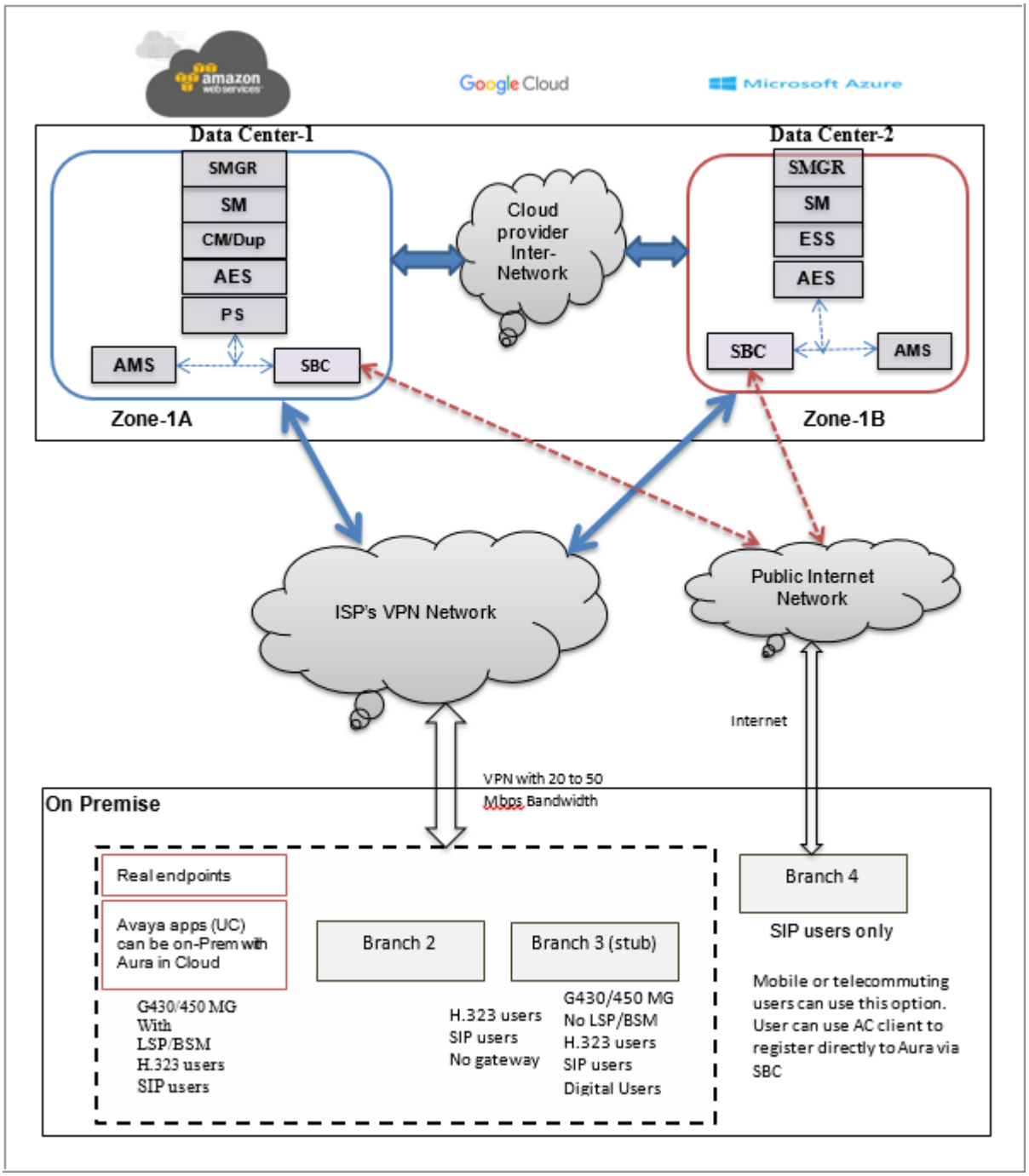
Google Cloud Platform is a suite of public cloud computing services offered by Google.

Topology

The following diagram depicts the architecture of the Avaya applications on the Infrastructure as a Service platform. This diagram is an example setup of possible configuration offered by Avaya.

Important:

The setup must follow the Infrastructure as a Service deployment guidelines, but does not need to include all the applications.


amazon web services
Google Cloud
Microsoft Azure
Data Center-1
SMGR
SM
CM/Dup
AES
PS
AMS
SBC
Zone-1A
Cloud provider Inter-Network
Data Center-2
SMGR
SM
ESS
AES
SBC
AMS
Zone-1B
ISP's VPN Network
Public Internet Network
Internet
VPN with 20 to 50 Mbps Bandwidth
On Premise
Real endpoints
Avaya apps (UC) can be on-Prem with Aura in Cloud
G430/450 MG With LSP/BSM H.323 users SIP users
Branch 2
H.323 users SIP users No gateway
Branch 3 (stub)
G430/450 MG No LSP/BSM H.323 users SIP users Digital Users
Branch 4
SIP users only
Mobile or telecommuting users can use this option. User can use AC client to register directly to Aura via SBC

Supported applications in Infrastructure as a Service Environment

Application	Release	Amazon Web Services	Microsoft Azure	Google Cloud Platform
Avaya Aura® System Manager	Release 8.0.1	Y	Y	Y
Avaya WebLM	Release 8.0.1	Y	Y	Y
Avaya Aura® Session Manager	Release 8.0.1	Y	Y	Y
Avaya Aura® Communication Manager	Release 8.0.1	Y	Y	Y
Presence Services using Avaya Breeze® platform	Release 8.0.1	Y	—	—
Avaya Aura® Application Enablement Services (Software only)	Release 8.0.1	Y	Y	Y
Avaya Aura® Media Server (Software only)	Release 8.0	Y	Y	Y

For information about other Avaya product compatibility information, go to https://support.avaya.com/CompatibilityMatrix/Index.aspx.

Software-only environment overview

Avaya Aura® Release 8.0 and later supports software-only installation. In a software-only installation, the customer owns the operating system and must provide and configure the operating system for use with Avaya Aura® application. With the software-only offer, the customer can install and customize the operating system to meet the requirements to install the Avaya Aura® application.

You must run the software-only offer on the supported environments to enable the use of Avaya approved third-party applications for anti-virus, backup, and monitoring.

Customers must procure a server that meets the recommended hardware requirements and the appropriate version of Linux® Operating System.

Supported third-party applications

With the software-only (ISO) offer, you can install third-party applications on the system and get more control on the system. For the list of supported third-party software applications in Release 8.0 and later, see the Avaya Product Support Notice at PSN020360u.

Avaya Aura® Software-Only environment RPMs

For the list of tested Avaya Aura® Software-Only RPMs, see Avaya PSN020361u at PSN020361u.

Supported platforms

You can deploy the Avaya Aura® application software-only *ISO image* on the following platforms:

- VMware

- Kernel-based Virtual Machine (KVM)
- Hyper-V

Note:

Starting with the Release 8.0.1, Avaya Aura® applications support Hyper-V.

- Amazon Web Services
- Google Cloud Platform
- Microsoft Azure

Supported applications in Software-only Environment

- Avaya Aura® System Manager
- Avaya WebLM
- Avaya Aura® Session Manager
- Avaya Aura® Communication Manager
- Avaya Aura® Application Enablement Services
- Avaya Aura® Media Server

Avaya Pod Fx for Enterprise Communications

Avaya Pod Fx for Enterprise Communications is an alternative deployment option for Avaya Aura® Virtualized Environment applications.

Avaya Pod Fx is a full-stack turnkey solution that combines storage arrays from EMC, virtualization software from VMware, and networking, management, and real-time applications from Avaya.

Avaya Pod Fx accelerates deployment of Avaya Aura® applications and simplifies IT operations.

Documentation

The following table lists the Avaya Pod Fx for Enterprise Communications documents. These documents are available on the Avaya support website at http://support.avaya.com.

Title	Description
Avaya Pod Fx for Enterprise Communications – Technical Solutions Guide	Provides an overview of the solution, specifications, and components that Avaya Pod Fx for Enterprise Communications integrates.

Table continues…

Avaya Pod Fx for Enterprise Communications – Pod Orchestration Suite User Guide	Provides an overview of the Avaya Pod Orchestration Suite (POS). The POS contains the applications which orchestrate, manage, and monitor the Avaya Pod Fx. This guide explains how to access and use the applications in the POS management suite.
Avaya Pod Fx for Enterprise Communications – Locating the latest product documentation	Identifies the Avaya Pod Fx customer documentation. Also includes the documentation for the Avaya and non-Avaya products that are included in the Avaya Pod Fx solution.
Avaya Pod Fx for Enterprise Communications – Release Notes	Describes fixed and known issues for Avaya Pod Fx. This document does not describe issues associated with each component in the Avaya Pod Fx. For information on the specific components, see the component Release Notes.

Chapter 4: Interoperability

Product compatibility

For the latest and most accurate compatibility information, go to http://support.avaya.com/CompatibilityMatrix/Index.aspx.

Chapter 5: Licensing requirements

When you place an order for the following products using the Avaya Solution Designer, you can include a new System Manager or an upgrade of System Manager as an entitlement:

- New Communication Manager, Session Manager, or CS 1000
- Upgrade of Communication Manager, Session Manager, or CS 1000

Additionally, you can add the System Manager DVD and the System Manager server to the order.

Chapter 6: Performance specifications

Capability and scalability specification

The table provides the maximum capacities supported for each element type.

Note:

Only one System Manager is available with each Avaya Aura® deployment. Therefore, the solution number is not the sum of all supported elements listed in the table.

Capacity	Maximum limit	Notes
Administrator logins	250	
Simultaneous logins	50	
Total administered endpoints of all types	250,000	To see the total number of endpoints, go to the **Elements** > **Communication Manager** > **Endpoints** > **Manage Endpoints** page on the System Manager web console.
Total administered users defined in the System Manager database	250,000	The total number of administered users with an Identity is configured in System Manager and might not have a communication profile defined. To see the defined users, go to the **Users** > **User Management** > **Manage Users** page on the System Manager web console.
Messaging mailboxes	250,000	
Contacts per user	250	
Public contacts	1000	
Personal contact lists per user	1	
Members in a personal contact list	250	
Groups	300	
Members in a group	400	
Elements	25,000	
Communication Manager or CS 1000 or both	500	Specifies the capacity counts against the total number of elements.
Session Managers	28	

Table continues…

Capacity	Maximum limit	Notes
Branch Session Manager	500	
IP Office	2000	To support central licensing of 2,000 IP Office 9.x, local WebLM licensing servers that are slaved to System Manager licensing are required. For more information, see the IP Office 9.x product offer and System Manager WebLM.
IP Office Unified Communication Module or Application servers as part of Branch deployments	2000	
Roles	200	
Roles per user	20	
Licensing clients	1000	
Concurrent License requests per WebLM	300	
License requests during any 9 minute window per WebLM	50,000	
Local WebLM	22	
Trust management clients	2500	
Tenants (System Manager Multi Tenant)	250	

Geographic Redundancy

The System Manager Geographic Redundancy service replicates Avaya Aura® application support for two geographically distant System Manager sites with separate subnetworks and across a WAN. You can change the System Manager management services from one site to another when one of the sites or servers fails. System Manager Geographic Redundancy sites are set up in pairs. From the server pair, one server is designated as the primary System Manager server and the other server as the secondary System Manager server.

Chapter 7: Security

Security specification

As the management console for some Avaya products, System Manager must be resilient to attacks that might cause service disruption, malfunction, or unauthorized access to data. As part of the Avaya Aura® solution, System Managermust be protected from security threats, such as:

- Unauthorized access or modification of data
- Theft of data
- Denial of Service (DoS) attacks
- Viruses and Worms
- Web-based attacks that include Cross-Site Scripting and Cross-Site Forgery

For information about security-related considerations, features, and services for System Manager, see *Avaya Aura® System Manager Security Design* on the Avaya Support website at https://support.avaya.com/security.

Related links

Trust Management on page 59

Trust Management

System Manager uses Trust Management to provision and manage certificates of various applications, servers, and devices thereby enabling a secure, inter-element communication. Trust Management provides Identity (Server) and Trusted (Root/CA) certificates that applications can use to establish mutually authenticated TLS sessions.

System Manager uses a third-party open source application as a Certificate Authority, Enterprise Java Beans Certificate Authority (EJBCA), to issue Identity and Trusted certificates to applications through Simple Certificate Enrollment Protocol (SCEP). However, it does not issue certificates to the endpoints.

For information about getting the endpoint certificates, see the endpoint specific documentation on the Avaya Support website.

Related links

Security specification on page 59

External authentication

You can configure System Manager to authenticate administrative users through external authentication services, such as an enterprise directory, Kerberos, or a RADIUS server. An administrative account is provisioned within System Manager during installation for initial access.

System Manager supports the following authentication authorities:

- Local users
- External RADIUS users
- External LDAP users
- External Security Assertion Markup Language (SAML) users

The authentication scheme policy determines the order in which you can use the authentication authorities. The authentication servers policy controls the settings for the external SAML, LDAP, RADIUS, and KERBEROS servers.

Related links

SAML authentication on page 60

SAML authentication

For enterprise level Single Sign On, System Manager provides Security Assertion Markup Language (SAML) authentication. System Manager uses SAML implementation version 2.0 of OpenAM Release 9.5.4 to provide SAML-based authentication with external Identity Providers. System Manager uses the web browser Single Sign On profile of the SAML authentication.

Related links

External authentication on page 60

Role Based Access Control

In System Manager, you require appropriate permissions to perform a task. The administrator grants permissions to users by assigning appropriate roles. Role Based Access Control (RBAC) in System Manager supports the following types of roles:

- Built-in
- Custom

With these roles, you can gain access to various elements with specific permission mappings.

Built-in roles are default roles that authorize users to perform common administrative tasks. You can assign built-in roles to users, but you cannot delete roles or change permission mappings in the built-in roles.

You can perform LDAP synchronization of Active Directory administrator roles with System Manager administrator roles. The capability includes system roles and custom roles on System Manager.

Note:

Granular RBAC is not supported for managing Equinox Conferencing, Web Gateway, and Work Assignment elements by creating custom roles.

Port utilization

System Manager 8.0.1 Port Matrix lists all the ports and protocols that System Manager uses. Avaya Direct, Business Partners, and customers can find the port matrix document at http://support.avaya.com/security. You can access the System Manager 8.0.1 Port Matrix document on the **Avaya Product Security** > **Security Policies and Support** > **Avaya Product Port Matrix Documents** page.

You can gain access to the port matrix document only after you log in to the Avaya Support website by using valid credentials.

Chapter 8: Resources

System Manager documentation

The following table lists the documents related to System Manager. Download the documents from the Avaya Support website at http://support.avaya.com.

Title	Description	Audience
Design		
Avaya Aura® System Manager Overview and Specification	Understand high-level product features and functionality.	Customers and sales, services, and support personnel
Administering Avaya Aura® System Manager	Administering System Manager applications and install patches on System Manager applications.	Customers and sales, services, and support personnel
Avaya Aura® System Manager Certificate Management	Understand certificate management.	Customers and sales, services, and support personnel
Using		
Using the Solution Deployment Manager client	Deploy System Manager applications and install patches on System Manager applications.	System administrators
Avaya Aura® System Manager Solution Deployment Manager Job-Aid	Deploy System Manager applications and install patches on System Manager applications.	System administrators
Implementation		
Upgrading Avaya Aura® System Manager	Upgrade the Avaya Aura® System Manager virtual application to Release 8.0.	Implementation personnel
Deploying Avaya Aura® System Manager in Virtual Appliance	Deploy System Manager applications in Virtual Appliance	Implementation personnel
Deploying Avaya Aura® System Manager in Virtualized Environment	Deploy System Manager applications in Virtualized Environment	Implementation personnel
Deploying Avaya Aura® System Manager in Infrastructure as a Service Environment	Deploy System Manager applications in Infrastructure as a Service Environment	Implementation personnel

Table continues…

Title	Description	Audience
Deploying Avaya Aura® System Manager in Software-Only Environment	Deploy System Manager applications in Software-Only Environment	Implementation personnel
Maintenance and Troubleshooting		
Avaya Aura® System Manager Fault Management and monitoring using SNMP	Monitor System Manager using SNMP.	System administrators and IT personnel
Troubleshooting Avaya Aura® System Manager	Perform maintenance and troubleshooting tasks for System Manager and Avaya Aura® applications that System Manager supports.	System administrators and IT personnel

Finding documents on the Avaya Support website

Procedure

1. Go to https://support.avaya.com/.
2. At the top of the screen, type your username and password and click **Login**.
3. Click **Support by Product** > **Documents**.
4. In **Enter your Product Here**, type the product name and then select the product from the list.
5. In **Choose Release**, select an appropriate release number.
6. In the **Content Type** filter, click a document type, or click **Select All** to see a list of all available documents.

   For example, for user guides, click **User Guides** in the **Content Type** filter. The list displays the documents only from the selected category.
7. Click **Enter**.

Accessing the port matrix document

Procedure

1. Go to https://support.avaya.com.
2. Log on to the Avaya website with a valid Avaya user ID and password.
3. On the Avaya Support page, click **Support By Product** > **Documents**.
4. In **Enter Your Product Here**, type the product name, and then select the product from the list of suggested product names.
5. In **Choose Release**, select the required release number.

6. In the **Content Type** filter, select one or more of the following categories:
   - **Application & Technical Notes**
   - **Design, Development & System Mgt**

   The list displays the product-specific Port Matrix document.
7. Click **Enter**.

Avaya Documentation Portal navigation

Customer documentation for some programs is now available on the Avaya Documentation Portal at https://documentation.avaya.com/.

Important:

For documents that are not available on the Avaya Documentation Portal, click **Support** on the top menu to open https://support.avaya.com/.

Using the Avaya Documentation Portal, you can:

- Search for content in one of the following ways:
  - Type a keyword in the **Search** field.
  - Type a keyword in **Search**, and click **Filters** to search for content by product, release, and document type.
  - Select a product or solution and then select the appropriate document from the list.
- Find a document from the **Publications** menu.
- Publish a PDF of the current section in a document, the section and its subsections, or the entire document.
- Add content to your collection by using **My Docs** (☆).

  Navigate to the **My Content** > **My Docs** menu, and do any of the following:
  - Create, rename, and delete a collection.
  - Add content from various documents to a collection.
  - Save a PDF of selected content in a collection and download it to your computer.
  - Share content in a collection with others through email.
  - Receive content that others have shared with you.
- Add yourself as a watcher by using the **Watch** icon (👁).

  Navigate to the **My Content** > **Watch list** menu, and do the following:
  - Set how frequently you want to be notified, starting from every day to every 60 days.
  - Unwatch selected content, all content in a document, or all content on the Watch list page.

As a watcher, you are notified when content is updated or deleted from a document, or the document is removed from the portal.

- Share a section on social media platforms, such as Facebook, LinkedIn, Twitter, and Google +.
- Send feedback on a section and rate the content.

Note:

Some functionality is only available when you log in to the portal. The available functionality depends on the role with which you are logged in.

Training

The following courses are available on the Avaya Learning website at http://www.avaya-learning.com. After you log into the website, enter the course code or the course title in the **Search** field and click **Go** to search for the course.

Course code	Course title
20460W	Virtualization and Installation Basics for Avaya Team Engagement Solutions
20970W	Introducing Avaya Device Adapter
20980W	What's New with Avaya Aura® Release 8.0
71200V	Integrating Avaya Aura® Core Components
72200V	Supporting Avaya Aura® Core Components
20130V	Administering Avaya Aura® System Manager Release 8.0
21450V	Administering Avaya Aura® Communication Manager Release 8.0

Viewing Avaya Mentor videos

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

About this task

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

- To find videos on the Avaya Support website, go to https://support.avaya.com/ and do one of the following:
  - In **Search**, type `Avaya Mentor Videos` to see a list of the available videos.
  - In **Search**, type the product name. On the Search Results page, select **Video** in the **Content Type** column on the left.

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

Note:

Videos are not available for all products.

Support

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

Related links

Using the Avaya InSite Knowledge Base on page 66

Using the Avaya InSite Knowledge Base

The Avaya InSite Knowledge Base is a web-based search engine that provides:

- Up-to-date troubleshooting procedures and technical tips
- Information about service packs
- Access to customer and technical documentation
- Information about training and certification programs
- Links to other pertinent information

If you are an authorized Avaya Partner or a current Avaya customer with a support contract, you can access the Knowledge Base without extra cost. You must have a login account and a valid Sold-To number.

Use the Avaya InSite Knowledge Base for any potential solutions to problems.

1. Go to http://www.avaya.com/support.
2. Log on to the Avaya website with a valid Avaya user ID and password.

   The system displays the Avaya Support page.
3. Click **Support by Product** > **Product Specific Support**.

4. In **Enter Product Name**, enter the product, and press `Enter`.
5. Select the product from the list, and select a release.
6. Click the **Technical Solutions** tab to see articles.
7. Select relevant articles.

Related links

Support on page 66

Glossary

Active-standby (Auto)	Active-Active: The elements leverage the services of the primary and the secondary System Manager servers. The system functions in this mode when the enterprise network splits.
Active-standby (Manual)	Active-Standby: The elements communicate with the active System Manager server. The mode is also called Active-Standby Auto. In the normal operation scenario, the primary System Manager server is active and the secondary System Manager server is in the standby mode. The primary System Manager server continues to manage elements until the primary System Manager server becomes unavailable. If the primary System Manager server fails and the administrator activates the secondary System Manager server, the elements automatically switch to the secondary System Manager server.
Elements	An element is an instance of an Avaya Aura® network entity managed by System Manager, for example, a Session Manager server or a Communication Manager server.
Geographic Redundancy-aware element	An element that supports Geographic Redundancy, such as Avaya Aura® Session Manager Release 6.3.
Geographic Redundancy-unaware element	An element that does not support Geographic Redundancy, such as Avaya Aura® Session Manager release earlier than 6.3.
Primary System Manager server	The first or the master System Manager server in a Geographic Redundancy setup that serves all system management requests.
Secondary System Manager server	The System Manager server that functions as a backup to the primary System Manager server in a Geographic Redundancy setup. The secondary System Manager server provides the full System Manager functionality when the system fails to connect to the primary System Manager server.

Index

F

G

H

I

K

L

M

N

O

P

R

S

T

U

V

W

X