Avaya Aura® Experience Portal Overview and Specification

Release 7.1
Issue 1
May 2016

© 2012-2016, Avaya, Inc.
All Rights Reserved.

Notice

While reasonable efforts have been made to ensure that the information in this document is complete and accurate at the time of printing, Avaya assumes no liability for any errors. Avaya reserves the right to make changes and corrections to the information in this document without the obligation to notify any person or organization of such changes.

Documentation disclaimer

“Documentation” means information published in varying mediums which may include product information, operating instructions and performance specifications that are generally made available to users of products. Documentation does not include marketing materials. Avaya shall not be responsible for any modifications, additions, or deletions to the original published version of Documentation unless such modifications, additions, or deletions were performed by or on the express behalf of Avaya. End User agrees to indemnify and hold harmless Avaya, Avaya's agents, servants and employees against all claims, lawsuits, demands and judgments arising out of, or in connection with, subsequent modifications, additions or deletions to this documentation, to the extent made by End User.

Link disclaimer

Avaya is not responsible for the contents or reliability of any linked websites referenced within this site or Documentation provided by Avaya. Avaya is not responsible for the accuracy of any information, statement or content provided on these sites and does not necessarily endorse the products, services, or information described or offered within them. Avaya does not guarantee that these links will work all the time and has no control over the availability of the linked pages.

Warranty

Avaya provides a limited warranty on Avaya hardware and software. Refer to your sales agreement to establish the terms of the limited warranty. In addition, Avaya’s standard warranty language, as well as information regarding support for this product while under warranty is available to Avaya customers and other parties through the Avaya Support website: https://support.avaya.com/helpcenter/getGenericDetails?detailId=C20091120112456651010 under the link “Warranty & Product Lifecycle” or such successor site as designated by Avaya. Please note that if You acquired the product(s) from an authorized Avaya Channel Partner outside of the United States and Canada, the warranty is provided to You by said Avaya Channel Partner and not by Avaya.

Licenses

THE SOFTWARE LICENSE TERMS AVAILABLE ON THE AVAYA WEBSITE, HTTPS://SUPPORT.AVAYA.COM/LICENSEINFO, UNDER THE LINK “AVAYA SOFTWARE LICENSE TERMS (Avaya Products)” OR SUCH SUCCESSOR SITE AS DESIGNATED BY AVAYA, ARE APPLICABLE TO ANYONE WHO DOWNLOADS, USES AND/OR INSTALLS AVAYA SOFTWARE, PURCHASED FROM AVAYA INC., ANY AVAYA AFFILIATE, OR AN AVAYA CHANNEL PARTNER (AS APPLICABLE) UNDER A COMMERCIAL AGREEMENT WITH AVAYA OR AN AVAYA CHANNEL PARTNER. UNLESS OTHERWISE AGREED TO BY AVAYA IN WRITING, AVAYA DOES NOT EXTEND THIS LICENSE IF THE SOFTWARE WAS OBTAINED FROM ANYONE OTHER THAN AVAYA, AN AVAYA AFFILIATE OR AN AVAYA CHANNEL PARTNER; AVAYA RESERVES THE RIGHT TO TAKE LEGAL ACTION AGAINST YOU AND ANYONE ELSE USING OR SELLING THE SOFTWARE WITHOUT A LICENSE. BY INSTALLING, DOWNLOADING OR USING THE SOFTWARE, OR AUTHORIZING OTHERS TO DO SO, YOU, ON BEHALF OF YOURSELF AND THE ENTITY FOR WHOM YOU ARE INSTALLING, DOWNLOADING OR USING THE SOFTWARE (HEREINAFTER REFERRED TO INTERCHANGEABLY AS “YOU” AND “END USER”), AGREE TO THESE TERMS AND CONDITIONS AND CREATE A BINDING CONTRACT BETWEEN YOU AND AVAYA INC. OR THE APPLICABLE AVAYA AFFILIATE (“AVAYA”).

Avaya grants You a license within the scope of the license types described below, with the exception of Heritage Nortel Software, for which the scope of the license is detailed below. Where the order documentation does not expressly identify a license type, the applicable license will be a Designated System License. The applicable number of licenses and units of capacity for which the license is granted will be one (1), unless a different number of licenses or units of capacity is specified in the documentation or other materials available to You. “Software” means computer programs in object code, provided by Avaya or an Avaya Channel Partner, whether as stand-alone products, pre-installed on hardware products, and any upgrades, updates, patches, bug fixes, or modified versions thereto. “Designated Processor” means a single stand-alone computing device. “Server” means a Designated Processor that hosts a software application to be accessed by multiple users. “Instance” means a single copy of the Software executing at a particular time: (i) on one physical machine; or (ii) on one deployed software virtual machine (“VM”) or similar deployment.

License types

Concurrent User License (CU). End User may install and use the Software on multiple Designated Processors or one or more Servers, so long as only the licensed number of Units are accessing and using the Software at any given time. A “Unit” means the unit on which Avaya, at its sole discretion, bases the pricing of its licenses and can be, without limitation, an agent, port or user, an e-mail or voice mail account in the name of a person or corporate function (e.g., webmaster or helpdesk), or a directory entry in the administrative database utilized by the Software that permits one user to interface with the Software. Units may be linked to a specific, identified Server or an Instance of the Software.

Shrinkwrap License (SR). You may install and use the Software in accordance with the terms and conditions of the applicable license agreements, such as “shrinkwrap” or “clickthrough” license accompanying or applicable to the Software (“Shrinkwrap License”).

Copyright

Except where expressly stated otherwise, no use should be made of materials on this site, the Documentation, Software, Hosted Service, or hardware provided by Avaya. All content on this site, the documentation, Hosted Service, and the product provided by Avaya including the selection, arrangement and design of the content is owned either by Avaya or its licensors and is protected by copyright and other intellectual property laws including the sui generis rights relating to the protection of databases. You may not modify, copy, reproduce, republish, upload, post, transmit or distribute in any way any content, in whole or in part, including any code and software unless expressly authorized by Avaya. Unauthorized reproduction, transmission, dissemination, storage, and or use without the express written consent of Avaya can be a criminal, as well as a civil offense under the applicable law.

Virtualization

The following applies if the product is deployed on a virtual machine. Each product has its own ordering code and license types. Note that each Instance of a product must be separately licensed and ordered. For example, if the end user customer or Avaya Channel Partner would like to install two Instances of the same type of products, then two products of that type must be ordered.

Third Party Components

“Third Party Components” mean certain software programs or portions thereof included in the Software or Hosted Service may contain software (including open source software) distributed under third party agreements (“Third Party Components”), which contain terms regarding the rights to use certain portions of the Software (“Third Party Terms”). As required, information regarding distributed Linux OS source code (for those products that have distributed Linux OS source code) and identifying the copyright holders of the Third Party Components and the Third Party Terms that apply is available in the products, Documentation or on Avaya’s website at: https://support.avaya.com/Copyright or such successor site as designated by Avaya. The open source software license terms provided as Third Party Terms are consistent with the license rights granted in these Software License Terms, and may contain additional rights benefiting You, such as modification and distribution of the open source software. The Third Party Terms shall take precedence over these Software License Terms, solely with respect to the applicable Third Party Components to the extent that these Software License Terms impose greater restrictions on You than the applicable Third Party Terms.

Preventing Toll Fraud

“Toll Fraud” is the unauthorized use of your telecommunications system by an unauthorized party (for example, a person who is not a corporate employee, agent, subcontractor, or is not working on your company's behalf). Be aware that there can be a risk of Toll Fraud associated with your system and that, if Toll Fraud occurs, it can result in substantial additional charges for your telecommunications services.

Avaya Toll Fraud intervention

If You suspect that You are being victimized by Toll Fraud and You need technical assistance or support, call Technical Service Center Toll Fraud Intervention Hotline at +1-800-643-2353 for the United States and Canada. For additional support telephone numbers, see the Avaya Support website: https://support.avaya.com or such successor site as designated by Avaya.

Trademarks

Avaya, the Avaya logo, Avaya Aura® Experience Portal, Avaya Aura® Communication Manager, and Avaya Aura® Orchestration Designer are either registered trademarks or trademarks of Avaya Inc. in the United States of America and/or other jurisdictions.

All non-Avaya trademarks are the property of their respective owners. Linux® is the registered trademark of Linus Torvalds in the U.S. and other countries.

Downloading Documentation

For the most current versions of Documentation, see the Avaya Support website: https://support.avaya.com, or such successor site as designated by Avaya.

Contact Avaya Support

See the Avaya Support website: https://support.avaya.com for product or Hosted Service notices and articles, or to report a problem with your Avaya product or Hosted Service. For a list of support telephone numbers and contact addresses, go to the Avaya Support website: https://support.avaya.com (or such successor site as designated by Avaya), scroll to the bottom of the page, and select Contact Avaya Support.

Contents

Chapter 1: Introduction 6
Purpose 6
Chapter 2: Experience Portal overview 7
New in this release 7
Feature Description 10
Experience Portal media servers 11
Experience Portal Manager 11
Application Execution Environment 15
Multichannel components 15
Mobile channel components 16
Avaya Aura® Orchestration Designer 16
Proactive Outreach Manager (POM) 16
Intelligent Customer Routing (ICR) 17
Call classification 17
Zoning 17
Chapter 3: Interoperability 20
Product compatibility 20
Operating system compatibility 20
Browser compatibility 20
Orchestration Designer requirements 21
Proactive Outreach Manager compatibility 21
Intelligent Customer Routing compatibility 21
Third-party product requirements 21
External database requirements 22
Speech application requirements 22
Application server requirements 24
Application Logging web service 25
Text application requirements 25
Speech server requirements 26
SIP requirements 27
H.323 requirements 27
Feature Comparison between H.323 and SIP 28
Minimum server machine hardware requirements 31
PBX requirements 31
LAN requirements 32
Site requirements 32
Chapter 4: Performance specifications 34
Capacity and scalability specification 34
Traffic specification 35

Network topology 35
Network topology with two network segments 36
Failover best practices 38
Failover overview 38
High availability 38
Disaster recovery 44
License management 45
Local Experience Portal redundancy 45
Media Processing Platform 46
Experience Portal Manager 46
System recovery 47
Chapter 5: Environmental requirements (hardware only) 49
Hardware specifications 49
Environmental specifications 49
Physical specifications 50
LAN requirements 50
Site requirements 51
Chapter 6: Security 52
Security specification 52
Secure system access 54
Antivirus software 55
Network services 56
Linux hardening 57
SNMP agents and traps 58
Transport Layer Security 59
Avaya Secure Access Link (SAL) and Access Security Gateway (ASG) 59
Port utilization 59
Data transmission 60
Chapter 7: License requirements 61
Chapter 8: Resources 62
Documentation 62
Finding documents on the Avaya Support website 63
Training 64
Viewing Avaya Mentor videos 64
Support 65
Warranty 65
Glossary 66

Chapter 1: Introduction

Purpose

This document describes tested Avaya Aura® Experience Portal characteristics and capabilities, including feature descriptions, interoperability, performance specifications, security and licensing requirements.

This document describes how to use Experience Portal features.

This document is intended for people who want to gain a high-level understanding of the Experience Portal features, functions, capacities, and limitations.

Chapter 2: Experience Portal overview

Avaya Aura® Experience Portal provides a single platform for automated voice and multimedia, self service, and Interactive Voice Response (IVR) applications. Experience Portal supports inbound phone, video, SMS, email, and HTML applications. Experience Portal also supports outbound phone, SMS, and email applications.

Use Experience Portal to employ self-service treatments with the following key features:

- Intelligent Customer Routing (ICR) for enhanced wait treatment and load balancing
- Proactive Outreach Manager (POM) for outbound phone, email, and SMS campaigns

Experience Portal supports SIP, H.323, and mixed telephony environments.

Configuration options

When you install the Experience Portal software, you can use a single server or multiple servers, depending on the number of telephony ports required.

- Single server configuration: This configuration includes a single server running both the Experience Portal Manager (EPM) and Media Processing Platform (MPP) software. The single server configuration can be deployed with an optional co-resident application server.
- Multiple server configuration: This configuration includes two or more servers, one dedicated to running the primary EPM software and at least one dedicated to the MPP software for handling calls and at least one dedicated to the auxiliary EPM software for handling SMS, Emails and HTML. In addition, you can deploy an auxiliary EPM server that handles failover for Application Interface web service requests.

New in this release

The following new capabilities are added in Avaya Aura® Experience Portal 7.1 release.

- Mobile Web Support
  - Support for HTML applications created using Orchestration Designer.
  - Support for configuration of HTML application.
  - Support for HTML applications to be associated with a zone and with an organization.
  - Support for HTML status and usage in Real-time Monitoring.
  - Support for HTML in Maintenance Reports.
  - Support for HTML application type in Historical Reports.

  - Support for HTML application type in Management Web Services.
- Conversations
  - Support for cross-channel conversations.
- Licensing
  - New licensed features
    - HTML Units.
  - Enforcement
    - System wide enforcement on a daily basis.
    - Each HTML unit allows one HTML application launch per day.
  - Fresh install
    - Can use HTML during initial 30 day grace period.
  - License Server
    - Ships with WebLM 7.0.
- Contact Center Integration
  - Support to associate Engagement Development Platform with Experience Portal.
  - Support for storing conversation data of non-SMS applications.
- Single Sign-on through System Manager Integration
  - Support for a minimal level of integration with System Manager to provide single sign-on from System Manager to Experience Portal.
- EPM user accounts
  - Support for indefinite locking of user accounts.
  - Support for configurable user locked out message.
- Configurable Application Variables
  - Support for confirmation for deletion of a configuration application variable file.
- Reports
  - Support for a Trending by option from the Contact Summary (Filters) page.
- Third party certificates
  - Support for Primary EPM, Auxiliary EPM, MPP and Single server third-party signed security certificates.
- Upgrades
  - For non-OVA based systems: Support for upgrade of systems running Experience Portal 6.0 or later.
  - For OVA based systems: Support for upgrade of systems running Experience Portal 6.0 SP2 or later.

The following new capabilities were added in Experience Portal 7.0.1:

- The certificate generation code is enhanced to use a more secure hashing algorithm.
  - All security certificates generated by Experience Portal now use the SHA-256 algorithm with a 2048 bit key
  - New scripts for replacing server certificate outside of install:
    - GenerateServerCertificate.sh to generate a new self-signed certificate
    - ImportServerCertificate.sh to import a customer provided certificate
  - The ability to generate or upload a new root certificate from the **Security** > **Certificate** > **Root Certificate tab** of EPM
- Support for Nuance Vocalizer 6.0 as speech server.
- Management Interface web service to allow client applications to manage Experience Portal applications and configurable application variables.
- Support for MySQL as an external database.
- Support for single server Experience Portal systems deployed in the Avaya Customer Experience Virtualized Environment.
- SMS
  - Support for conversations
  - New utility TestSMPPConnection
  - Support for service provider AOS
- Email
  - Launch application by cc
  - Launch application by user name
  - Support for STARTTLS transport
- VoiceXML/CCXML
  - Pass termination reason from CCXML to VoiceXML
- Speech
  - Support for multiple instances of Nuance on a single server
- Licensing
  - Can now use ASR, TTS, email, SMS, and zones during initial 30 day grace period

The following new capabilities were added in Experience Portal 7.0:

- Allocate resources and ports as per zones
  - Create and administer zones
  - Allocate resources such as Auxiliary EPM servers, MPPs, Speech Servers, VoIP Connections (H.323 and SIP), Applications, SMS, email, and so on to the zones

  - Allocate ports to zones
  - Add organizations to the zones
- Multi channel support
  - Support for email and SMS as additional communication channels
  - Two-way text-based self-service application support: person-to-application and application-to-person
  - Multichannel application development/runtime framework (Orchestration Designer)
  - Web services and connectors for SMS and email notification
  - Capability to configure multiple email processors and SMS processors for inbound and outbound messages
  - Support cross channel inbound and outbound messages. For example, triggering an outbound email as a result of an inbound SMS
- New licensed features
  - Email units
  - SMS units
  - Zones
- New reports to support the new media types, SMS and Email. The data for generating these reports is added to the existing CDR and SDR.
- Ability to install and upgrade Experience Portal in the Avaya Customer Experience Virtualized Environment. The Experience Portal virtualized environment offer consists of the following three OVA files:
  - Primary EPM
  - Auxiliary EPM
  - MPP

Feature Description

Avaya Aura® Experience Portal provides the following software elements:

- Media server software that provides IVR-based functionality and Call Classification.
- Experience Portal Manager (EPM) and Auxiliary EPM applications that offer centralized management for Experience Portal and all its features, POM, and ICR. They also support SMS, email and HTML channels.
- Web Server host that provides the standards-based VoiceXML, CCXML, or TextXML script to the media server. Web Server also hosts email and HTML applications as required for smaller deployments. Larger deployments support customer provided application servers.

- Avaya Aura® Orchestration Designer tool that you can use to build speech applications, call control applications, and message applications. You can deploy the VXML or CCXML applications on an existing Apache Tomcat, IBM WebSphere, or Oracle WebLogic Web server environment. You can also deploy TextXML-based applications that are developed with Orchestration Designer.
- Orchestration Designer that supports application development for Experience Portal.

Experience Portal media servers

Experience Portal supports the Media Processing Platform (MPP) media server.

Media servers provide automation functionality such as:

- Terminating telephony sessions
- Interfacing to third-party speech and other multimedia service
- Managing VoiceXML and CCXML sessions
- Supporting control of multiple voice dialogs and sessions and advanced call control functions with a fully programmable CCXML Session Manager.

Media server software integrates with IP Telephony infrastructures through H.323 or SIP, and RTSP while managing external speech and media resources.

Experience Portal Manager

Experience Portal Manager provides centralized operation, administration, management, and provisioning interface for Experience Portal, ICR, POM, and other Avaya and Avaya Partner applications. An easy-to-use, web-based interface provides support for the following:

- Media servers that support all concurrent self-service sessions across your enterprise, including Email and SMS
- VoIP, application, and speech resource provisioning
- Web service for Outbound voice calls
- Reports that you can customize
- Failover mechanism in case of loss of a media server

Primary EPM and Auxiliary EPM server overview

All Experience Portal systems with Media Processing Platform (MPP) must have a primary EPM server. In addition, if your system is configured to use dedicated server machines for the EPM and MPP software, the system can also have auxiliary EPM servers that handle outgoing calls when the primary EPM server is unavailable.

Primary EPM server

The EPM software on the primary EPM server:

- Includes the EPM Web interface that provides a centralized administration and configuration tool. When a user logs into the EPM Web interface, the user role associated with the user name dictates which pages the user can see and what actions the user can perform.
- Sends relevant configuration information to each MPP and auxiliary EPM server.
- Routes outgoing calls made with the Application Interface web service to an available MPP server.
- Collects the operational status from each MPP and auxiliary EPM server and displays it on the EPM Web interface.
- Monitors the heartbeat of the MPP servers and redistributes telephony ports when an MPP fails.
- Monitors the heartbeat of the auxiliary EPM servers and redistributes relevant resources when an auxiliary EPM fails.
- Receives event and alarm messages from all MPP and auxiliary EPM servers.
- Downloads report data from all MPP and auxiliary servers and stores it in the Experience Portal database so that users can create reports that contain information from all MPP and auxiliary servers in the system.
- Interacts with the Avaya WebLM license server to distribute and manage Automatic Speech Recognition (ASR), Text-to-Speech (TTS), and Telephony ports across all MPP servers.
- Interacts with the Avaya WebLM license server to distribute and manage Email, SMS and HTML resources across all auxiliary EPM servers.
- Provides an optional Simple Network Management Protocol (SNMP) interface to monitor Experience Portal alerts.
- Handles Application Logging web service requests.
- Handles Management Interface web service requests.
- Handles outbound and inbound email and SMS messages.
- Handles inbound HTML launch requests.

Auxiliary EPM server

The EPM software on the auxiliary EPM server:

- Assigns outgoing calls made with the Application Interface web service to an available MPP server. However, Experience Portal does not provide automatic load balancing or failover. You must use a third-party product for these purposes.
- Shares Application Logging web service requests when the primary EPM server is in service and handles all the application logging requests when the primary EPM is not functional.

  Note:

  When using the Application Logging web service, applications written with Orchestration Designer provide failover and load balancing between the primary and auxiliary EPM servers. Applications written with other tools must provide their own load balancing and failover mechanisms for this web service.

- Does *not* include the EPM Web interface, therefore the Auxiliary EPM server cannot be used to administer the system or monitor the status of the MPP servers.
- Handles outbound and inbound email and SMS messages.
- Handles inbound HTML launch requests.

Directory details of the EPM system components

Most Experience Portal components and log files are located in the directory that you specify during installation. However, several components cannot be relocated and are stored in fixed paths even if you specify a path that is different from the default installation directory.

The following table describes some of the components that are stored in fixed paths.

Standard RHEL packages that might be installed with or used by Experience Portal, such as Apache and NTP, are not included in this list.

Component	Directory
Experience Portal Manager web application	/opt/Tomcat/tomcat/webapps/VoicePortal
Avaya Aura® Experience Portal Management web services	/opt/Tomcat/tomcat/webapps/axis2
Application log manager	/opt/Tomcat/tomcat/webapps/axis
Alarm manager	/opt/Tomcat/tomcat/webapps/axis
Network log manager	/opt/Tomcat/tomcat/webapps/axis
Avaya License Manager	The co-located WebLM is installed in the /opt/Tomcat/tomcat/webapps/WebLM directory. **Note:** If you use an external WebLM, the license manager may be installed in a different directory on the external system.
Experience Portal database	The Postgres files are installed in the /var/lib/pgsql directory. **Note:** Most of the database data is in the /var/lib/pgsql/data directory.
Java	/usr/java
Tomcat for EPM and HTML	/opt/Tomcat
Tomcat for SMS and Email Processor	/opt/MMSServer
Apache Axis: web services container	/opt/Tomcat/tomcat/webapps/axis
Apache Axis2: Web services container	/opt/Tomcat/tomcat/webapps/axis2
Postgres Database	/var/lib/pgsql

Table continues…

Component	Directory
Experience Portal Backup	/opt/Avaya/backup
Install Agent	/opt/Avaya/InstallAgent
Core Services	/opt/coreservices, /opt/Avaya/CoreServiceConfig, /opt/Avaya/CoreServiceInstall

EPM components

Installed on the Linux operating system, the EPM software consists of the following components:

- Experience Portal Manager web application
- Experience Portal web services
- Application log manager
- Alarm manager
- Network log manager
- Avaya License Manager
- Experience Portal database
- SMS and Email Processor web application
- HTML web application

Additionally, the EPM relies on several third-party components, which are installed automatically as part of the EPM installation, including:

- Java, Standard Edition Software Development Kit: Java run-time environment
- Apache Tomcat: web servlet container
- Apache Axis: web services container
- Apache Axis2: web services container
- PostgreSQL: SQL database server

Experience Portal Manager Web application

The Experience Portal Web application serves several purposes, including:

- Provides graphical Web pages for configuring and administering the Experience Portal system.
- Sends relevant configuration information to each media server
- Collects operational status from each media server
- Collects report data from each media server
- Collects license information from the Avaya License Manager

Application log manager

The application log manager receives log entries generated by applications developed by using Orchestration Designer and writes those entries to the Experience Portal database.

Alarm manager

The alarm manager monitors the entries logged by the network log manager. When appropriate, the alarm manager generates an alarm.

Network log manager

The network log manager receives log entries from several Experience Portal components and writes those entries to the Experience Portal database.

Avaya License Manager

Several Avaya products share the Avaya License Manager (WebLM) component. When you purchase Experience Portal, you receive a license file from Avaya that specifies the number of various licensed features including Telephony ports, Automatic Speech Recognition (ASR), Text-to-Speech (TTS), Email, HTML and SMS resources that you have purchased. Experience Portal must be able to communicate with the WebLM server to determine the various licensed features purchased..

The WebLM server software is automatically installed with the Experience Portal primary EPM software, but you can also connect your Experience Portal to a dedicated WebLM server machine which is shared among all Avaya products.

Experience Portal database

The Experience Portal database stores important Experience Portal data for both the EPM and the media servers.

Because the database is located on the Primary EPM server, the MPP servers and the auxiliary EPM servers do not need to be backed up.

Note:

You should not modify the Experience Portal internal database. For assistance to modify the database, contact your Avaya technical support representative.

Application Execution Environment

The Web Server host, such as an Apache Tomcat Web server, provides the standards-based VoiceXML and CCXML applications to the Experience Portal media servers. You can reuse existing Web application servers for application management.

You can deploy the Application Execution Environment in a virtualized environment. This environment reduces the business hardware footprint and lowers the capital and operational expenses.

Multichannel components

To support SMS and Email, Experience Portal provides the following components:

- SMS Web Application that provides web user interface for configuring and managing the SMS related components.

- SMS Processor, SMS Browser, and SMS Web Services, a web application that interacts with an SMSC over the SMPP protocol and sends and receives SMS messages. The web application includes the capability to process inbound SMS messages, and supports execution of OD applications for outbound SMS messages.
- Email Web Application that provides web user interface for configuring and managing the email related components.
- Email Processor, Email Browser, and Email Web Services, a web application that interacts with an email Server over the SMTP and IMAP4 protocol and sends and receives email messages.
- Multi Media Central Web Services that interface to the external client and send SMS and email messages.

Mobile channel components

To support HTML, Experience Portal provides the following components:

- HTML Web Application that provides web user interface for configuring the HTML related components.
- Application Interface web service method for launching HTML applications.

Avaya Aura® Orchestration Designer

Orchestration Designer is a tool that you can use to build speech, call control, message applications, and develop HTML applications. You can deploy the VXML or CCXML applications on an existing Apache Tomcat, IBM WebSphere, or Oracle WebLogic Web server environment. You can also deploy the textXML applications that are developed with Orchestration Designer. You must use Orchestration Designer to write SMS and Email applications in Experience Portal.

OD is available at no added cost with every Experience Portal purchase and is downloadable from Avaya DevConnect on http:// www.Avaya.com.

Note:

Experience Portal supports SMS and Email applications developed using Orchestration Designer 7.0 or later.

Experience Portal supports HTML applications developed using Orchestration Designer 7.1

Proactive Outreach Manager (POM)

POM is a managed application of Avaya Aura® Experience Portal.

POM provides unified, multichannel, inbound, and outbound architecture with the capability to communicate through different interactive channels such as SMS, email, voice, and video.

Intelligent Customer Routing (ICR)

ICR provides features to efficiently handle customer calls. With ICR, calls are either completely served through self service applications or intelligently routed to a relevant call center across applicable geographic locations based on the best available source of real-time data.

ICR provides the following features:

- Self service first using Experience Portal as the first point of access to an organization.
- Intelligent routing of calls.
- Enhanced or advanced wait treatment such as self service or predictive offers to callers.

Call classification

Experience Portal detects what is on the other end of the call; human, fax, or answering machine. Following are the detection types:

- Tone Based
  - Busy Signal, Fax Machine
  - More Accurate Detection
- Speech based
  - Live Voice, Answering Machine
  - Less Accurate - A person who answers with a long welcome might be interpreted as an answering machine
  - Application must be flexible for Live Voice, Answering Machine, or timeout

Zoning

Zoning is the capacity of partitioning a system into multiple zones.

This feature provides an advantage to customers at geographically distributed sites and to customers that have a large system in a single location.

Zoning entails three main advantages for Experience Portal customers:

- Easy management of large systems, such as MPPs
- Effective management of WAN traffic
- Local Access and Transport Area (LATA) considerations for outbound calls

Zone architecture

Zones are extended Experience Portal systems. All resource management and configuration are centralized in zones. Each zone is either co-resident to create artificial boundaries for resource

management, or is deployed remotely so that all RTP traffic is contained within the location represented by the zone. All primary EPM data traffic crosses zonal boundaries including configuration information, control, status information, and report data. SIP traffic can also cross zonal boundaries though each zone must have a configured proxy.

The zone specific resources are:

- Auxiliary EPMs
- Media servers
- Speech servers (ASR and TTS)
- VoIP configurations
- Email connections
- SMPP and HTTP connections
- Applications
- HTML redirector

Note:

The proxies are shared across zones but traffic routing causes certain issues. The shared proxies provide call distribution across zones.

The system stores the resources in the primary EPM configuration database. The primary EPM OMS Poller distributes zone-specific data to each zone. The primary EPM performs the following functions:

- Downloads zone-specific configuration to Media servers, for example:
  - ASR/TTS resources assigned to a zone
  - Proxy configuration assigned to a zone
  - H.323 configuration assigned to a zone
  - Applications assigned to a zone

  Note:

  Application servers are not configured and, therefore, are not assigned to a zone. Such Application servers are common resources.
- Polls for status and statistical data from each server.
- Manages the operational states, for example, **Starts**, **Stops**, **Restarts**, **Reboots**, and **Halts**.
- Downloads the report data, for example, the Contact Summary and Contact Detail reports.

Resource management and licensing

Resource management in Experience Portal is done in three levels:

1. Zones
2. Organizations within a zone

3. Applications within an organization that is in the zone

The licenses are manually assigned to each zone by the Experience Portal administrator using Allocations. Zones do not share licenses between each other. If a zone is short of licenses, the system does not automatically allocate extra licenses to that zone even if there are unused licenses available in other zones. The administrator must control the resource allocation to zones effectively, so that each zone gets the required number of licenses.

Moving resources between zones

The resources assigned to a zone can be moved from one zone to another zone. However there are certain restrictions for moving a resource from one zone to another.

Resource	Restrictions
Applications	No applications can be moved from one zone to another.
Organizations	No applications are configured in the zone from which the resource is being moved.
Auxiliary EPM servers	If a coresident SMS processor uses SMPP Connection that is not shared, changing zones is not possible.
Media servers	The media server being moved must be stopped.
ASR servers	All media servers are stopped in the zone from which the resource is being moved.
TTS servers	All media servers are stopped in the zone from which the resource is being moved.
H.323 Connections	All media servers are stopped in the zone from which the resource is being moved.
SIP Connections	All media servers are stopped in the zone from which the resource is being moved.
SMPP connections	All auxiliary EPM servers must be stopped in the zone from which the resource is being moved.
HTTP connections	All auxiliary EPM servers must be stopped in the zone from which the resource is being moved.
Email Connections	All auxiliary EPM servers must be stopped in the zone from which the resource is being moved.

Chapter 3: Interoperability

Product compatibility

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

Operating system compatibility

For fresh installs and upgrades from Experience Portal 6.0.x to Experience Portal 7.1.0 the following Linux versions are supported:

- RHEL 6.4 64 bit or later, but not RHEL 7.x
- Avaya Linux based on RHEL 6.4 or later

For upgrades from Experience Portal 7.0 to Experience Portal 7.1, the operating system upgrade is optional. The following Linux versions are supported for Experience Portal 7.1:

- Red Hat Enterprise Linux Release 6.4 64 bit or later but not RHEL 7.x
- Avaya Enterprise Linux RH6.4.64-AV13EP7 or later

Note:

Avaya recommends that you upgrade to RHEL 6.7 or the Avaya Linux based on RHEL 6.7 to avail the security fixes.

The Avaya-provided server offer includes Enterprise Linux Installer, which installs the Avaya Enterprise Linux operating system.

Browser compatibility

Experience Portal supports the following Web browsers:

- Internet Explorer 11
- Mozilla Firefox 44

Orchestration Designer requirements

Experience Portal supports applications developed using Avaya Aura® Orchestration Designer 6.0 and later.

For detailed Orchestration Designer requirements, see the Orchestration Designer documentation on the Avaya Support website at https://www.support.avaya.com.

Proactive Outreach Manager compatibility

Experience Portal supports the Proactive Outreach Manager (POM) .

Intelligent Customer Routing compatibility

Experience Portal supports Intelligent Customer Routing (ICR).

Third-party product requirements

In the Experience Portal network, external systems include Speech servers, Email servers, SMS servers, and Application servers.

Related links

External database requirements on page 22
Speech application requirements on page 22
Application server requirements on page 24
Application Logging web service on page 25
Text application requirements on page 25
Speech server requirements on page 26
SIP requirements on page 27
H.323 requirements on page 27
Feature Comparison between H.323 and SIP on page 28
Minimum server machine hardware requirements on page 31
PBX requirements on page 31
LAN requirements on page 32
Site requirements on page 32

External database requirements

The performance of the Experience Portal internal database degrades when 5 to 10 million records exist in any table. When you expect the number of calls or number of application-generated report records to exceed these values, you must use an external database.

The external database can be a new or existing database created in:

- Microsoft SQL Server 2010, 2012, and 2014
- MySQL 5.6.x
- Oracle 11g and 12c
- PostgresSQL 9.4.x

Note:

Avaya has tested Experience Portal with Oracle and SQLServer reporting databases containing approximately 50 million total records without any issues. Due to variances in database hardware and network performance, Avaya cannot provide a finite maximum number of records before the database reaches its practical limit. Scheduled reports are not subject to timeouts and can be used when on-demand report generation begins to time out. However, record insertions must be completed within 60 seconds to avoid web service time-outs and perpetual retries. Increasing the web service time-outs is not recommended. When insert time-outs occur regularly, Avaya recommends that you lower the record retention periods in the Report Data Configuration page. Fewer records mean faster insertions and faster report generation.

The administration of the external reporting database and the periodic maintenance of the indexes is a customer responsibility.

Related links

Third-party product requirements on page 21

Speech application requirements

The following technologies are required for Experience Portal speech applications:

CCXML	Experience Portal supports Call Control eXtensible Markup Language (CCXML) applications that comply with most of the standards defined in Call Control eXtensible Markup Language (CCXML). Of these standards, Experience Portal does *not* support: • The <createccxml> tag. • The <move> tag. • The <join> tag for dialogs. Dialogs can attach to a call or conference using the <dialogprepare> or <dialogstart> tags. • The <unjoin> tag for dialogs. Dialogs remain attached to a call or conference session for the entire duration of the dialog or the session, whichever ends first. • The Basic HTTP Event I/O Processor described in Appendix K of the W3C Working Draft.

Table continues…

	For more information, see the W3C CCXML Version 1.0 Web site.
VoiceXML	Voice eXtensible Markup Language (VoiceXML) applications are required to comply with the W3C VoiceXML Version 2.1 Recommendation. For more information, see the Voice Extensible Markup Language (VoiceXML) Version 2.1, W3C Recommendation Web site.
ASR	If you plan to use Automatic Speech Recognition (ASR) technology in your speech application, you must adhere to the Automatic Speech Recognition (ASR) requirements. For more information, see the Speech Recognition Grammar Specification Version 1.0, W3C Recommendation Web site.
TTS	If you plan to use Text-to-Speech (TTS) technology in your speech application, you must adhere to the Text-to-Speech (TTS) requirements. For more information, see the Speech Synthesis Markup Language (SSML) Version 1.0, W3C Recommendation Web site.

Note:

Speech applications designed and created with the Orchestration Designer tool meet these requirements and recommendations.

Related links

Third-party product requirements on page 21
Speech application development tools on page 23

Speech application development tools

Any speech application that is compliant with the VoiceXML Version 2.1 Recommendation or Call Control eXtensible Markup Language (CCXML) will run in an Experience Portal system, regardless of the tool in which the application was created. Avaya recommends that you create your speech applications with Orchestration Designer.

Orchestration Designer is an Eclipse plug-in that provides an integrated GUI for application design and implementation. It creates speech applications that automatically conform to the Experience Portal requirements and recommendations.

In addition, Experience Portal automatically includes all Orchestration Designer applications in the Application Summary report and Application Detail report. If you want these reports to display messages and status information from an application developed in a third-party tool, you must manually log the messages and status information from that application using the Application Logging web service.

Related links

Speech application requirements on page 22

Application server requirements

In an Experience Portal network, the application server is a web server that hosts your Voice eXtensible Markup Language (VoiceXML) and VoiceXML speech applications. The application server also hosts textXML and HTML applications that are developed with Orchestration Designer.

Experience Portal provides the capability to load balance or failover between two instances of application servers, provided that you set up thrid-party products.

Related links

Third-party product requirements on page 21
Dedicated server requirements on page 24
Single server requirements on page 24
Additional information on page 25

Dedicated server requirements

If you are installing the Experience Portal Manager (EPM) and the MPP software on different servers, you must also install the Application server on a different server.

Related links

Application server requirements on page 24

Single server requirements

Two options are available for single server configurations:

- You can use a coresident Tomcat to host the applications.
- You can use a separate Application server that is offboard the EPM and MPP servers.

To install an Application server on the same server as the Experience Portal software, use the following versions of the server:

- Tomcat 8.0.x.

  Note:

  Avaya Aura® Experience Portal includes an installation script for the Tomcat 8.0.x. application server. If you select any other version of Tomcat, you must manually install the Application server.

- Java version 7.x, which is automatically installed when you install the Avaya Aura® Experience Portal software.
- WebLM 7.0.x, which is automatically installed when you install the Avaya Aura® Experience Portal software.

Related links

Application server requirements on page 24

Additional information

For more information about:

- Java, go to http://java.sun.com.
- WebSphere Express, go to http://www.ibm.com/software/webservers/appserv/express/.
- Tomcat, go to http://jakarta.apache.org/tomcat/.
- See the Orchestration Designer documentation from http://avaya.com/support.

Related links

Application server requirements on page 24

Application Logging web service

Experience Portal supports Axis 2.0 Application Logging web service.

If you use Axis 1.4, you must migrate the applications to Axis 2.0 before upgrading to Experience Portal 7.1.

Related links

Third-party product requirements on page 21

Text application requirements

The following technologies and protocols are required for Experience Portal text applications:

TextXML	Textxml is modified Voicexml to handle text messages and text processing capabilities. Textxml starts with <Textxml> tag, and follows the same structure as Voicexml containing forms, vars, blocks and grammars. Experience Portal supports only message applications created in Orchestration Designer, which comply with TextXML. For more information, see the Orchestration Designer help.
SMPP protocol version 3.4 HTTP protocol	SMS Server functions as the Gateway to Short Message Service Center (SMSC). The SMS processor connects to the SMSC with SMPP protocol or HTTP protocol, for sending and receiving short messages.
IMAP	Experience Portal supports Internet Messages Access Protocol (IMAP) over TCP or TLS for inbound emails.
SMTP	Experience Portal supports SMTP over TCP or TLS for sending emails.

Note:

Text applications designed and created with the Orchestration Designer tool meet these requirements and recommendations.

Related links

Third-party product requirements on page 21

Speech server requirements

If your speech applications require Automatic Speech Recognition (ASR) or Text-to-Speech (TTS) resources, you can purchase and install third-party speech servers. All ASR servers must come from the same vendor, and all TTS servers must come from the same vendor. You can, however, have ASR servers from one vendor and TTS servers from a different vendor.

Note:

See the table below for recommended versions of Nuance and Loquendo speech servers. Check Avaya DevConnect or speech support guide for information on other vendors.

Supported speech server versions for ASR and TTS

Speech Server	Components	Minimum version	Recommended version
Nuance 9	Nuance Speech Server (NSS)	5.1.3	5.1.11
	Recognizer	9.0.12	9.0.21
	Vocalizer	5.0.3	5.0.9 (Windows)
Nuance 10	Nuance Speech Server (NSS)	6.2.0	6.2.6
	Recognizer	10.2.0	10.2.6
	Vocalizer	5.7.0	6.0.5 (Windows)
Loquendo LSS	Loquendo Speech Suite (LSS)	See recommended version	Windows: LSS 7.0.18 + patch 3 Linux: LSS 7.0.10 + patch 3
	ASR	See recommended version	LASR 7.9.1 + patch 15
	TTS	See recommended version	LTTS 7.23.0
Loquendo LMS	Loquendo MRCP Server (LMS)	See recommended version	Windows: LMS 7.2.1 + patch 3 Linux: LMS 7.2.2 + patch 2
	ASR	See recommended version	LASR 7.10.1 + patch 3
	TTS	See recommended version	LTTS 7.25.2 + patch 1

Important:

Support for Loquendo speech servers is limited to a maximum of 100 ports of ASR and 100 ports of TTS per Experience Portal system.

MRCP support

Speech Server	MRCP v1 Support	MRCP v2 Support
Nuance	Yes	Yes
Loquendo	Yes	No

SRGS support

Speech server	SRGS support	SRGS format support with SISR tag
Nuance	Yes	Yes
Loquendo	Yes	Yes

NLSML and EMMA Recognition Result support

Speech server	NLSML Recognition Result support	EMMA Recognition Result support
Nuance	Yes	Yes
Loquendo	Yes	Partially supported

Additional information

For more information about Nuance and Loquendo servers, see http://www.nuance.com.

Related links

Third-party product requirements on page 21

SIP requirements

For SIP connections, Experience Portal requires Avaya Aura® Session Manager version 5.2 with Communication Manager version 5.2 or a third-party SIP Gateway or SIP Trunk. For the latest and most accurate compatibility information, go to http://support.avaya.com/CompatibilityMatrix/Index.aspx.

Related links

Third-party product requirements on page 21

H.323 requirements

For H.323 connections, you must have Communication Manager version 5.2 or later.

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

You must use Communication Manager 5.2.1 with the Avaya Special Application SA8874 feature. This combination provides:

- VoiceXML supervised transfers. Without the SA8874 feature, supervised transfers have no access to call progress information and behave like a blind transfer.
- The Application Interface web service for outbound calling. Without the SA8874 feature, the web service has no access to call progress information and may start a VoiceXML application even when the connection attempt receives a busy signal.

Note:

The SA8874 feature is prerequisite to support call classification in an H.323 environment for Experience Portal and Proactive Outreach Manager with a Communication Manager version earlier than 5.2.1. Communication Manager 5.2.1, provides the SA8874 Green Feature. However, you must turn the feature on for implementation.

Related links

Third-party product requirements on page 21

Feature Comparison between H.323 and SIP

This table compares:

- Standard H.323
- H.323 with the Avaya Special Application SA8874 feature enabled in Communication Manager
- SIP

Feature	H.323	H.323 with SA8874 feature	SIP
Outbound calling using the Application Interface web service	Partially supported. No call progress information is available, so an application may start before a call is answered.	Supported	Supported
Call conferencing	Supported	Supported	Supported
Call classification	Supported	Supported	Supported
Blind transfer	Supported	Supported	Supported
Supervised transfer (also called consultative transfer)	Operates like a blind transfer. **Note:** The only supported VoiceXML event for this transfer is `error.connection.noroute`.	Supported	Supported

Table continues…

Feature	H.323	H.323 with SA8874 feature	SIP
Note: If a connection cannot be established, use the Consultative Transfer feature in Experience Portal to allow the application to regain control of the call.			
Bridge transfer. See also Bridge transfers in a mixed SIP or H.323 environment on page 30	Partially supported. No call status information, such as "line is busy", is available.	Supported	Supported except for the VoiceXML `<transfer>` tag's `connecttimeout` parameter, which is not supported
DTMF detection **Note:** Experience Portal supports only out-band DTMF detection.	Supported	Supported	Supported **Note:** In case of SIP VoIP connection, the signaling group doesn't support the out- band option. It supports the in-band and RTP-payload DTMF options.
Playing prompt files	Supported	Supported	Supported
Recording	Supported	Supported	Supported
Converse-on vectoring	Supported	Supported	Not supported
Encryption options	• Disabled • Advanced Encryption Standard (AES) • Avaya™ Encryption Algorithm (AEA)	• Disabled • AES • AEA	• Disabled • TLS • SRTP
Quality of Service	Supported	Supported	Supported
User to User Information (UUI)	Not supported	Not supported	For an incoming call, UUI values are populated in the VoiceXML session variables

Table continues…

Feature	H.323	H.323 with SA8874 feature	SIP
			for both UUI and Application to Application Information (AAI).
Universal Call Identifier (UCID)	Supports the capability to receive UCID over H323 from Communication Manager. **Note:** This capability is available in Communication Manager 5.2. To enable this feature, you need to administer ucid-info on button 10 on the 7434ND stations used by Experience Portal. For more information, see *Administering Avaya Aura® Experience Portal*.	Supports the capability to receive UCID over H323 from Communication Manager. **Note:** This capability is available in Communication Manager 5.2. To enable this feature, you need to administer ucid-info on button 10 on the 7434ND stations used by Experience Portal. For more information, see *Administering Avaya Aura® Experience Portal*.	Supports the capability to both send and receive UCID. For more information, see *Administering Avaya Aura® Experience Portal*. **Note:** Also supports the GSLID used by AACC
Switch failover	An alternate gatekeeper address can be specified in the EPM. Communication Manager can supply an alternate gatekeeper address list.	An alternate gatekeeper address can be specified in the EPM. Communication Manager can supply an alternate gatekeeper address list.	Experience Portal does not supply additional support, but the Avaya Aura® Session Manager hardware has failover support and MPPs can be configured as members of an adjunct in ASM.
Merge (Refer with replaces)	Not supported	Not supported	Supported

Bridge transfers in a mixed SIP or H.323 environment

If you have both SIP and H.323 connections defined in your Experience Portal system, Experience Portal handles bridge transfers in the following manner. For an outbound call with:

- `SIP` or `SIPS` in the `ToURI` field, a SIP outbound channel must be available.
- `TEL` in the `ToURI` field, Experience Portal tries to get an outbound port from the same H.323 port group. If none are available, Experience Portal tries any H.323 port.

  If no H.323 ports are available, Experience Portal converts `TEL` into `SIP` in the `ToURI` field and tries and get a SIP outbound channel.

Related links

Third-party product requirements on page 21

Minimum server machine hardware requirements

Customer supplied servers must meet the following minimum specifications in order to run Avaya Aura® Experience Portal:

- Compatibility with a supported version of Red Hat Enterprise Linux Server. For information about hardware compatibility, go to the *Certified Hardware* section of the Red Hat website, http://www.redhat.com.
- Dual Quad Core 1.6 GHz Pentium 4 or equivalent processors.
- 4 GB of RAM.
- 120 GB Disk, 7200 RPM.
- One 100/1000 Base-T Ethernet controller that is full duplex (onboard Network Interface Cards (NICs).
- DVD drive.
- Keyboard.
- Monitor.
- Mouse.
- Avaya Secure Access Link (SAL) or Avaya ASG solution. If you purchase a maintenance agreement with Avaya Services, the Experience Portal system requires SAL or Avaya ASG solution so that Avaya Services can remotely access the system for maintenance purposes. Contact Avaya Support to determine the version of SAL and Avaya ASG supported.

Related links

Third-party product requirements on page 21

PBX requirements

The PBX must be accessible to the Experience Portal servers through a LAN, and the PBX must run the appropriate version of Communication Manager. The required Communication Manager version is based on whether you want to use H.323 connections, SIP connections, or both.

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

Connection type	Version required
H.323 connections	Communication Manager version 5.2 or later
H.323 with supervised transfer or the Application	Communication Manager 5.2 with the Avaya Special Application SA8874 feature

Table continues…

Connection type	Version required
Interface web service for outbound calls	
SIP	Avaya Aura® Session Manager version 5.2 or later with either Communication Manager version 5.2, a third-party SIP Gateway, or SIP Trunk
SIP with SRTP	Avaya Aura® Session Manager version 5.2 or later with Communication Manager version 5.2

Important:

You are responsible for managing and maintaining the PBX.

Related links

Third-party product requirements on page 21

LAN requirements

Connectivity requirements

Experience Portal requires a 100/1000 Base-T LAN full duplex network switch connection so that Experience Portal servers can communicate with each other, with any other speech servers, any application servers, and any Private Branch Exchange (PBX) servers.

Each server in your Experience Portal system must be able to connect to all the other servers in the system using the host names of the other servers. You must use a Domain Name Server (DNS) for this purpose.

Server name requirements

Each Experience Portal server must have a static IP address and a host name. Each host name must be unique and cannot contain a . (period) or a (space) character.

Related links

Third-party product requirements on page 21

Physical specifications on page 50

Site requirements

Verify that the site where you are installing the Experience Portal hardware platform is equipped with the following:

- Rack space for the servers that host Experience Portal.
- At least one network connection for each Experience Portal server. Depending on your network topology, two network connections might be required for each media server.
- Power supply.
- (Optional) Analog telephone line provisioned for Avaya Secure Access Link (SAL) or the Avaya Access Security Gateway (ASG) solution.

Related links

Third-party product requirements on page 21
Physical specifications on page 50

Chapter 4: Performance specifications

Capacity and scalability specification

Single zone system capacities

Experience Portal resource	Capacity
System limits	
Media servers	30 servers
Telephony ports	10,000 ports
SIP	10,000 ports
H.323	5,000 ports

Multi-zone system capacities

Experience Portal resource	Capacity
System limits	
Zones	15 zones
Media servers	70 servers
Telephony ports	50,000 ports
SIP	50,000 ports
H.323	10,000 ports
Per zone limits	
Media servers	30 servers
Telephony ports	10,000 ports
SIP	10,000 ports
H.323	5,000 ports

Media server capacities

Experience Portal resource	Capacity
Calls (Standalone media server)	Up to 1,000 simultaneous calls[1]
Inbound calls	Up to 1,000 simultaneous calls[1]

Table continues…

[1] Varies based on application complexity, audio codecs, server hardware, and other factors.

Experience Portal resource	Capacity
Outbound calls	Up to 1,000 simultaneous calls[1]
Calls (Single-Box system)	Up to 350 simultaneous calls[1]
Inbound calls	Up to 350 simultaneous calls[1]
Outbound calls	Up to 350 simultaneous calls[1]

Multi-media server capacities

Experience Portal resource	Primary EPM capacity (messages/hour)	Auxiliary EPM capacity (messages/hour)	Single-box system capacity (messages/hour)
Email Messages			
Outbound only	Up to 25,000[2 3]	Up to 50,000[2 3]	Up to 5,000[2 3]
Inbound only	Up to 12,500[2 3]	Up to 25,000[2 3]	Up to 2,500[2 3]
Bi-directional	Up to 8,000 [2 3] Inbound Up to 8,000 [2 3] Outbound	Up to 16,000 [2 3] Inbound Up to 16,000 [2 3] Outbound	Up to 1600 [2 3] Inbound Up to 1600 [2 3] Outbound
SMS Messages			
Outbound only	Up to 25,000[2]	Up to 50,000[2]	Up to 5,000[2]
Inbound only	Up to 12,500[2]	Up to 25,000[2]	Up to 2,500[2]
Bi-directional	Up to 8,000 [2] Inbound Up to 8,000 [2] Outbound	Up to 16,000 [2] Inbound Up to 16,000 [2] Outbound	Up to 1600 [2] Inbound Up to 1600 [2] Outbound

HTML Application capacities

Experience Portal Resource	Primary EPM Capacity (launches/hour)	Auxiliary EPM Capacity (launches/hour)	Single-box System Capacity (launches/hour)
Inbound only	12,500	25,000	2,500

Traffic specification

Network topology

Partitioning your Experience Portal network increases the available network bandwidth.

- Experience Portal physical server Avaya Common Server includes four Gigabit network interface cards (NICs) per server.

[2] Varies based on application complexity, server hardware, service provider, and other factors.
[3] Large email attachments substantially reduce expected throughput.

- Smaller Experience Portal deployments might not require network partitioning to achieve a reliable system.
- Although your Experience Portal system might function without network partitioning, as a minimum Experience Portal requirement, each server must be equipped with two NICs.
- Corporate Network

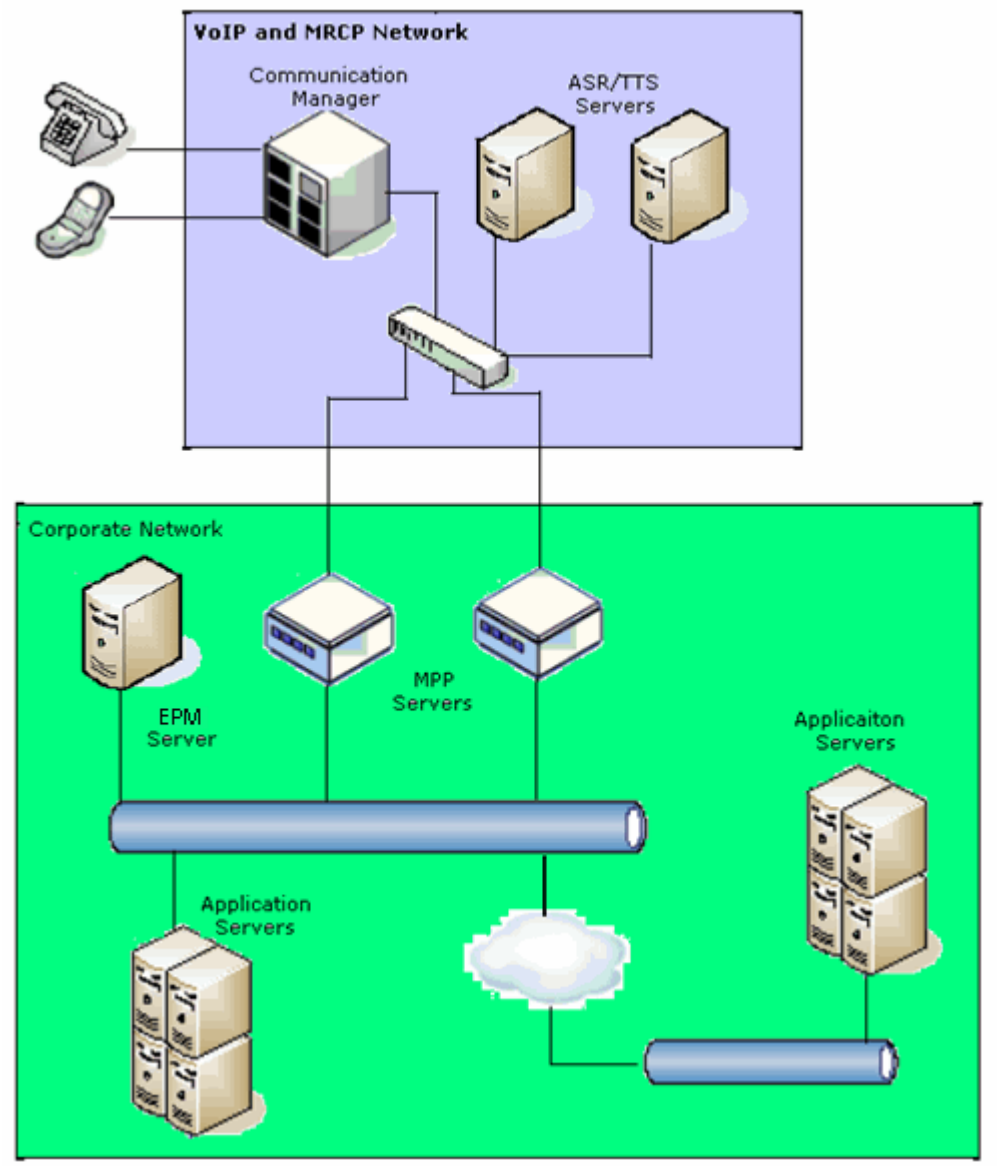
  The corporate network segment carries the network traffic for Media Processing Platform (MPP) system configurations and MPP monitoring. The Experience Portal Manager (EPM) downloads the system configurations to the MPPs and also monitors the MPPs. This segment also carries the network traffic generated by VoiceXML application execution.
- VoIP network

  The VoIP network segment carries the network traffic between the Communication Manager and the MPPs for VoIP telephony processing.
- Media Resource Control Protocol (MRCP) network

  The MRCP network transports the network traffic between the MPPs and ASR/TTS servers for text rendering and speech processing.

Network topology with two network segments

The following network topology figure shows an Avaya Aura® Experience Portal network configuration consisting of two network segments:



In this example, the network configuration is segmented into two networks:

- Corporate network

  The corporate network segment carries the network traffic for MPP system configurations and MPP monitoring. The EPM downloads the system configurations to the MPPs and also monitors the MPPs. This segment also carries the network traffic generated by VoiceXML application execution.

- VoIP and MRCP network

  The VoIP and MRCP network carries the network traffic between the Communication Manager and the MPPs and the traffic between the MPPs and ASR/TTS servers.

Failover best practices

Failover overview

When designing an Experience Portal system, you must take into consideration the results of equipment failure. In addition to the failure of an Experience Portal server (that is Primary EPM, Auxiliary EPM, or MPP), you must also consider the failure of servers that Experience Portal depends on. For example, application servers, speech servers, and telephony servers. Typically,Experience Portal systems are designed to withstand the failure of any single server wherein, you must have enough servers of each type so that the system can continue to process calls and messages at full capacity even if one server goes out of service. Such systems are said to be highly available. Some customers might implement a second complete system at a different location. The purpose of the second system is to handle cases where some large-scale problem such as fire, flood, or power outage takes all the servers in the original system out of service at the same time. This method is known as disaster recovery.

High availability

Experience Portal provides the option to create highly available systems. You must have the required number of servers.

This section explains various high availability instances in the Experience Portal system.

Note:

Each topic in this section depends on the applications you use in your environment and might be applicable to your system.

Applications

For high availability support in applications, you must install each application on two different application servers.

When you configure the application in the EPM web interface, configure two URLs for the application.

If Experience Portal cannot load the application from one URL, Experience Portal automatically loads the application from the second URL.

Speech servers

For high availability support in speech server, you must install the automatic speech recognition (ASR) language and the text to speech (TTS) voice on two different speech servers. When you do so, the Experience Portal system automatically sends speech request to the second server if the connection to the first speech server fails.

Note:

Media Processing Platform (MPP) server can only use speech servers with the same zone as the MPP server. If the Experience Portal system includes multiple zones, then each zone must contain at least two speech servers. When you do so, the zone continues to operate normally even if the connection to one speech server in the zone fails.

Telephony servers

For high availability support in telephony server, you must have at least two telephony servers.

H.323

If you are using H.323, use the **Change H.323 Connection** page of the EPM web interface to configure two addresses for the Communication Manager gatekeeper. When you do so, Experience Portal automatically connects to second gatekeeper if the connection to the first gatekeeper fails.

SIP

If you are using Session Initiation Protocol (SIP), use the **Change SIP Connection** page of the EPM web interface to configure addresses for multiple SIP proxies. When you do so, Experience Portal automatically connects to the second SIP proxy, Experience Portal if the connection to the first SIP proxy fails.

Inbound calls

An MPP server processes inbound calls.

If the connection to the MPP server fails, the primary EPM shares all telephony ports to the other MPP servers. With this method, the system continues to process calls at full capacity.

Note:

The primary EPM shares only specified number of telephony ports with the MPP server. You can define the telephony ports in the **Maximum Simultaneous Calls** field on the **Change MPP Server** page of the EPM web interface. You must design the system so that even if one MPP server is down, the remaining servers have enough capacity to handle all telephony ports that have been configured.

The MPP server can use only those telephony ports which are in the same zone as the other MPP server. If the Experience Portal system includes multiple zones, then you must ensure that each zone contains at least two MPP servers. When you do so, the system in the zone uses the second server if the connection to the first MPP server fails.

Outbound calls

The Application Interface Web service initiates outbound calls.

There is one instance of the Application Interface web service on the Primary EPM server and another instance on each Auxiliary EPM server. To be highly available, any system that makes outcalls must include at least one Auxiliary EPM server. Client applications invoke the Application Interface web service through a request that includes a URL. That URL includes the host name or IP address of the Primary EPM or the Auxiliary EPM server that hosts the Application Interface web service.

For high availability, client applications must support the following capabilities:

- Detect a failure to process the Application Interface web service on one server and automatically process a different instance of the Application Interface web service on another server.
- The customers client application which sends requests to the Application Interface web service must have knowledge of all EPM's, Primary and Auxiliary, in the customers system and must send the request to a different EPM if the request cannot be completed by an EPM.
- If the Primary or Auxiliary EPM is in the process of being upgraded, then the requests should be directed to the other EPM's in the system.

Inbound email messages

At any given time, only one email processor processes incoming email messages on a particular email connection. That email processor can be on either the Primary EPM or an Auxiliary EPM server. If an Auxiliary EPM server goes out of service while processing an email connection, the Primary EPM automatically assigns that email connection to another email processor.

If an email connection is assigned to the email processor on the Primary EPM server at the time that the server goes down, then that email connection remains in the out-of-service mode until the primary EPM server restores the connection. The email connection continues to remain in the out-of-service mode because of network failure in the primary EPM server. In addition, you cannot change the Experience Portal configuration as you cannot again access to the EPM web page. Therefore, you must configure email processors on two Auxiliary EPM servers rather than configuring the email processor on the Primary EPM server along with an email processor on an Auxiliary server.

An email processor can service only those email connections that are associated with the same zone as the email processor. If your Experience Portal system includes multiple zones, then each zone that contains an email connection must contain at least two email processors. When you do so, the system processes email messages through the second email processor if the connection to the first email processor fails.

Outbound email messages

For sending outbound email messages, each email connection is shared among all available email processors. You must configure atleast two email processors so that messages are sent even if one of the processors is out of service.

The email processor uses the service email connection in the same zone as the email processor. If the Experience Portal system includes multiple zones, then each zone that contains an email connection must contain at least two email processors. When you do so, the system processes email messages even if one email processor in that zone malfunctions..

Inbound SMS messages

Inbound SMS messages can only be received via an SMPP connection. If you configure an SMPP connection to be shared, the system shares the connection with all available SMS processors. When you do so, when one SMS processor goes out of service, the other SMS processors will automatically continue to process inbound messages.

Note:

Service providers do not support sharing an SMPP connection. In such cases, you must manually assign the connection to a particular SMS processor. If the connection to the SMS processor fails, then the system stops processing messages on the SMPP connection. You must manually assign the SMPP connection to another SMS processor.

If an SMS connection is assigned to the SMS processor on the Primary EPM server at the time the server goes down, then that SMS connection will remain out of service until the Primary EPM server comes back up. The SMS connection remains in the out-of-service mode because of the network failure in the primary EPM. In addition, you cannot change the Experience Portal configuration as you cannot gain access the EPM webpage. Therefore, you must configure SMS processors on two Auxiliary EPM servers rather than configuring the SMS processor on the Primary EPM server along with an SMS processor on an Auxiliary EPM server.

An SMS processor can only service SMS connections that are associated with the same zone as the SMS processor. If your Experience Portal system includes multiple zones, then each zone that contains an SMS connection should contain at least two SMS processors so SMS messages in that zone can be processed even if one SMS processor in that zone goes down.

Outbound SMS messages

Outbound SMS messages can be sent over either an SMPP connection or an HTTP connection. Service providers might not share an SMPP connection with SMS processors. However, service providers can share HTTP connections with SMS processors.

For sending outbound SMS messages, each HTTP connection and each sharable SMPP connection is shared among all available SMS processors. You must configure atleast two SMS processors configuredWhen you do so, the system establishes the connection with the secondary SMS processors if the connection to the primary SMS processor fails.

If an SMPP connection cannot be shared, , you must manually assign the connection to a particular SMS processor. If the connection to the SMS processor fails, the system stops processing messages on the SMPP connection. You must manually assign the SMPP connection to another SMS processor.

During a network failure if the system shares an SMS connection to the SMS processor, then the SMS connection remains in the out-of-service mode until the primary EPM server restores the connection. The SMS connection remains in the out-of-service mode because of the network failure in the primary EPM. In addition, you cannot change the Experience Portal configuration as you cannot gain access the EPM webpage. Therefore, you must configure SMS processors on two Auxiliary EPM servers rather than configuring the SMS processor on the Primary EPM server along with an SMS processor on an Auxiliary EPM server.

An SMS processor can service only those SMS connections that are associated with the same zone as the SMS processor. If the Experience Portal system includes multiple zones, then you must ensure that each zone contains at least two SMS processors. When you do so, the system processes the SMS messages even if one SMS processor in that zone goes down.

Inbound HTML launch requests

Inbound HTML launch requests can be received only through the application interface web service.

The HTTP request from a mobile browser is received by the Redirector application. The Redirector processes the request and makes an application interface web service request to Experience Portal to launch the appropriate Orchestration Designer HTML application. After the Orchestration Designer HTML application is launched, the Redirector application sends a redirect request to the mobile browser. From that point, the mobile browser communicates directly with the Orchestration Designer HTML application.

The Redirector application serves the following purposes:

- To provide load balancing and failover for launching HTML applications.
- To hide sensitive data that gets passed from Experience Portal to the Orchestration Designer runtime.
- To prevent HTML applications from being launched with outdated configuration parameters.

Enforcement of HTML launch requests is systemwide and handled by all the EPM servers configured on the system. If an EPM server goes down, then the HTML launch request can be handled by another EPM server without any loss of capacity.

If your Experience Portal system includes multiple zones, then you must configure a redirector in each zone that is expected to launch HTML applications because the redirector is not zone aware. The application interface web service only processes requests for applications configured in the same zone as the server on which the web service is running.

Application logging

There is one instance of the Application Logging web service on the Primary EPM server and another instance on each Auxiliary EPMserver. To be highly available, any system that uses the Application Logging web service must include at least one Auxiliary EPM server. Also, these systems should use an external database that is highly available. This is because requests to the Application Logging web service running on an Auxiliary EPM server will fail when the Primary EPM server is down, unless the system is configured to store report data in an external database.

Client applications invoke the Application Logging web service through a request that includes an URL. The URL includes the host name or the IP address of the Auxiliary or the Primary EPM server that hosts the Application Logging web service.

For support in the HA mode, client applications must perform the following:

1. Detect a failure to process the Application Logging web service on the primary server.
2. Use the other instance of the Application Interface web service from the secondary server.

Note:

You can log in to the application through Orchestration Designer, which uses the Application Logging web service. The Orchestration Designer runtime automatically routes the Application Logging web service requests to an Auxiliary EPM server if the connection to the primary EPM

server fails. The Orchestration Designer runtime caches the log data on the application server to prevent lose of data if:

- all instances of the Application Logging web service are temporarily unavailable.
- the system fails to save the data in the database.

Some applications log the data using the tag <log> that is available in both VoiceXML and CCXML. You can store this data locally on the MPP server that is processing the application. The primary EPM server collects the data periodically with other report data that MPP generates. The data logged using the tag <log> does not go through the Application Logging web service.

Configurable application variables

You can configure application variables using the EPM Web interface on the Primary EPM server. Therefore, you cannot change values of configurable application variables during network failure to the Primary EPM server.

The Orchestration Designer runtime reads the configurable application variables through the Application Variables web service. One instance of the Application Variables web service on the Primary EPM server and another instance is on each Auxiliary EPM server.

To be highly available, any system that uses configurable application variables must include at least one Auxiliary EPM server. The Orchestration Designer runtime automatically routes Application Variables web service requests to an Auxiliary EPM server if the connection to the Primary EPM server fails.

The system replicates the values of all configurable application variables from the Primary EPM server to each Auxiliary EPM server. With this process, the Orchestration Designer runtime gets the variable values from an Auxiliary EPM server even when the Primary EPM server is out of service.

Primary EPM functions

If the connection to the Primary EPM server fails, the Auxiliary EPM and MPP servers continue to operate using the previous configuration from the Primary EPM. The system continues to process both inbound and outbound operations for telephone calls, emails, and SMS messages. Because a Auxiliary EPM server has limited capabilities of the Primary EPM server, the system might lost some functionality.

If the connection to the Primary EPM server fails, the system:

- Loses access to the administrative webpages.
- Loses the log or the alarm data that the MPP and the auxiliary EPM servers generate.
- Stops automatic redistribution of telephone ports as MPP servers go in and out of service.
- Stops automatic redistribution of email connections as email processors go in and out of service.
- Stops automatic collection of report data.
- stops generating SMPP notifications.
- Stops processing email messages on connections assigned to the Primary EPM server.

- Stops processing SMS messages on connections assigned to the Primary EPM server.

Since an Experience Portal system can only contain a single Primary EPM server, you must use a feature of VMware vSphere called High Availability (HA) to provide redundancy. With the HA feature, during network outage in the vSphere server, the system automatically starts all virtual server running on another vSphere server. The affected virtual servers might experience a temporary service interruption when restarting the virtual servers.

For information about configuring the Experience Portal system to use the VMware HA feature, see *Application Notes – Avaya Aura® Experience Portal 7.1 on VMware vSphere*, available on https://support.avaya.com/.

Disaster recovery

To provide recovery from a disaster that disables an entire Experience Portal system, you must set up a second Experience Portal system. The second Experience Portal system must be capable of running all applications as the primary Experience Portal system and both the Experience Portal systems must have the same capacity. You must ensure that the second Experience Portal system located in a different geographic location from the primary system to reduce the possibility of both Experience Portal systems facing network outage at the same time.

If you deploy two Experience Portal systems in the network, you might face challenges of using the systems when both systems are operable in normal circumstances.

Active-Active multi-site configuration

In an active-active configuration when both systems are running, the systems share the load of processing calls and messages. The load on each system does not exceed 50% of the capacity of the system. The advantage of this approach is that if one system goes out of service, the other system takes more load without requiring manual intervention. For an active-active configuration, you must purchase twice the number of Experience Portal licenses capacity as you intend to use at any one time.

Active-Active license management

In an active-active configuration, you must ensure that each system has Experience Portal license to provide 100% of the capacity. Each system uses only the local WebLM server that coresides with the Primary EPM server.

Active-Passive multi-site configuration

In an active-passive configuration, one system handles all calls and messages at any given time while the other system remains in the idle state. With this approach, you must manually move the license capacity from one system to another system when one system goes out of service.

The advantage of this approach is that you do not need to purchase more license capacity than you will actually use.

Active-Passive license management

To move license capacity from one system to another, you must use a central Enterprise WebLM server. You must install the Experience Portal license file on the Enterprise WebLM server and then configure Enterprise WebLM to give all licensed capacity to the local WebLM that coresides with one of the Primary EPM servers. If the active Experience Portal system fails, you must change the Enterprise WebLM configuration to give all licensed capacity to the local WebLM for the surviving Experience Portal system.

Important:

Ensure that you deploy the Enterprise WebLM server in a separate geographic location from the Experience Portal system that is normally active. If the Enterprise WebLM server is at the same site as the active Experience Portal system, then any disaster that disables the Experience Portal system disables the Enterprise WebLM server. You cannot move the licensed capacity to the disaster recovery Experience Portal system.

License management

Use Web License Manager (WebLM) to manage the licensing of Experience Portal. WebLM is an integral part of the Experience Portal system that is available on the EPM server, and provides licenses to EPM. WebLM that resides on the EPM server is also referred to as Local WebLM. In most small setups of Experience Portal systems, the license is installed on the Local WebLM. An Enterprise or Master WebLM is used in a system that requires redundancy through a WebLM that is installed on a separate server. Enterprise WebLM allocates licenses to WebLM that resides on EPM. The location of Enterprise WebLM is critical to the facility of moving a license from one site to another in the event of a failure.

Local Experience Portal redundancy

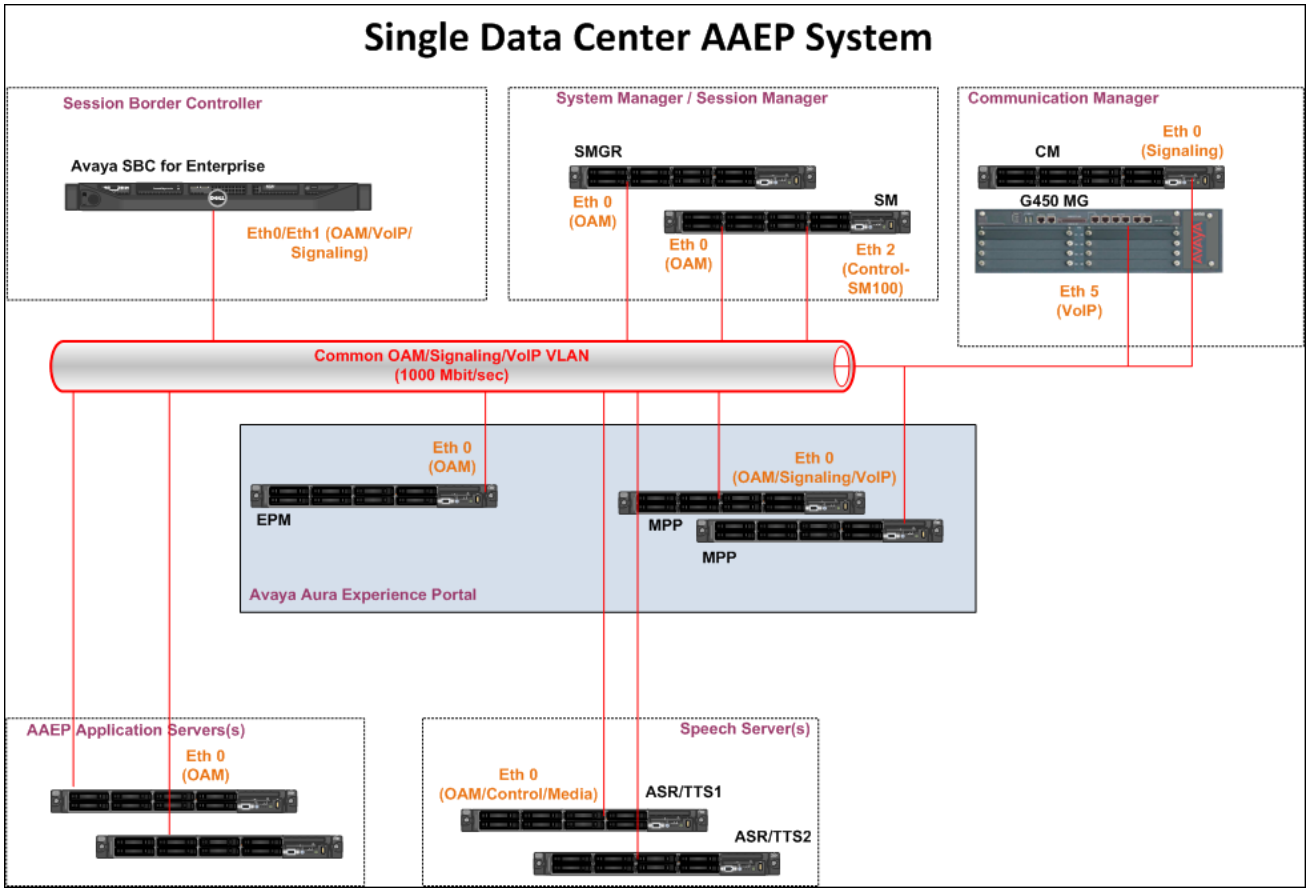
To ensure that the local Experience Portal setup has redundancy for all server components, you must implement additional hardware while configuring Experience Portal. Install a load balancer and additional application servers to provide redundancy for the application server. Ensure that the load balancer is also redundant.

To achieve this redundancy, you must install an highly available solution that utilizes a virtual IP address.

To provide redundancy for the speech servers, install additional speech servers.

The objective is to provide redundancy when a hardware failure occurs.

Experience Portal redundancy does not provide redundancy in the event of a network infrastructure failure.



Media Processing Platform

If an MPP fails, Experience Portal Manager detects the failure, reassigns the licenses, and redistributes the ports to other MPPs.

If the failed MPP is assigned to a zone, Experience Portal Manager reassigns the licenses and redistributes the ports to other MPPs within the same zone.

You cannot redistribute ports across zones.

Experience Portal Manager

EPMs are in service at all locations. Even if one location fails, the Master WebLM server distributes all calls to the MPPs at the second location.

VOX Specific

Configure the Interaction Center (IC) connector to implement failover so that the VOX server starts the connection to ICC. On the IC server, multiple VOX servers are available so if one VOX server

stops operating, another server starts. When the ICC starts, the Connector serves calls only when the VOX server a connection.

VRUSM Specific

VRUSM supports automatic failover. If you configure multiple VRUSM servers, then Interaction Center Connector (ICC) communicates with the servers by sending each command to a different VRUSM in the list. If any VRUSM fails either by detection of a failed ping response, or if ICC cannot communicate with the VRUSM server on an earlier request, ICC removes the VRUSM server from the active server list. ICC then pings the VRUSM server on a periodic basis to determine if the server is active. If the server becomes active, ICC includes the server back in the list of active servers for further commands.

System recovery

As with any other application running on a server, it is important to be prepared to do a partial or complete Experience Portal system restoration incase of a disaster.

You must regularly back up Experience Portal systems.Experience Portal includes backup scripts that can be run automatically as a Linux `chron` job and that can perform either full or partial backups on a regular basis.

You must also document the components and settings for the Experience Portal system to facilitate the efforts required to restore the systems. These system records must include the following information:

- Experience Portal customer identification number (CIN), installation location (IL), IP address of the network interface card (NIC), telephone numbers for test calls, and sample account numbers for testing.
- Server names and IP addresses of all Experience Portal system servers, speech servers, database servers, and Application servers.
- A current list of all software, including versions, installed on the system. The software itself should be stored in a safe and easily accessible location.
- Disk partitioning information, so that applications can be restored to the correct locations.
- Information about what needs to be done to restore each application package. All values and parameters that must be entered should be recorded.
- Changes to system defaults.
- Contact information for Avaya as well as for any application vendors, speech vendors, and database vendors that may have provided components used on or with the Experience Portal system.

The Avaya Business Continuity Services can help design and implement disaster recovery plans to support rapid recovery from outages caused by unforeseen circumstances such as natural disasters or other emergency situations. A well designed disaster recovery plan can help reduce expenses by proactively identifying potentially costly issues related to topology, hardware, software, security,

network performance, and business resiliency. For more information about Avaya Business Continuity Services, contact Avaya Support.

Chapter 5: Environmental requirements (hardware only)

Hardware specifications

Avaya Common Server specification

Note:

This specification represents the server that Avaya supplies. The specification does not represent the only server that the software runs on.

Base Unit	Quantity	Baseline
Chassis Type	1x	HP 1U DL360G9 8SFF
Processor	2x	2.4 GHz, E5-2620v3, 6 Core
Memory	8x	4GB DDR4 RDIMM
Hard Disk Drives 2.5"SAS	3x	300 GB 10K
RAID Level		5
RAID Controller	1x	P440ar /2G
Serial Port Adapter		Included
Power Supplies	2x	800 WAC
NIC	1x	Quad Port LOM 1GbE
	4x	1Gb 2P 332T Adptr
	2x	PCIe Slot
Optical Drive	1x	DVD - SFF DVD-RW

Environmental specifications

Specification	Value
Temperature range	**Note:** All temperature ranges are shown at sea level. An altitude derating of 1°C per 300 m (1.8° per

Table continues…

Specification	Value
	1,000 ft.) to 3048 m (10,000 ft) is applicable. No direct sunlight allowed.
Operating	10°C to 35°C (50°F to 95°F)
Shipping	-40°C to 70°C (-40°F to 158°F)
Maximum wet bulb temperature	28°C (82.4°F)
Relative humidity	**Note:** Storage maximum humidity of 95% is based on a maximum temperature of 45° C (113°F). Altitude maximum for storage corresponds to a pressure minimum of 70 kPa.
Operating	10% to 90%
Non-operating	5% to 95%

Physical specifications

Specification	Value
Dimensions	Height: 4.32 cm (1.70 in) Width: 42.62 cm (16.78 in) Depth: 69.53 cm (27.38 in)
Weight	19 kg (42.0 lb) (minimum) 22 kg (48.3 lb) (maximum)

Related links

LAN requirements on page 32
Site requirements on page 32

LAN requirements

Connectivity requirements

Experience Portal requires a 100/1000 Base-T LAN full duplex network switch connection so that Experience Portal servers can communicate with each other, with any other speech servers, any application servers, and any Private Branch Exchange (PBX) servers.

Each server in your Experience Portal system must be able to connect to all the other servers in the system using the host names of the other servers. You must use a Domain Name Server (DNS) for this purpose.

Server name requirements

Each Experience Portal server must have a static IP address and a host name. Each host name must be unique and cannot contain a . (period) or a (space) character.

Related links

Third-party product requirements on page 21
Physical specifications on page 50

Site requirements

Verify that the site where you are installing the Experience Portal hardware platform is equipped with the following:

- Rack space for the servers that host Experience Portal.
- At least one network connection for each Experience Portal server. Depending on your network topology, two network connections might be required for each media server.
- Power supply.
- (Optional) Analog telephone line provisioned for Avaya Secure Access Link (SAL) or the Avaya Access Security Gateway (ASG) solution.

Related links

Third-party product requirements on page 21
Physical specifications on page 50

Chapter 6: Security

Security specification

The design of a self-service solution must include security considerations that are appropriate for your environment, to ensure:

- Sensitive customer data is not logged in plain text files
- Data is protected from unauthorized access and modification
- Applications do not inadvertently expose customer data
- Applications do not allow attackers access to the Private Branch Exchange (PBX)
- Machine operational status is not compromised through denial of service attacks

You can use the capabilities of the operating system or other custom-developed solutions to implement the required application-level security. Avaya realizes that many companies employ the use of third-party software to enhance system security. Any additional software that is installed on the system must be installed under a policy of permissive use. Avaya cannot ensure that such software does not affect the operation or performance capabilities of the Avaya Aura® Experience Portal system.

If you choose to install additional software, you must accept the responsibility of ensuring that it does not degrade system performance to an unacceptable level. Although you can choose to trade some system performance for the use of third-party applications, Avaya does not warrant that full system capacity be maintained. Furthermore, Avaya does not verify or ascertain the validity of third-party software unless prior business arrangements are made through Avaya. If you install additional software that causes problems on the system, Avaya might charge for any assistance required in troubleshooting the problem. Avaya might require that the software be removed before Avaya starts the troubleshooting process.

No telecommunications system can be entirely free from the risk of unauthorized use. You have the ultimate control over the configuration and use of the product and are solely responsible for ensuring system security. You can administer and tailor the system to meet your unique needs, and you are in the best position to ensure that the system is secure. You are responsible for keeping informed of the latest information, such as:

- Security patches
- Hot fixes
- Anti-virus updates

System managers and administrators are also responsible for reading all product recommendations, installation instructions, and system administration documents to understand the risks and to identify any preventative measures that they should take in order to keep their systems secure.

Avaya does not guarantee that this product is immune from or prevents unauthorized use of telecommunications services accessed through or connected to this product. Avaya is not responsible for any damages or charges that result from unauthorized use of this product. Avaya also is not responsible for incorrect installations of the security patches that are made available. To aid in combating unauthorized use, Avaya maintains strong relationships with its customers and supports law enforcement officials in apprehending and successfully prosecuting those responsible.

Report suspected security vulnerabilities with Avaya products to Avaya by sending email to securityalerts@avaya.com. Reported vulnerabilities are prioritized and investigated. Any corrective actions resulting from the vulnerability investigation are posted at the Avaya online security Web site, http://support.avaya.com/security.

Whether or not immediate support is required, report all toll fraud incidents perpetrated on Avaya services to Avaya Corporate Security to securityalerts@avaya.com. In addition, for information concerning secure configuration of equipment and mitigation of toll fraud threats, see the *Avaya Toll Fraud and Security Handbook* at https://downloads.avaya.com/css/P8/documents/100171726 .

The Avaya Enterprise Security Practice, part of Avaya Network Consulting Services, can provide the following services to help protect against unanticipated threats and security hazards:

- Application assessment
- PBX assessment
- Network assessment
- Auditing
- Hardening services

For more information, or to contact the Avaya Enterprise Security Practice , call 1-866-832-0925.

If you want to perform the hardening steps, follow the steps described by the operating system manufacturer and security best practices. Security best practices are detailed in the National Security Agency Guides, http://www.nsa.gov/snac/.

In addition, to find related security advisories, report product vulnerabilities, and locate the latest software patches and upgrades, go to the Avaya online support Web site, http://support.avaya.com.

Related links

Secure system access on page 54
Antivirus software on page 55
Network services on page 56
Linux hardening on page 57
SNMP agents and traps on page 58
Transport Layer Security on page 59
Avaya Secure Access Link (SAL) and Access Security Gateway (ASG) on page 59

Secure system access

One key step in ensuring the security of a system is to the limit ways by which people can use the system. The following topics detail some of the ways you can limit access to Experience Portal:

- Physical system security
- Isolated LANs
- Firewalls

Physical system security

The Experience Portal system must be placed in a physically secure environment so that only a limited number of trusted people can use the system. Putting the system in a location that allows free access by anyone creates a risk that Experience Portal operation can be disrupted, whether unintentionally or maliciously. Isolate the Experience Portal system from everyone except trusted individuals.

Isolated LANs

Any server that is connected to the Internet is potentially subject to unauthorized use and malicious attacks. Experience Portal systems can be protected by configuring them on a LAN that has no physical connection to the Internet or to any internal unsecured networks. Sometimes referred to as an "island LAN," this type of network environment has its own LAN switch and contains only those network elements that the Experience Portal system needs to interface with. These elements include:

- Application servers
- Text-to-Speech (TTS) (TTS) and Automated Speech Recognition (ASR) servers
- Database servers, if used by the application
- PBX
- Backup server

If a LAN has no physical connection to the Internet, no risk of unauthorized access from external sources exist. As such, a firewall is not needed to protect the system from unauthorized use.

Physically isolating the LAN provides strong protection against fraudulent access. However, isolating the LAN can restrict the ability to remotely administer and maintain the Experience Portal system. Before deciding whether to place the Experience Portal system on an island LAN, you must consider the requirements of the operating environment.

Firewalls

If the LAN cannot be isolated, you can use firewall product to protect the LAN, and any Experience Portal servers connected to the LAN, from unauthorized access. The firewall should be installed on a machine that sits between the Internet and Experience Portal, so that all communication that comes into Experience Portal must first pass through the firewall.

A firewall also controls access of designated ports that use particular protocols or applications. They are commonly used to prevent the following:

- Denial of service attacks to application servers
- Snooping of sensitive data

- “Hijacking” access sessions that take control of a user session

  Session hijacking is the act of taking control of a user session after successfully obtaining or generating an authentication session ID. Session hijacking involves an attacker using captured, brute forced or reverse-engineered session IDs to seize control of a legitimate user's web application session while that session is still in progress.

Most firewalls can be configured to allow specified remote IP addresses to connect to designated ports by using specified protocols.

Even if a firewall protects the internal LAN, the Experience Portal system might still be accessible to unauthorized people who have access to the internal network. Therefore, you must still restrict access to the Experience Portal system in this environment to decrease the risk of fraudulent use by an insider.

Related links

Security specification on page 52

Antivirus software

You can install antivirus software on the Experience Portal servers. The type of antivirus software used and the method of installation depends on the requirements of your company.

Make sure you use on-demand scanning, where scans are run at scheduled intervals. Do not use a message-scanning method, such as on-access scanning as that can impact the performance of Experience Portal. If your antivirus software runs whenever a file is changed, it can have a negative impact on Experience Portal performance.

In addition, some virus scan applications automatically start scanning at system startup by default. Disable this feature because it interferes with the time that it takes for an Experience Portal system to come back online after a reboot.

You must administer the antivirus software as follows:

- Scan the hard disk daily during off-peak hours, or at least once per week. Scans can be run on all Experience Portal servers simultaneously. Do not schedule the antivirus scan at the same time as a backup.
- Schedule antivirus definition updates to occur automatically at least once per week. The updates must occur before the next scheduled scan time to ensure that the latest data files are used during the scan. Do not schedule updates to occur during a virus scan.
- If the antivirus software detects a virus, it must attempt to clean the file. If the attempt fails, the software must move the infected file to a different directory on the server.

Related links

Security specification on page 52

Network services

Network services are subject to security vulnerabilities which unfortunately allow unauthorized users to gain access to the system. The Experience Portal system uses relatively few network services, and several unneeded services and ports are disabled during the installation of Avaya Enterprise Linux as part of the bundled server offer.

The network services that are enabled during Avaya Enterprise Linux and Experience Portal installation are:

- Secure Shell (SSH) (server-side), which runs on all Experience Portal servers.
- Apache Tomcat, which runs on the EPM server. Tomcat is a J2EE compliant servlet container and is the default application server for the EPM.
- Network Time Protocol (NTP), which runs on all Experience Portal servers.
- PostgreSQL (SQL server), which runs on the EPM server. Postgres is an SQL compliant, open source, object-relational database management system for the Experience Portal database.
- Apache HTTPD, which runs on the MPP servers. The MPP servers use the Apache Web Server to implement web services for EPM monitoring and control and the Media Server Service Menu.

For more information about how Experience Portal protects sensitive data, see the Avaya Aura® Experience Portal 7.1 Security White Paper in the Print guides section of the Avaya Aura® Experience Portal Documentation Library.

Related links

Security specification on page 52
Secure Shell on page 56
Network Time Protocol on page 57

Secure Shell

Secure Shell (SSH) is a program that includes capabilities for doing the following:

- Logging in to another computer over a network
- Executing commands on a remote computer
- Moving files from one system to another

Secure Shell provides strong authentication and secure communications over untrusted networks. Secure Shell provides a more secure way to connect to remote systems than protocols such as telnet and FTP. Unlike telnet and FTP, users can connect to remote hosts over an encrypted link with SSH. Encryption protects against interception of clear text logins and passwords.

Related links

Network services on page 56

Network Time Protocol

If your Experience Portal system is configured to use a dedicated EPM server and one or more dedicated MPP servers, Experience Portal uses Network Time Protocol (NTP) to synchronize the time between the EPM server and all other Experience Portal servers.

In order to do so, the Experience Portal software installer changes the `ntp.conf` file on each server on which the software is installed. When you install the:

- Primary EPM software, the `ntp.conf` file on that server is set to point to the local clock.
- MPP software or the auxiliary EPM software, the `ntp.conf` file on that server is set to point to the primary EPM server as the reference clock.

Related links

Network services on page 56

Linux hardening

The general distribution of Red Hat Enterprise Linux includes the Red Hat Package Management (RPM) modules for most, if not all, possible Linux configurations. These distributions include a complete development suite, complete graphics support for the X Windows System, numerous development debugging tools and a variety of network administrative tools. For Experience Portal, only a small portion of the distributed RPMs is needed. When distributions of Red Hat Enterprise Linux grow to include more RPM modules, the relative percentage of RPMs needed by Avaya applications will be even smaller.

Experience Portal does not require most packages provided in the general distribution, and these unused RPMs are removed from the Avaya Enterprise Linux.

Aside from making the software product file images smaller and more manageable, the removal of unneeded RPM modules makes Linux more secure.

To make Linux even more secure, you must configure Linux to log security-related events, if possible. You must log the following events:

- Account privilege changes
- Logins and logouts
- System configuration changes
- Additions, modifications, or deletions of installed packages
- Activities of root or administrative logins

Related links

Security specification on page 52

SNMP agents and traps

The Avaya Aura® Experience Portal Simple Network Management Protocol (SNMP) network includes agents, traps, and managers.

SNMP agents

You can configure Experience Portal to act as an *SNMP agent* so that a third party network management software can retrieve the Experience Portal system status.

An SNMP agent is a software module that resides on a device, or node, in an SNMP-managed network. The SNMP agent collects and stores management information and makes this information available to *SNMP managers*. SNMP agent communication can be:

- Solicited by an SNMP manager.
- Initiated by the SNMP agent if a significant event occurs. This type of communication is called an *SNMP trap*.

The commands and queries that the SNMP agent can use, along with information about the target objects that the SNMP agent can interact with using these commands and queries, is stored in a Management Information Base (MIB) that resides on the managed device.

SNMP traps

An SNMP trap is an unsolicited notification of a significant event from an SNMP agent to an SNMP manager. When an internal problem is detected, the SNMP agent immediately sends one of the traps defined in the MIB.

Important:

If you configure Experience Portal to send SNMP traps, you must configure the appropriate SNMP managers to receive the traps.

SNMP managers

SNMP managers collect information from SNMP agents. SNMP managers are usually used to display status information in a type of graphical user interface (GUI).

For Experience Portal, the SNMP manager can be an Avaya Services Security Gateway (SSG) or a Network Management System (NMS) station such as HP *OpenView* or IBM *Tivoli*. SNMP traps sent to the Avaya SSG contain specific information that generates Initialization and Administration System (INADS) notifications, which in turn generate customer trouble tickets.

Note:

You can only configure the Experience Portal SNMP agent and SNMP trap destinations if you are an administrator.

Related links

Security specification on page 52

Transport Layer Security

Experience Portal provides TLS support for the following:

- EPM administration traffic runs over an TLS/HTTPS connection. Using an TLS/HTTPS connection ensures that no web administration data is transmitted in clear text. Encrypted data includes logins and passwords, configuration changes, and views of the Experience Portal system configuration.
- The EPM software must authenticate itself with the MPP before the MPP accepts any requests. Similarly, the MPP must authenticate itself with the EPM. All communication between the EPM and an MPP uses TLS/HTTPS.
- You can configure the Avaya Voice Browser to use TLS to access an application on the web server. In this case, VoiceXML data is transmitted in an encrypted format instead of clear text.

Note:

Although Experience Portal provides the framework for using TLS for VoiceXML, you must install an TLS certificate for each web server domain referenced by an application to fully implement client authentication using TLS for VoiceXML.

Related links

Security specification on page 52

Avaya Secure Access Link (SAL) and Access Security Gateway (ASG)

The ASG package is integrated into the Experience Portal system and provides secure authentication and auditing for all remote access into the maintenance ports.

ASG authentication is based on a challenge/response algorithm using a token-based private key-pair cryptographic authentication scheme. Secure auditing is also provided. Logs are available that include information such as successful logins, failed logins, errors, and exceptions.

Related links

Security specification on page 52

Port utilization

For complete port matrix information, see the Avaya Aura® Experience Portal Port Matrix on http://support.avaya.com.

Data transmission

When sending sensitive data from one place to another, use care because transmissions can be intercepted. Risks arise when transmitting data in clear text. Whenever you have the option, consider encrypting the data you are transmitting.

Data encryption

By design, communication between the EPM server and the MPP server is always encrypted. However, you have the option of enabling or disabling encryption for other types of data transmissions. Encrypting communication is more secure for your system, but keep in mind that encryption can slow system response times.

To encrypt the H.323/RTP media streams between an MPP and the PBX, use the encryption standard supported by the switch or gateway. In an Experience Portal system, Communication Manager supports the 128-bit Advanced Encryption Standard. After enabling encryption on the switch, you use the web interface to the EPM to enable encryption on Experience Portal.

Chapter 7: License requirements

A license file is required for Avaya Aura® Experience Portal operation as it defines the features that have been licensed for systems such as Telephony ports, the ASR and TTS connections, Email, HTML and SMS units. The Avaya Aura® Experience Portal license file is distributed separately in an email from Avaya.

Use Web License Manager (WebLM) to manage the licensing of Experience Portal. WebLM is an integral part of the Experience Portal system that is available on the EPM server, and provides licenses to EPM. WebLM that resides on the EPM server is also referred to as Local WebLM. In most small setups of Experience Portal systems, the license is installed on the Local WebLM. An Enterprise or Master WebLM is used in a system that requires redundancy through a WebLM that is installed on a separate server. Enterprise WebLM allocates licenses to WebLM that resides on EPM. The location of Enterprise WebLM is critical to the facility of moving a license from one site to another in the event of a failure.

The Experience Portal Manager (EPM) contacts an Avaya WebLM server on a regular basis to determine the number of licenses that are authorized for your system. For security reasons, the license server must run WebLM 7.0 or later, and a valid Avaya Aura® Experience Portal Release 7 license must be installed on the license server. You must reinstall the license file while upgrading from a previous Experience Portal version that uses older WebLM versions.

After the EPM receives current information about authorized licenses, it allocates the available licenses among the servers in the system.

The licenses for outbound can be configured per zone because the telephony resources are also configured per zone.

Chapter 8: Resources

Documentation

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

Title	Description	Audience
Avaya Aura® Experience Portal Documentation Roadmap	Lists all the documents related to Experience Portal and describes the organization of content across the documents.	Avaya Professional Services Implementation engineers
Avaya Aura® Experience Portal Overview and Specification	Describes tested product characteristics and capabilities, including product overview and feature descriptions, interoperability, performance specifications, security, and licensing requirements.	Implementation engineers
Implementing Avaya Aura® Experience Portal on a single server	Provides procedures to install and configure the Avaya Aura® Experience Portal software on a single server.	Implementation engineers
Implementing Avaya Aura® Experience Portal on multiple servers	Provides procedures to install and configure Avaya Aura® Experience Portal software on two or more dedicated servers.	Implementation engineers
Upgrading to Avaya Aura® Experience Portal 7.1	Describes how to upgrade your Avaya Aura® Experience Portal 6.0 or 7.0 to Experience Portal 7.1.	Implementation engineers
Deploying Avaya Aura® Experience Portal in an Avaya Customer Experience Virtualized Environment	Provides procedures for deploying the Experience Portal virtual application in the Avaya Customer Experience Virtualized Environment. This document includes installation, configuration, initial administration, troubleshooting, and basic maintenance checklists and procedures.	Implementation engineers
Administering Avaya Aura® Experience Portal	Provides general information about and procedures for administering and configuring specific Experience Portal	Implementation engineers

Table continues…

Title	Description	Audience
	functions and features using a web-based interface.	
Troubleshooting Avaya Aura® Experience Portal	Provides general information about troubleshooting and resolving system problems. This document also provides detailed information and procedures for finding and resolving specific problems.	Implementation engineers
Avaya Aura® Experience Portal Security White Paper	Provides information about the security strategy for Experience Portal, and provides suggestions that companies can use to improve the security of the Experience Portal systems and applications.	Avaya Professional Services Implementation engineers
Avaya Aura® Experience Portal 7.1 Mobile Web Best Practices White Paper	Provides recommended strategies for deploying Avaya Aura® Orchestration Designer Mobile Web applications with Avaya Aura® Experience Portal 7.1, detailing configuration for security, scalability and high availability.	Avaya Professional Services Implementation engineers

Related links

Finding documents on the Avaya Support website on page 63

Finding documents on the Avaya Support website

About this task

Use this procedure to find product documentation on the Avaya Support website.

Procedure

1. Use a browser to navigate to the Avaya Support website at http://support.avaya.com/.
2. At the top of the screen, enter your username and password and click **Login**.
3. Put your cursor over **Support by Product**.
4. Click **Documents**.
5. In the **Enter your Product Here** search box, type the product name and then select the product from the drop-down list.
6. If there is more than one release, select the appropriate release number from the **Choose Release** drop-down list.
7. Use the **Content Type** filter on the left to select the type of document you are looking for, or click **Select All** to see a list of all available documents.

   For example, if you are looking for user guides, select **User Guides** in the **Content Type** filter. Only documents in the selected category will appear in the list of documents.

8. Click **Enter**.

Related links

Documentation on page 62

Training

The following traditional courses are transitioning into the Avaya Learning virtual campus and will eventually be retired.

Course code	Course title
4C00101W	Avaya Aura® Experience Portal Administration.
5C00092I/V	Avaya Aura® Experience Portal, Avaya Aura® Orchestration Designer, Avaya Proactive Outreach Manager Maintenance and Troubleshooting Essentials.
5C00040E	Knowledge Access: Avaya Aura® Experience Portal with Avaya Proactive Outreach Manager Implementation and Support.
V: Virtual I: Classroom Instructor led W: Self-Paced Web	

For details on the traditional curriculum and the new virtual campus offerings course descriptions, pricing, and registration, go to Avaya Learning website at www.avaya-learning.com.

Avaya Learning Virtual Campus technical training offerings:

Avaya Learning Virtual Campus helps simplify and quicken the process of how partners and customers train, learn, and complete credentials for Avaya solutions.

Users can interact with others in a virtual environment using avatars, spatial audio, and unique collaboration tools.

Course details:

- 5C00040E – Knowledge Access: ACSS Avaya Aura Experience Portal with Proactive Outreach Manager
  - Self-Directed content available 24/7
  - Hands-on Labs in virtual environment – scheduled sessions

Viewing Avaya Mentor videos

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

About this task

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

Procedure

- To find videos on the Avaya Support website, go to http://support.avaya.com and perform one of the following actions:
  - In **Search**, type `Avaya Mentor Videos` to see a list of the available videos.
  - In **Search**, type the product name. On the Search Results page, select **Video** in the **Content Type** column on the left.
- To find the Avaya Mentor videos on YouTube, go to www.youtube.com/AvayaMentor and perform one of the following actions:
  - Enter a key word or key words in the **Search Channel** to search for a specific product or topic.
  - Scroll down Playlists, and click the name of a topic to see the available list of videos posted on the website.

Note:

Videos are not available for all products.

Support

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

Warranty

Avaya provides a 90-day limited warranty on Avaya Aura® Experience Portal. To understand the terms of the limited warranty, see the sales agreement or other applicable documentation.

In addition, Avaya's standard warranty description and details for support under warranty are available on the Avaya Support website at **Help & Policies** > **Policies & Legal** > **Warranty & Product Lifecycle**. Also see **Help & Policies** > **Policies & Legal** > **License Terms**.

Glossary

Application server	A server that runs in conjunction with a Web server and allows client programs, such as Avaya Agent Web client, to call methods over HTTP.
Avaya Aura®	A converged communications platform unifying media, modes, network, devices, applications. Avaya Aura® is based on the SIP architecture with Session Manager at the core.
Communication Manager	A key component of Avaya Aura®. It delivers rich voice and video capabilities and provides a resilient, distributed network for media gateways and analog, digital, and IP-based communication devices. It includes advanced mobility features, built-in conference calling, contact center applications and E911 capabilities.
EPM	Experience Portal Manager is the Web interface used to access Experience Portal.
IVR	Interactive voice response (IVR) automates interactions with telephone callers.
Session Manager	A SIP routing and integration tool that is the core component within the Avaya Aura® solution.
SIP	Session Initiation Protocol (SIP) is an application-layer control signaling protocol for creating, modifying, and terminating sessions with more than one participant using http like text messages.
TCP	Transmission Control Protocol is one of the core protocols of Internet Protocol Suite, the set of network protocols used for the Internet.
Telephony ports	Ports that represent the telephony hardware. For example, if you use one PRI, you have 23 telephony ports available for inbound and outbound calls.
TLS	Transport Layer Security (TLS) is a cryptographic protocol that provide communication security over the Internet.

Index

A

about
EPM ... 11, 14
network services ... 56
security ... 52
active-active license management, license ... 44
active-active multi-site configuration ... 44
active-passive license management ... 45
active-passive multi-site configuration ... 44
administer
Experience Portal ... 11
AEP features ... 10
agents for SNMP ... 58
antivirus software security ... 55
Application Execution Environment ... 15
application logging ... 42
applications ... 38
development tools ... 23
requirements ... 22, 25
application variables ... 43
ASG, security ... 59
ASR in Avaya Aura Experience Portal applications ... 22
ASR servers
requirements ... 26
auxiliary EPM
overview ... 11
Avaya Aura Experience Portal
hardware requirements ... 31
system recovery ... 47
Avaya Services Security Gateway (SSG) ... 58

B

bridge transfers in mixed SIP/H.323 environment ... 28
browser compatibility ... 20

C

call classification ... 17
capacity
scalability ... 34
Communication Manager ... 31
compatibility ... 20
components
Mobile channel ... 16

D

database
requirements ... 22
database requirement ... 22
data transmission security ... 60
developing applications ... 23
development environment ... 21
Dialog Designer ... 23
directory
EPM components ... 13
disaster recovery, Experience Portal system ... 44

E

email browser ... 15
EPM ... 11
about ... 14
overview ... 11, 14
Primary EPM functions ... 43
EPM components
directory details ... 13
Experience Portal redundancy ... 45
external database ... 22

F

failover, failover best practices, Experience Portal, disaster recovery ... 38
firewalls, security ... 54

H

H.323
requirements ... 27
H.323 connections
comparison of features with SIP ... 28
hardware requirements ... 31
high availability ... 38
HTML launch requests
inbound ... 42

I

inbound calls ... 17
inbound calls, failover ... 39
inbound email messages, primary EPM, secondary EPM, email processor, zone ... 40
inbound SMS messages, SMPP connection, SMS processor ... 40
Initialization and Administration System (INADS) ... 58
installation
requirements
LAN ... 32, 50
site ... 32, 51
Intelligent Customer Routing compatibility ... 21
internal database ... 22

L

LAN
requirements 32, 50
security 54
legal notices .....
license 61
limitation
internal database 22

M

manager for SNMP 58
media server 46
media servers
Media Processing Platform 11
mpp 11
move resources in zones 19
mpp 46
MPP 11
multichanell 15

N

network
services
about 56
NTP 57
overview 56
SSH 56
Network Management System (NMS) 58
Network topology with two network segments 36
notices, legal .....
NTP
network services 57
Nuance
requirements 26

O

OpenView 58
operating system 20
Orchestration Designer 16
os compatibility 20
outbound calls, failover 39
outbound email messages, email processors, zone 40
outbound SMS messages, SMPP connection, SMS processor 41
overview 7, 10
EPM 11, 14
network services 56
security 52

P

PBX
requirements 31
physical systems, security 54
pimary EPM
overview 11
Proactive Outreach Manager compatibility 21

R

recommendations for speech applications 22
Recommended releases 26
redundancy
local 45
reference documents 62
requirements
Communication Manager 31
H.323 27
hardware 31
Orchestration Designer 21
SIP 27
site 32, 51
speech servers 26
requirements,
Dedicated server 24
single server 24
Requirements,
Application server 24
web service 25
requirements for speech applications 22
requirements for text applications 25
resource management in zones 18

S

scalability 34
Secure Access Link (SAL) 58
secure shell, network services for 56
security
antivirus software 55
ASG 59
data transmission 60
firewalls 54
LAN 54
Linux 57
overview 52
physical systems 54
system access 54
TLS 59
server
license 45
SIP
comparison of features with H.323 28
requirements 27
site requirements 32, 51
SMS browser 15
SNMP
components and definitions 58
Specifications

Specifications *(continued)*
Environmental 49
Physical 50
Specifications, Avaya Common Server 49
speech server requirements 26
speech servers 38
SSH network services 56
support 65
system access, security 54

T

telephony servers, SIP, H.323 39
TextXML
text applications 25
Tivoli 58
TLS security 59
training 64
traps for SNMP 58
TTS in Avaya Aura Experience Portal applications 22
TTS servers
requirements 26

V

videos 64
VoiceXML
required for speech applications 22
VoIP
comparison of H.323 and SIP features 28
VOX 46
VRUSM 46

W

Web server 15
what's new 7

Z

zone 17
zone architecture 17
zoning
architecture 17
moving resources 19
overview 17
resource management 18